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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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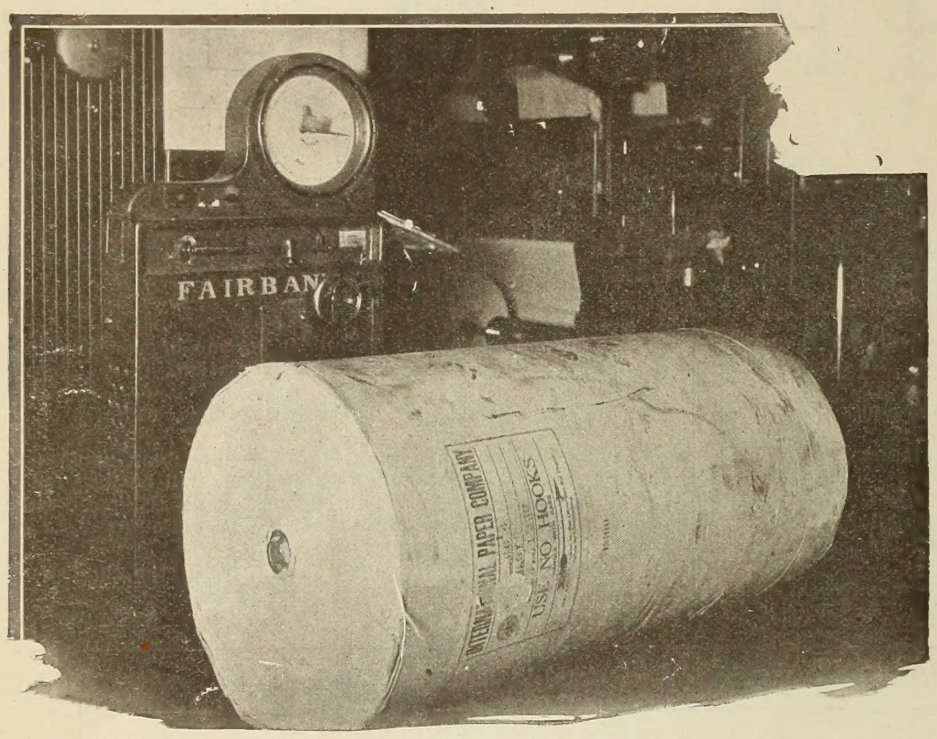
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EDITORIAL

WHY MAKE RESOLUTIONS?

Coupled with many a New Year's greeting is the question, "Well, how many resolutions have you made?" The answer frequently is, "What is the use of making resolutions when they are usually broken?"

In wishing all our friends a Happy and Prosperous New Year, the Pulp and Paper Magazine urges each one to make good resolutions and to make strenuous efforts to keep them. It is just as important to start a new year with good resolutions as it is to take aim before shooting a gun, provided, of course, we are not shooting just for the noise or living our lives at random.

It is necessary, not only to make our resolutions at New Year's, but also to renew them each day until, one by one, our intentions are carried out. We know about that paving job that is said to have been done with good intentions, but we are even more firmly convinced that the road in the other direction is also paved with good intentions, better intentions, and more firmly laid.

Some people fail to discriminate with regard to resolutions, intentions and inclinations. Their force and worth are in the order mentioned, but they usually develop in the reverse order. It is inclination to do evil, backed by intention and resolution that gets people in trouble, and inclination to do good, without the support of intention and resolution that fails to bring the happiness and satisfaction which is the basis of friendly wishes at this time of the year. It is the man who knows where he is going who most enjoys the journey. So the man with a definite aim in life gets the most satisfaction in the accomplishment of his desire, and incidentally distributes the most happiness. The drifter may be hailed as a happy-go-lucky fellow, but to our mind he is neither really happy nor lucky.

Granted, then, that intentions and resolutions are worth while, what shall they be? Why not base them on the happy Christmas season, and the good wishes we have been passing around? Let our friendly words live in helpful works. Let us resolve that the Christmas spirit shall live on to flavor our actions all through this year, so that each one of us may do his part in truly bringing good-will among men as was proclaimed at the coming of Christ, whose birthday, Christmas, is so dear to us all. Surely the world needs more good-will, and we dare not disappoint Him.

MANY THANKS.

The editor wishes to thank the many friends of the Pulp and Paper Magazine who have sent such kindly messages of cheer and friendship for this happy season. May their good wishes come true for themselves.

STRAIGHT TALK ABOUT OUR FORESTS

It is almost a paradox the way it is necessary to temper with a warning the frequent references to the extent of Canada's forest resources. We have enormous forests in Canada collectively speaking, but the conditions surrounding their growth and deterioration are usually lost sight of in the rosy remarks on their geographical extent.

Every land has its prophets and enthusiasts who must always be the leaders of thought and action. On them falls the burden of blazing the trail. Canada is blessed with many conscientious and enthusiastic friends of her forests. If it were not so, the future of the industries based on this source of raw material would be dark indeed. The situation is serious enough as it is, and would be more so but for the ray of hope in the efforts of those who are devoting energy, ability and means to such a deserving public cause as the perpetuation of our forests and their exploitation in such a way as to afford the greatest benefit to the people of Canada.

Among the forest prophets of Canada appears Frank J. D. Barnjum of Nova Scotia. Heretofore he has been a comparatively silent worker. From now on his voice will be heard and his writings will be read. On another page of this magazine he makes some statements regarding the present and future of our forests that would be even more startling but for the foundation already laid in the work and words of Wilson Black, Howe, Power, Sorgius, Prince, Campbell, Craig and others.

Of particular significance in Mr. Barnjum's article is the comparison between annual growth and the results of destroying agents, such as fire, fungi, insects, wind, etc. The necessity of taking these facts into consideration has been pointed out by Howe and others, but the situation has apparently not made a sufficient impression on the public mind or on the minds of those who are inclined to exaggerate Canada's forest wealth. When a tree takes 75 to 150 years or more to mature and their number is as few per acre as in many so-called forest areas, one requires no great genius to appreciate how soon an enemy attack will more than wipe out any annual growth. This applies also to regions where the increment is perceptible.

We fully agree with Mr. Barnjum that as much Canadian wood as possible should be retained in Canada to supply raw material to Canadian industries employing Canadian labor. We further believe that the use of an embargo or export duty on wood whose export is now permitted, is only a partial remedy of the situation. It would hardly be right to prevent a farmer, say, from

selling his wood abroad if there were no home market for it, any more than the pulp and paper mills should be throttled if Canadian enterprises are not starved by export sale of their surplus. The matter of disposing of such fee land wood, is, as our correspondent suggests, largely a question of organizing and educating the Canadian consumer of such wood to make the market for it. It may not be economically possible for some mills to buy this material in competition with hungry American concerns, desirable as such action would be from the standpoint of forest policy. To our mind the advantage to the Canadian mill in having a larger supply of easily available material, while important, is by far a secondary consideration in comparison with the fundamental purpose of any forest policy, namely, the perpetuation of the forest. It is quite foolish to turn off the spigot while the barrel leaks at the bung, even though some material may be saved.

So we especially commend Mr. Barnjum's proposal and generous offer of assistance in the matter of a more intensive and extensive educational campaign to advise the Canadian people as to the true condition of their forest wealth. It is sure to follow an enlightenment of the public that proper restrictions and regulations will be enacted and properly enforced so that future generations will say that we have properly conceived and discharged our duty in passing on an incomparable inheritance. Surely the wood using industries will support this fine offer to help the Canadian Forestry Association and other agencies in spreading the true conception of present conditions and the gospel of true forest protection—perpetuation.

There ought to be a widespread discussion of Mr. Barnjum's article. His statements deserve most thoughtful consideration.

COBWEBS

We have just learned that one of readers actually laughed at the rattlesnake accident story.

Well, Christmas is over and New Year's here. Now let's all pull up in the haness and do more and better work this year than we ever did before.

The Federal Trade Commission makes an interesting monthly report of conditions in the paper industry. The summary for November shows that 36 machines lost 5,829 hours for lack of labor, 76 lost 13,230 hours for lack of orders, 300 lost 22,593 hours for repairs and 371 lost 24,948 for other reasons, including lack of material, coal, water power, etc. Lack of coal caused a loss of more than 14,000 machine hours. Altogether, 683 machines lost 66,600 hours, compared with 609 machines and 69,014 hours hours in October. Paperboard suffered most, with a loss of 23,347, followed by fine papers, wrapping and tissue.

The continual improvement in shipping conditions on the Pacific, continued with a growing realization of the wonderful resources in timber and power will doubtless result in further expansion of the pulp and paper industry in British Columbia before long.

THE WEST INDIES AND CANADA.

It is difficult to believe that Lord Rothermere was sincere in his suggestion that Great Britain should sell a portion of the West Indies to the United States in liquidation of her monetary debt to that country. If he was sincere then he should be mightily ashamed of himself.

Such a suggestion, however, flippantly made, takes many things for granted. It assumes that Great Britain could "sell" these islands, and could transfer inhabitants to another national allegiance. What has become of President Wilson's famous statement regarding the transfer of allegiances without the consent of the governed?

Has the treatment of the black race in the United States been of such a character as to make the coloured inhabitants of the West Indies desire to be included among Uncle Sam's children?

The writer has had occasion to observe the differing characteristics of coloured people from Alabama and British coloured citizens from the West Indies, and the contrast is all in favor of the West Indian. These people are well-spoken, well-mannered, decent, often deeply religious, and generally speaking desirable citizens. They are a standing tribute to British schools and the working out of British ideals.

The West Indians might feel concerned regarding Lord Rothermere's utterance, if they did not rest secure in the knowledge that such a betrayal of trust was inconceivable in Britain.

But in this matter Canada is vitally concerned. Canada has a first right to be consulted regarding any British colonies on this side the Atlantic, from Guiana and Honduras to Bermuda, nor can Canada remain aloof from political developments in Newfoundland. Canadian capital is deeply interested in all these countries. Canadian citizens are there in large numbers, often taking a prominent part in the affairs of their place of residence, and the interchange of goods between say Halifax and the West Indies is an old-established tradition.

So far as Canada's future is concerned, everything in the way of influence and importance that has accrued to the United States since the Civil War in that country may come to Canada in a like period of time. Canada is a first-rate political power on the American continent, and no British politician should be allowed to even suggest transfers of British territory on this side o fthe Atlantic, without hearing emphatically from Canada. The time has passed when a British politician could deal in British colonial territory. In principle, and in fact, Great Britain has on more right to "sell" the West Indies to the United States than she would have to "sell" the Niagara Peninsula, and Canada would have an equal right to protest in either case.—Iron and Steel of Canada.

Enthusiasm for safety is the biggest thing in industry today.

Some Startling Facts About Canada's Forests

Raw Material for Wood Using Industries in a Very Serious Condition.

By FRANK J. D. BARNJUM, Annapolis Royal, N.S.

Mr. Barnjum is not a stranger to Montreal as it is the city of his birth, being a son of Francis E. Barnjum who came to Canada from London, England, in 1856, and a nephew of Major Fred. S. Barnjum who was one of Montreal's best known citizens forty years ago.

Mr. Barnjum's business career began with the firm of Taylor Brothers, in the old Union Building on St. Francis Xavier St., as office boy. He later moved to Maine, where his first timberland purchase was made twenty-eight years ago and from there to Nova Scotia, where he has been largely interested for the past twenty years.

The Pulp and Paper Magazine is glad to have Mr. Barnjum's frank statement of conditions and to note his generous offer to help the friends of the forest.

* * *

The time has now fully arrived when an embargo or export duty should be placed on the large amount of fee land wood that is being shipped across the line from the principal pulpwood producing provinces of Quebec, Ontario and New Brunswick. (Pulpwood exports from Nova Scotia are practically negligible, amounting to only 770 cords in 1917, the last Government report available.)

These provinces now have enormous investments in pulp and paper mills which are increasing in number every year, and it seems incomprehensible that the owners and security holders of these splendid monuments to Canadian industry and brains should longer sit idly by and allow this steady stream of raw material to slip away from their very mill doors. The consumption of pulpwood in Canada has reached such enormous proportions that a halt should be called in such suicidal policy.

Surely Mr. Phillip T. Dodge, President of the International Paper Company, who is in a position to know better than any other authority, sounded a sufficient warning to Canada when he made the statement that the pulpwood supply of the Eastern States was practically exhausted and that they must look to Canada for their future supply.

There are two ways that the shipment of this wood can be prevented, one is by an embargo or export duty created by the Provincial governments, and the other is by a combination of the Canadian mills purchasing all this fee land wood year by year and making a division of the same on a basis of the shortest rail haul to the various mills.

The settler and farmer will also be benefited as with this wood all manufactured in Canada he will have a market nearer home, not only for his wood but a bigger and better market for his farm produce as well.

To offset the tremendous loss of standing timber caused by the spruce bud worm in Canada during the past two or three years, no paper mill should cut a living growing tree on its own limits just as long as it can buy a cord of this fee land wood that is daily crossing the line, simply cutting the burned and blown down timber and salvaging such worm killed timber as is economically possible.

I am not cutting a tree on my own lands while I can buy a cord of wood; notwithstanding the fact that I have the largest amount of standing timber of of any pulp company in Canada, based on the capacity production of my mills, and to which holdings I am adding as rapidly as possible.

The million or more cords of wood that is being annually shipped to the United States, returning only about 15 million dollars, if made into pulp and paper here would not only enrich this country to the extent of more than eighty million dollars per year, but would prolong the life of all of our pulp and paper mills a period of at least five or six years beyond their present expectancy.

This large additional income is doubly important in view of the unfavorable trade balance between the two countries, and would to a large extent help to correct the present deplorable condition of exchange.

Canada is in a very independent position as the United States simply must have our paper—she has no alternative. Newsprint cannot now be landed in New York from Scandinavia for less than $170 per ton, 8½c per pound, and even then only in limited quantities. Our production has increased to such an extent that we are now producing a total of 800,000 tons of paper per year, which is very nearly half the consumption of the United States, and we shall very soon be producing much more than half, owing to the fact that many of the American mills will be forced out of business from lack of a wood supply. Strange as it may seem many of their mills do not own an acre of timberland. With the exception of the Oxford Paper Company, and the Great Northern Paper Company, the larger mills in the United States own timberlands which will provide a supply adequate only for a very few years. The greatest asset the paper companies have today who own timberlands, is their raw material supply. But the American mills should be stopped from drawing the life blood of our Canadian wood using industries. We can find no fault with their action as self preservation is the first law of nature and I am very sure if the case were reversed the American mill owners would have taken this action long before this. However friendly neighbors may be, it is hardly reasonable to expect the mill owner in one country to allow the raw material to be removed, almost from his mill yard, to supply the mills of another country with the possible closing down of his own industry.

Some may question the power of the provincial government to act, but the highest legal tribunal of the State of Maine ruled that it was constitutional for a state to regulate even the size of the trees a man may cut on his own private land. Anyone who bought land in this country bought it subject to the laws then existing, as well as to any regulations that might be imposed in the future.

Annual Increment Leaves a Net Loss.

The wood resources of Canada have been so grossly exaggerated that very few are aware how meagre our supply of available wood really is. I have spent a large portion of the past few years in a personal investigation of the Canadian situation, the results of which are so alarming that I have refrained from publishing my findings.

The theory of an annual growth that has been indulged in so freely in the past has simply become a

popular delusion. There is, of course, a gross growth, and a net growth under some conditions, but to offset this the annual wastage by fire, wind, insects and fungi, taking the country as a whole, far over-runs the gross growth. Consequently we are simply consuming our capital year after year.

If anyone has any question as to the enormous amount of this wastage, let him explore the woods of Ontario, Quebec and New Brunswick, where one can travel day after day and see nearly everywhere the vast destruction caused by the spruce bud worm alone. There are millions of acres in these provinces where over fifty per cent of the standing pulpwood has been completely destroyed.

To emphasize further this question of growth, it is only necessary to refer to the recent reports on the growth in some sections of Quebec, which show only about 30 board feet per acre, meaning about one 6 inch tree per acre per year. It has never been disputed that there is no actual accretion in virgin timber but the mortality more than offsets all growth. Furthermore, even in cut over land when one realizes that it is only necessary to have an average of one ordinary sized tree per acre per year blow down, how easy it is to see that the annual growth is wiped out by this one process of destruction. I have seen thousands of acres laid flat by wind, not only in cut-over lands but also in so-called virgin stands. So much for wind.

Now with regard to the losses from forest fires, the spruce bud worm, borers and fungi. The figures are so appalling that I dare not commit the result of my findings to print, but these losses are so enormous that no one who is sincere will attempt to deny that they far over-balance any annual growth that there is in Canada or the United States. Cut out this mythical annual growth theory and what are we doing? As I said before, we are simply using up our capital.

One often sees the statement in print that we are "using more than three times our annual growth," while in fact, as previously stated, there is no annual growth to use, for the reason that enemies of the forest, cited above, destroy much more than the growth.

The timberland owner has the satisfaction of knowing that even if he has lost one half of his standing timber, by the ravages of the spruce bud worm, still what he has left is worth double the previous price per cord, as the destruction is country wide, and the consequently diminished supply will necessarily create an immediate and substantial advance in land and stumpage prices.

If some of the paper mills of the United States had not gone so far afield for their wood last year by invading the more remote sections of Ontario and Quebec, where the freight alone amounted to $16.00 or more per cord and accepted wood down to a diameter limit of one and one half to two inches, they would be short of wood to-day.

Logging by Aeroplane—Not Yet.

In some of the wild estimates of our supply of standing timber made in the past, they have simply taken the map of Canada, determined the number of square miles, and arbitrarily figured so many cords per acre. Now as logging by aeroplane has not been perfected as yet, there are only two ways you can get out wood, namely, by river or railroad. About all the more important rivers of Canada have been logged on and driven, from the very earliest days. Many of them have been practically stripped or cut out, while others are being operated pretty well back to their head waters, so far remote that it takes two years or more to drive logs to the mills.

In the case of the railroads the condition is pretty much the same with the exception of possibly the Transcontinental, but inasmuch as this road was built beyond the height of land, there is very little wood available north of this road, as the rivers all drain away from it towards Hudson Bay. This leaves only the territory that lies south of the railroad, but as sawmills are springing up along this line, like mushrooms over night, and as fire is taking a heavy toll in this section, the paper mills will derive only a small supply from this source. Every time a railroad is built in a wooded country, more wood is burned up than is hauled out.

When talk is made about obtaining pulpwood from the cold northern sections that have not been opened up, where it takes 150 years to grow a four inch tree, where the snow falls to a depth of 15 feet and the thermometer registers 50 below zero, it will be only when pulpwood has reached a price more than $75.00 per cord. We hear Alaska suggested as a possible field for the making of paper, but all of the above handicaps apply to this section, except along the coast, as well as the fact that it is 4000 miles distant from the large paper consuming market.

All anyone needs to know is that in the United States more than 5,500,000 cords of wood are used annually for pulp alone, in order to realize that this appalling shrinkage in our capital stock of standing timber must necessarily all too soon wipe out the remaining supply.

Beyond Conception Is 5½ Million Cords

I want the reader to pause a moment when he reads this paragraph, five million five hundred thousand cords—not feet, but cords, used every year in the United States for pulp, and principally in the Eastern and Middle States. Few can realize just what this really represents, but to try and make this comprehensible, it means a solid pile of four foot wood, twelve feet high reaching clear across the continent, or a pile four feet high, nine thousand miles long, and yet we may travel for days on the railroads and hardly see a spruce tree. Personally I should not want to take the contract to furnish this amount for even one year, and where is it to come from after the next ten years?

Imagination can hardly grasp the real significance of the terrifying estimate of the annual consumption of all lumber in the United States alone, namely 64 million cords (or 32 billion feet board measure). Even this estimate of consumption is doubtless conservative, as it is impossible for the Government to obtain complete reports of all actual production.

Tremendous Losses by Fire.

In addition to this enormous amount that is being cut, fire is taking a terrible toll as well. Over a billion feet of timber was destroyed this present year in just one State—Montana. This means two million cords or nearly half the entire amount consumed for pulp in one year, destroyed by the fire fiend in one state. Last year the same thing happened in Minnesota, and this same thing has been going on since this country was first settled and to such an extent that 75 per cent of the original stand of timber has been destroyed by this same cause, and yet some authorities will still talk of an annual growth.

It is a curious fact that some of the coldest sections are the most prone to fire, such as Newfoundland, British Columbia, Northern Ontario, Northern Quebec, Minnesota, Alaska, etc. These fire zones are just as well defined as land and water.

Increase in Consumption Overlooked.

In many of the estimates that have been made as to the length of time our standing timber will last, the important question of the increase in consumption is quite overlooked, and as showing what an important factor this is, I will simply cite a 5 year period in the St. Maurice Valley, where the increase amounted to 200%, or at the rate of 40% per year.

Thus far I have largely discussed principally the pulp-wood consumption, and yet when you add to this the extraordinary demand we have in sight for lumber for new construction the world over, it simply adds to the danger that is facing this country from a premature exhaustion of a supply of raw material for our magnificent paper mills, which to-day are the second most important industry in Canada, and which with a proper and judicious guarding of our raw material, will shortly occupy first position.

The paper mills which have a wood supply will make large profits in the future, as there are so many American mills which have no supply of their own and will be forced out of business on that account, which will make a continued shortage of paper from this time on. Furthermore, no government can for any length of time, interfere with the natural law of supply and demand, or make a spruce tree in less than 50 to 75 years.

As showing what effect lumber and other products of wood may have on the price and scarcity of pulpwood, I will simply note that in some sections, owing to the abnormally high price of laths, pulpwood is being sawn into laths netting from $30.00 to $35.00 per cord for the wood at point of shipment.

Prophecy Has Come True.

In an article which I wrote three years ago when the publishers were complaining of 2¼ cents paper, I then stated that the question of the future would be not one of price, but of obtaining paper at any price.

That prediction has already proved only too true in a much shorter time than I anticipated.

I have devoted the past 28 years to the study of the one subject of timberlands and wood supply, and during this period I have seen lands go from $1 to $15, $20 and up as high as $50 per acre for the same lands; and stumpage go for $1.50 for a mark of logs that only took 4 to the thousand, to a price of $20 per 1000 for a mark of 12 to the thousand; pulpwood from a low price of four dollars to a high of thirty-two dollars per cord, and spruce lumber from a low of twelve to a high of sixty dollars per thousand. Stumpage in New Brunswick even has been sold as high as $15 per thousand during the present year.

In 1890 they were cutting trees that took not more than six or seven to make a thoussand feet of lumber, while to-day they are cutting to such a small diameter limit that in many sections it takes 40 trees to make a thousand feet. I saw one pile of wood out on the Transcontinental containing 4000 cords, where the largest stick was 4½ inches and from that it ran to 1½ inches, with the average size running under 3 inches.

In one section of the Pacific Coast where the United States Government estimate a stand of eighty-six billion feet, the highest authority in the timber cruising line, and one who knows more of that particular section than any other man, from actual cruises says the figure 8 wants to be dropped, as there is not over 6 billion at the very most. Another example I have in mind is a certain territory which was estimated to contain 25 million cords of pulpwood and where, after operating 7 or 8 years, and cutting out only about 250 thousand cords, all the available wood was cut, and at a severe loss, so that further operations of the property was abandoned.

I have in mind another limit that had been estimated to contain 16 cords to the acre, that was examined by a very competent cruiser, who found it ran nearer 16 acres to the cord, as he expressed it. I can cite several cases where the shrinkage in estimates are just as striking as those above enumerated.

In connection with this phase of the subject, I cannot help thinking of the reply an old lumberman made when at one of the Canadian Forestry meetings in Montreal. The question of shortage in supply was being discussed, and one of the members suggested that we did not know what might be for timber in the unexplored regions. The old lumberman replied that "in any section that the Canadian lumbermen did not know what there was, there wasn't anything."

More attention to Mills than Materials.

The great trouble with the paper mills in the past has been that the management have been devoting their whole thought and time to speeding up their paper machines, installing new and improved machinery, and improving their water powers, all of which is of course, very desirable; but while they have been doing this they have lost sight of the most vital question, viz. a supply of raw material to keep these mills running.

The newspaper publishers are not without blame for the present shortage in newsprint, for every time they have fought a legitimate advance in price, they have made it more difficult and expensive for the mills to do business, especially under Government control and regulation, and with regard to price it is not nearly as surprising that newsprint has advanced from 2 to 4 cents per pound and higher than it is that eggs have advanced from 25c to $1.00 a dozen. A hen can be produced in a year, while these trees that are being made into paper have taken from 75 to 250 years to grow, and as they are becoming more and more remote from the mills, must necessarily become more costly to procure. Think even of the cost of toting supplies back into the woods, a distance of 70 miles, the cost of which in many instances, amounts from $50 to $60 per ton for haulage alone!

Newspapers must accept the inevitable, as all other legitimate lines of business have done, and simply pass the cost along by increasing the price of their papers and their advertising rates. The newspaper has become a public necessity—no one will do without it to-day, and papers will sell just the same, whether the price is, 2, 3, or 5 cents per copy. And when the paper mills are forced to use some annual crop, as a substitute for trees in making paper (which is not far distant) paper instead of costing 4 cents per pound will cost 24 cents or more. So far as the American publishers are concerned, it is of course immaterial to them whether newsprint comes from Canada or the United States, so long as they are assured of a paper supply while the trees last.

When the public begin to realize that this timber, which is being cut today as if it were an annual crop, has been growing from 75 to 250 years, and the only way it can be reproduced is by re-planting, planting with the present high cost of labor amounts to a matter of $12 to $15 per acre, to which must be added the cost of the land, which is from $3 to $10 per acre, something will be done. This brings the cost per acre of these plantations of tiny little seedlings from $15 to $25, with an annual charge for interest, taxes and fire protection for at least a matter of 50 to 75 years before another crop can be harvested.

In addition to this there is a possible loss from fire and the spruce bud worm, and other enemies; for it must be borne in mind that fire is always with us, and the bud worm returns in cycles of from 20 to 35 years, and further, that each recurrence, as the lands become harder cut, increases in violence.

Imminent Increase in Price of Timber land.

As soon as the above facts are absorbed, as they are beginning to be quite rapidly at the present time, timberlands will be selling on a much higher scale than they are to-day, and my prediction is that the biggest rise in timberland values that has ever been known, will take place within three years.

There is not a commodity in the world that is selling so much below its real value as an acre of timberland to-day. Think of a crop that has been 50 to 250 years growing, and that under most favorable conditions will take from 50 to 75 years to reproduce with all the attendant risks, and an actual cost of $75.00 to $125.00, selling today at $10 to $15 per acre of land and all, while an annual crop of cereal or potatoes brings from $15 to $100 or even more per acre, above cost of planting and harvesting, and without the land.

How to Remedy this Situation.

It is far better to look this question of a rapidly diminishing timber supply squarely in the face and try by practical methods to put off the day of reckoning as long as possible, and I advocate the following remedial measures:

An active campaign of education carried on by literature, and illustrated lectures, so as to reach all timberland owners and the public in general.

The creation of a strong public sentiment by various methods, so as to establish a greater appreciation of the value of forests to all, and a desire on the part of the public to help actively in preventing forest fires.

Improvement and enlargement of the present fire protective service.

Reforestation on a large scale by Governmental appropriation, regardless of cost.

Burning of slash under certain conditions and in certain cases.

Change the present wasteful methods of logging by a closer supervision of woods operations by intelligent practical foresters.

An embargo or export duty on raw material taken from fee lands; or the

Annual purchase of fee land wood by a combination of all the Canadian mills.

I will personally subscribe ten thousand dollars to the Canadian Forestry Association, if each of the other pulp and paper mills in Canada will subscribe a like amount, to be used in carrying out the work outlined above, under the direction of an Executive Committee to be appointed by the subscribers to the Fund. This will give us a fund worthy of the name and will enable us to do some real work.

I am giving freely of my time and money towards an educational campaign along these lines, as I feel that it is the duty of every Canadian citizen to do everything in his or her power to safeguard, preserve and perpetuate our forest resources as they are the backbone of our country.

With regard to reforestation, I am glad to note that the bud worm has not invaded this part of Nova Scotia owing largely to the fact that it is practically all spruce, the amount of fir being almost negligible, and probably also to the fact that the spruce is of much a sound, vigorous and rapid growth. I presume that the quality and growth here is due to the fact that soil and climatic conditions are ideal for spruce growing, the amount of precipitation being very great. Records at Halifax covering a period of 35 years show an average annual rainfall of 57 inches.

I have a sample section of red spruce tree in my office that shows a growth of 20 inches in 20 years, an inch a year in diameter. That is of course abnormal, but it is a fact that spruce makes the most rapid growth here of any section on this Continent, which hints at possibilities in reforestation that are not applicable elsewhere. This phase is well worth the serious consideration and careful investigation of the Canadian Forestry Association.

In the old days when railroads were first built in Nova Scotia and timberlands were of little value and there was no such thing as fire protection, this Province shared the fate of the rest of Canada and vast areas were destroyed by fire, but this is a thing of the past, as Nova Scotia has to-day one of the very best forest fire protective systems, and her citizens are thoroughly alive to the fact that timber is one of the most important assets.

NEW REGULATIONS FOR TIMBER LIMITS.

The Ontario Department of Lands and Forests, with respect to applications for permits in general, has announced that no permits will be issued to parties desiring to cut for commercial purposes.

Applications from municipal authorities as, in the past season to cut wood for the use of their citizens will be received and permits granted for the areas which are known to be suitable.

Individual applications for small quantities of wood, for fuel purposes, for their own use, will also receive consideration. Where a settler is in need of material for building purposes and has none upon his own lot, the department may consider granting a permit for a limited quantity to meet his actual needs. No other applications, however, except in such cases as has been cited will be entertained.

AFTER 42 YEARS SERVICE.

Mr. E. Villeneuve one of the oldest and most faithful employees of The Rolland Paper Co., Limited, died at his residence on Sunday, December 28th, at the age of 58. He has been with the company for 42 years, most of that time in Montreal office in charge of the Manufacturing Department. For some months, Mr. Villeneuve has not been well but only recently was he forced to give up his work. He was not only a most conscientious worker but a man of pleasant disposition and the officers of the Company feel their loss in a personal as well as a business way.

Prevention of Decay in the Timber of Pulp and Paper Mill Roofs

By R. J. BLAIR, Pathologist, Forest Products Laboratories of Canada, Montreal.

Editor's Note:—In the issue for July 3, 1919, the Pulp and Paper Magazine published an article by Dr. Blair, on "The Decay in Wooden Mill Roofs." This was based principally on data obtained from an inspection of roofs in textile mills, where conditions are much the same as in paper mills. The former article dealt largely with the causes of decay and briefly indicated remedies. The present article is written especially with regard to pulp and paper mills and shows how a very considerable waste of time, material and trouble can be avoided by constructing the roof properly in the first place.

* * *

The decay of structural timber is a subject which has received considerable attention at the Forst Products Laboratories of Canada. This trouble is often found in buildings where a lot of moisture is always present in the air. In a large number of Textile Mills, Dye Houses and Canneries, where such conditions are present, the factors responsible for timber decay have been studied to find what may be done to prevent these losses. Such losses take place so frequently in the roof timber of Pulp and Paper Mills

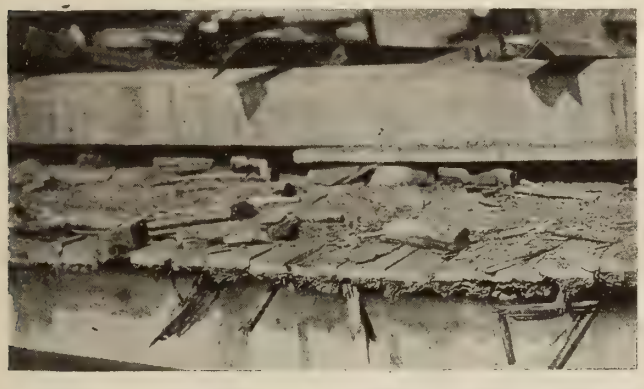


Fig. 1.—Roof Planks after 7 years' service on the Machine Room of a Canadian Paper Mill.

that it was proposed to make a systematic study of the roofs of all of the Canadian mills.

The Investigation.

At the present time more than 80 of the mills listed in Lockwood's Directory have been visited and the conditions found in these plants show that the proposal for such an investigation was entirely justified. Nearly all of the mills have used wood for building their roofs, and it has been found that only a very small minority has been successful in avoiding trouble with decay in their roof timber. In one of the newsprint mills the roof of a Machine Room made of 3" planks has been renewed this year after a service of only 5 years. This is the most extreme case found, but it shows what might be expected to happen in any mill where no precautions have been taken to avoid this sort of trouble.

In the 80 mills visited it was found that 12 renewed some part of their roofs recently, 17 are making renewals this year and 24 others will be doing the same thing within a short time. Of the roofs, which have been coming off this year, the service has been from 5 to 19 years with an average of about 8 or 10 years. The result is that the Paper Industry is constantly experiencing heavy losses since the cost for upkeep of the mills has to be increased to a figure much beyong that which should be necessary. **Every bit of this trouble is preventable if special precautions are taken in building the roof and in caring for it afterwards.** It is the purpose of this paper to discuss the various conditions which favor the decay of timber in mill roofs, and to suggest that may be done to avoid the losses resulting from this source.

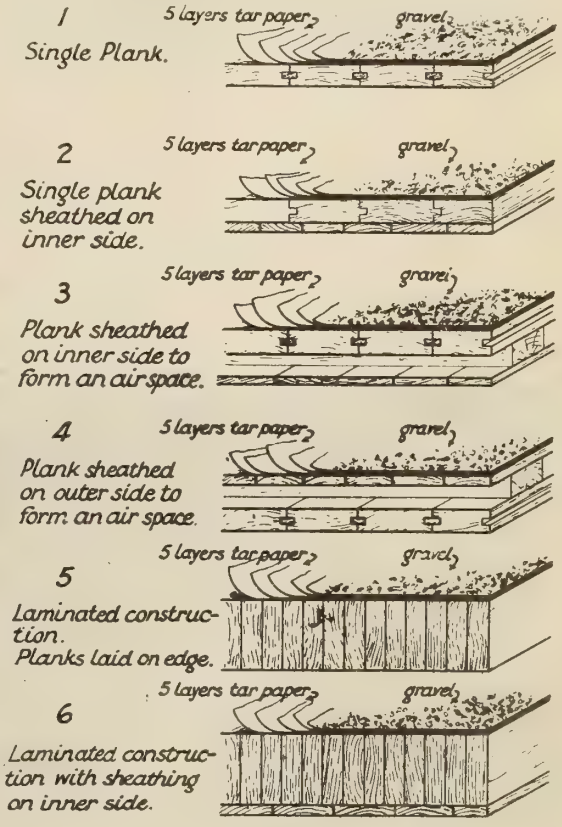


Fig. 2.—Types of roof in common use.

Types of Roof Commonly Used.

Little depends upon the kind of wood which has been used for roofs, as bad ones were found made of Southern Pine, White Pine, Red Pine, Spruce, Douglas Fir and Tamarack. Numerous ways for constructing roofs are in use, but all are more or less unsatisfactory on account of decay which develops in the timber. The following types of roof were found in bad condition: 1" board, 2", 3" or 5" planks, 2" x 3" or 2" x 5" planks on edge, single planks, sheathed without an air space and planks, sheathed in such a



Fig. 3.—Section of decaying wood containing Fungus Hyphae.

way as to form an air space of 1, 4 or more inches. Whether made of straight-edged boards, tongued-and-grooved lumber, or planks joined together with splines, no material difference in the lasting quality of the roof has been noted. All are equally bad. The bad feature, which is common to each of them, is that moisture enters the spaces between the planks and reaches the upper side of the roof where it causes trouble.

Defects Found in Mill Roofs.

Most roofs, which give trouble with decay, are also unsatisfactory on account of moisture condensation on the under surface during cold weather. If we are to design a roof to give good satisfaction these two points must be avoided. As a rule the roof which is troubled with moisture condensation is being attacked by decay and a roof which has started to decay gives trouble with condensation.

It has been found that each one of four different conditions has a more or less important bearing on the lasting quality and service given by a mill roof. These conditions are:

1. Natural ability of the wood used to resist decay.
2. Heating of the mill so that the roof does not get too cold in cold weather.
3. Insulation of the roof against loss of heat through it.
4. Removal of moisture from the mill by ventilation.

The Cause of Decay.

What is meant when any piece of wood is decayed is that a low form of plant life, called a wood-destroying fungus has been at work within it. In common with all forms of plant life, the fungus has certain moisture requirements which must be satisfied before it can begin to grow. As long as wood remains dry a fungus can do it no harm, but as soon as the amount of moisture required by the fungus is present in the wood, it is certain that decay will be set up. The point, then which it is of the greatest importance to keep in mind in designing the roof of a mill, is to build it in such a way that at all times the timber is too dry

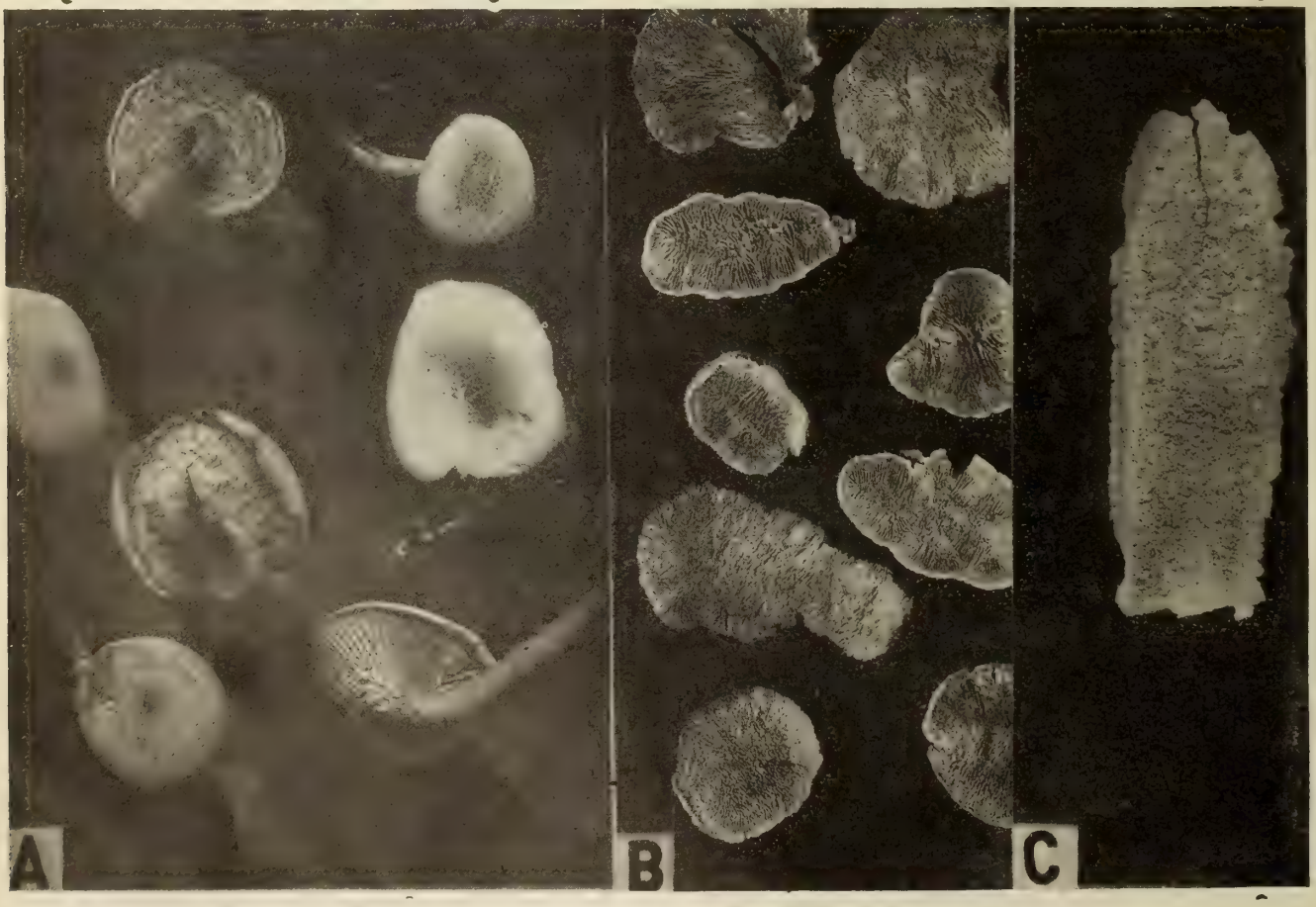


Fig. 4.—Fruiting-bodies of three species of fungi very destructive to Mill Roofs.

for the fungus plant to get an opportunity to grow within it.

The active part of the fungus plant consists of a great number of very fine branching hairlike filaments which penetrate the wood in all directions. The filaments are called hyphae, and as they pass through the wood they dissolve out part of its substance so that it rapidly deteriorates.

Under certain favorable conditions fruiting-bodies of fungi, commonly known as toad-stools or mushrooms, are produced on the surface of the wood and from

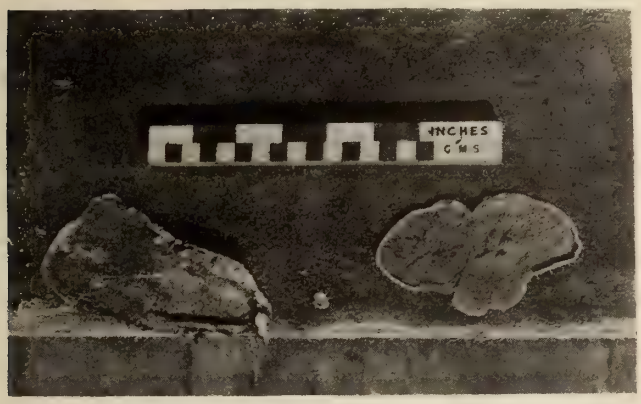


Fig. 5.—Meruline Tremuloides on a brush-treated Southern Pine timber found in a new mill.

their appearance the species of the fungus is determined. One form which is particularly destructive much resembles the common edible mushroom; another one which is very often found consists of a brownish disc or shelf furrowed on its under surface, while a third variety covered with very fine pores spreads over the surface of the wood in a smooth sheet of a sulphur yellow color.

The Use of Preserved Wood.

The way to prevent the growth of destructive fungi in wood at all times is to give it a preservative treatment. By so doing a poisonous substance, which kills any fungus plants actually present and renders their further development impossible, is applied to the wood. The preserving substance may be used in various ways. If a brush treatment is used, the material is applied to the surface of the wood with a brush the same as paint. Such treatment cannot be recommended for lumber which has been stored for some time in yards and will afterwards be used in such a trying situation as the roof of the Machine Room of a Paper Mill. Surface treatment is not enough to kill any fungus which may be within the interior of the wood, for after only a short service in a mill well-developed fruitig bodies of fungi have been found on timbers treated in this way.

The timber may also be immersed for a time in a bath of the preservative. By this method of treatment more of the preservative gets into the wood than when it is applied with a brush.

The most economical form of treatment for wood which is used in situations specially favorable to decay is the one applied under pressure in a cylinder designed for the purpose. By this means the timber is impregnated with the preservative substance and all possibility of its decay is removed. It has often been suggested that roofs be built entirely of such material. This would only be a partial solution of the difficulty since a roof made entirely of this timber would have just as much moisture condensation as any roof built of untreated wood. Besides, creosote which is the preservative most often used gives a black oily surface to the wood, which when used for the ceiling of a room is anything but agreeable and attractive to the eye. If we set out to build an ideal roof, the condensation of moisture must be taken care of as well as the decay of the timber. **The use of treated material alone is not sufficient.**

Moisture Condensation.

Moisture condensation, or sweating as so commonly found in the great majority of the mills where the air is moist, may be divided into two parts. There is the condensation due to very imperfect ventilation, which forms at the under surface of the roof and collects in drops which soon fall, causing damage to whatever is beneath. There is also the condensation due not entirely to insufficient ventilation, which takes place in the spaces between the planks of the roof and the roofing paper. Later some of this moisture collects in drops which unite with those at the under surface of the roof.

The explanation of the moisture condensation is simple. The air in the great majority of Paper Mills is very moist. Some of the moisture in this air will be condensed into water as soon as the air has been cooled to a temperature below its dew-point. This air is so very moist that a drop in temperature of but a very few degrees is sufficient to bring about this change. Great volumes of moist air leave the Paper Machines at a high temperature. Being warmer than the surrounding air this heated air at once rises to the roof unless seized by some ventilating appliance which carries it out-of-doors. In cold weather the inner side of the roof is so much cooler than the air of the room that when the moist air strikes it it is cooled

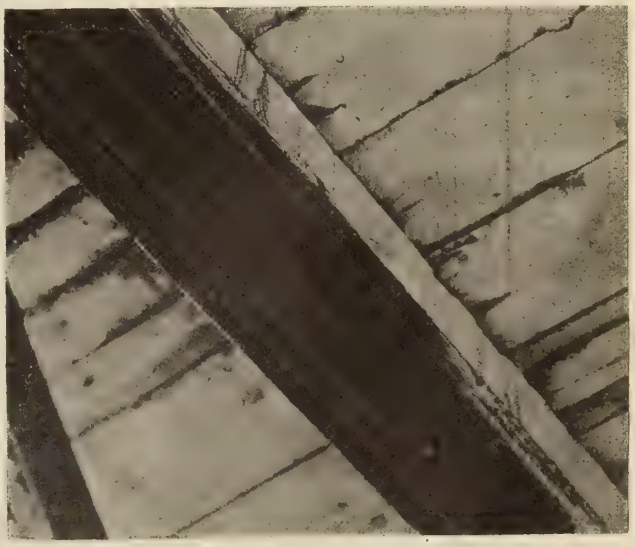


Fig. 6.—Traces left by moisture which had condensed at the upper side of the roof planks and caused decay in them.

below its dew-point. When this happens some of the moisture is deposited on the roof plank and after a short time it collects into drops ready to fall. This explains the first type of condensation. With the other kind, the mechanism is the same, but the action goes on in a more concealed manner. As in the previous instance the moist air rises to the roof, but some of it

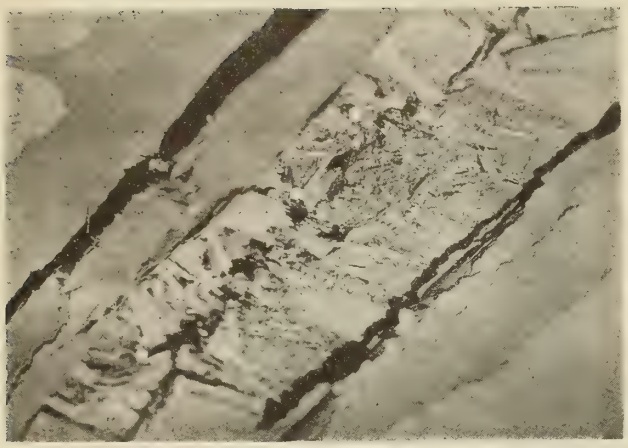


Fig. 7.—Condition of the upper side of Roof Planks after 5 years on a Machine Room.

enters the spaces between the planks and makes its way to the cold upper side of the roof. Very often there are spaces between the planks and the roofing paper. In cold weather this space is always so much colder than the air of the room, that when moist air gets into it the moisture will certainly be condensed. The cooled air is heavier than when warm so that it finds a lower level and a place is formed for the entry of more moist air. A permanent moist condition is thus maintained upon the upper side of the roof planks for several months at a time and a most favorable condition is created there for the development of a fungus plant.

The upper surface, or a region in the interior, begins to decay and as the rotting progresses it works down through the planks.

The decay is usually more pronounced where the planks are in contact with the spiking, or purlins, since at such points the roof is a little cooler that at other places and condensation takes place there more easily. At the most, only a few years are required for the wood to rot to such an extent that removal becomes necessary.

The Roof Deck.

Forming as it does the ceiling of the room, the first layer of wood used in the roof should be of dressed material, which may be painted. It is not necessary to use treated lumber for the deck of the roof. Later there will be discussed the value of an insulating layer placed on this roof deck for the purpose of heat insulation. This extra layer prevents moisture condensation with the result that the possibility of decay in the timber is very remote. To make reasonably sure, however, that the roof will be as safe as possible, this



Fig. 8.—Sections of Roof Planks after 6 years on a Machine Room.

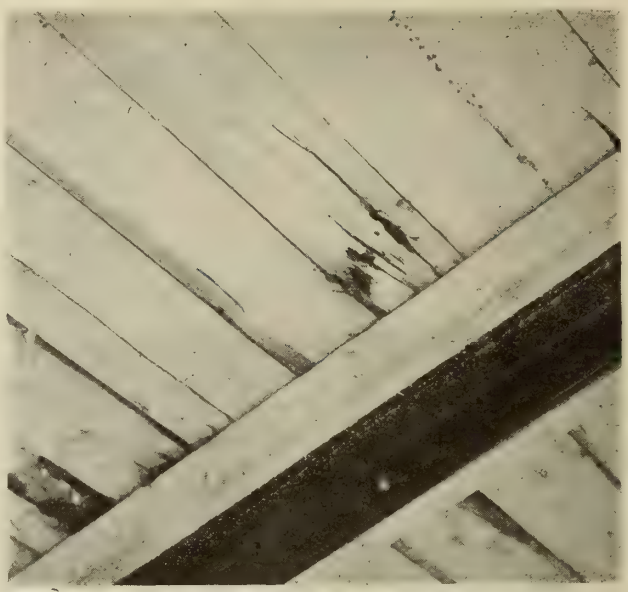


Fig. 9.—Planks in Roof badly Rotted near the Spiking Strip.

first layer should be of high grade material naturally resistant to decay. The best choice would lie with Cedar, Redwood, Cypress or dense, resinous Southern Pine. This first layer should be no more than 2″ in thickness and the span should be such that a 2″ plank may be safely used.

Cedar or Redwood for Roofs.

The best roof would be made entirely of wood light in weight and naturally resistant to decay. Either California Redwood or Cedar is eminently fitted for such a purpose. Both of these woods naturally resist the attack of fungus and for this reason alone are better for roofs than woods not having this property. They have the additional advantage that on account of their low specific gravity their heat conductivity is less than that of the woods which are usually used for structural purposes. A considerable saving in heating would result from the use of such timber in building a roof.



Fig. 10.—Decay in the Spiking Strip of roof after 5 years' service.

(To be continued.)

Paper Exports Held at Border

At the session of newsprint inquiry, at Ottawa, Dec. 22, the price of sheet news was advanced to $92 per ton in carload lots, and $95 per ton in lots less than two tons.

According to correspondence that came too late for our last issue, an order was signed by the Controller, effective from January 1st, 1920 to June 30th, 1920, authorizing such prices for sheet news, after the publishers using sheet news had conferred with manufacturers of this commodity, and had reached an understanding. The matter of standardization and weight of paper used by the smaller dailies was up to Tuesday morning undecided. Representatives from both sides, including Mr. John Imrie, Edward Beck, and likely Mr. A. L. Dawe will decide the question.

Indications during the first day of the inquiry tended to show that some of the western newspapers were in a bad way as concerning supplies. It was mentioned at Ottawa on Monday, that the Winnipeg Free Press had only two days supply of paper ahead, and that unless more paper could be secured from Fort Frances it faced the possibility of having to temporarily at least, cease publication before the end of the week.

It was further heard that the principal reason for the calling of the inquiry was to determine what position the Fort Frances Pulp and Paper Company occupied? In some circles it was heard that the publishers of certain newspapers supplied by this mill desired to get their $3 per ton rebate as in connection with the special price first fixed for this mill by the Controller which was afterwards upset by the Paper Control tribunal. Fort Frances, it was heard, intended to contest that they should not be compelled to pay back the $3 per ton to the publishers, and that they particularly insisted on not being forced to supply in Canada beyond their quota after the first of the year. Owing to the illness of Senator Ross, Counsel for Fort Frances, the position of this mill was not formally placed before the Controller on the opening day of the inquiry.

During the course of the afternoon session on Monday the position of various newspapers was spoken of and at one stage it developed that the publisher of an Ontario weekly had tendered the E. B. Eddy Company a cheque in payment for paper which had not been honored by the bank.

Fort Frances Tells the Law.

That export shipments from the Fort Frances mill to the United States were stopped on Tuesday last, was the statement of the Controller when he read a telegram from Mr. MacNichol at the newsprint inquiry last week. Seven cars were tied up and refused passage by the customs officials. It was the first embargo placed by the Controller under the recent order in council.

Mr. Tilley, K.C., represented the grave possibilities of western newspapers having to cease publication before the end of this week, unless Fort Frances continued to supply them. Senator Rosa, at the conclusion of the inquiry, gave the Controller to understand that one would wire Fort Frances and try and arrange to have the supplies to western newspapers continued. The Controller said the mills must obey this order and supply Canadian publishers or their shipments to the United States would be cut off.

At the session on the 23rd, Mr. Taylor, representing Mr. Clarkson gave figures as to the produce cost of the Fort Frances mill mill from March 1917 to September 1919. From March 1917 to June 1918 the average was $50.31 per ton. For the first six months of 1918, $60.02, and the average for the whole period covered by the Government control $60.15 per ton.

Besides the inquiry into what the costs had been, the question of repayment of certain monies by the Fort Frances mill to certain newspaper publishers was also touched on. Under some of the orders of the paper Controller this mill was allowed three or four dollars per ton more than the other Canadian mills. The Paper Control Tribunal disallowed this increase, because of rebate of duty on sulphite, and the Controller later ordered that the excess money paid should be given back to the publishers.

Mr. Tilley submited that the Fort Frances Company should be made to supply at the same price as the other paper manufacturers and, asked that orders to this effect be made accordingly. This lead the Controller to remark: "I can't see where I can make any orders after the first of January." To Senator Ross, Mr. Pringle said "It strikes me that Fort Frances should accept the same terms and conditions as the other mills."

The position of the Fort Frances Company briefly is that it has been supplying beyond its share of Canadian tonnage to western newspapers, and does not want to be compelled to look after the western trade, unless it is compensated by the other mills for doing so. It appears that an equitable arrangement is being worked out.

Text of the New Order

The text of the new agreement as approved of and signed by Controller Pringle, was as follows:

Whereas, By Order-In-Council, dated the third day of November, 1917, I am empowered to make such order or orders as I may deem necessary or advisable for the distribution of paper, by the manufacturers to the publishers, and I am further empowered to fix prices;

And Whereas, by my order dated the 26th September, 1918, I did fix the prices to be charged for newsprint paper for the period from first July, 1918, to first December, 1918;

And Whereas an appeal was taken from my said order of 26th September, 1918, by both the manufacturers and the publishers to the Paper Control Tribunal, and by the judgment of the said Paper Control Tribunal dated 18th August, 1919, the prices fixed by my said order were varied, but otherwise such order was confirmed;

And Whereas, by my interim orders dated the 30th day of November, 1918; the 31st day of January, 1919; the thirty-first day of March, 1919, and the 31st day of May, 1919, the thirty-first day of July, 1919; the thirty-first day of September, 1919, and the thirty-first day of October, 1919, I did continue up to and including the thirty-first day of December, 1919, the prices fixed by my said order of 26th September, 1918.

And Whereas I have given consideration to the present conditions of the paper market both in regard to supplies and market price, and I have come to the conclusion that there should be an increase in price commencing on the first day of January, 1920.

I do therefore Order and Direct, that the manufacturers of newsprint paper within the Dominion of Canada do supply to the newspaper publishers throughout Canada, newsprint paper in sheets at the rate of $4.60 per hundred pounds in carload lots; $4.75 per hundred pounds in less than carload lots, but of two tons or over; all to be f.o.b. at mills of the various

manufacturers for the period of six months from the first day of January, 1920, to the first day of July, 1920, and that the price thereafter for sheet news shall be 60 cents and 67½ cents per hundred pounds, respectively, in excess of the lowest export price for roll news as determined by published prices of the International Paper Company, the Canadian Export Paper Company, and the George H. Mead Company.

The maximum commission for jobbers or other middlemen for selling newsprint obtained from any of the manufacturers of newsprint in Canada shall be as follows: fifteen cents per 100 pounds in car load lots, forty cents per hundred pounds on less than carload lots. The commission shall be added at the mill or at the warehouse. The cost at the warehouse will be the net mill cost plus freight, cartage and other reasonable necessary expenses incurred in getting the paper to the warehouse. In billing customers these items and the commission, shall be stated separately.

Under the power reserved by me to revise my former interim orders I do confirm the prices fixed by my former orders for the period up to the first of July, 1918, and for the period from first December 1918 to thirty-first December, 1919.

Signed. R. A. PRINGLE,
December 22nd, 1919. Commissioner.

CO-OPERATION IN THE PRESERVATION OF TIMBER LANDS URGED BY THE U. S. DEPARTMENT OF AGRICULTURE

According to a Department of Agriculture bulletin just issued, the rate of depletion of the forests in the United States is more than twice, probably three times, what is actually being produced by growth in a form serviceable for products other than firewood.

Already the supplies of all the great Eastern centres of production are approaching exhaustion, with the exception of the South, and even there most of the mills have not over ten to fifteen years' supply of virgin timber. Even at this time the Southern pine is being withdrawn from many points as a competitive factor and its place taken by Western timbers. This inevitably results in added freight charges, which the consumer must pay.

In the early years of the present century it looked as though the management of forests as permanent productive properties might be voluntarily undertaken by private owners on a large scale, but since then the situation has materially changed. The need for the adoption of an enlarged program of acquisition, the bulletin points out, has become increasingly urgent. More than twenty years ago the Division of Forestry, as it was then called, offered to give advice and assistance to private timber owners who might wish to consider applying forest management to their properties.

By the middle of 1905 requests had been received for the examination of private holdings, large and small, comprising in all 10,900,000 acres of land. On the strength of the showing made by the preliminary examinations, a number of the owners of the biggest of these holdings entered into co-operative agreements for the preparation of working plans.

But private forest interests failed to follow up the beginning, and the Government and the States, in the opinion of the Department of Agriculture, must join hands to work out a program that will correlate public and private efforts looking to the protection and proper administration of forests. The function of the Federal Government, in addition to handling the national forests, it is suggested, would be to stimulate, guide and co-ordinate State action and conduct necessary investigations regarding the best methods of forestry, to assist the States in the classification of land and to harmonize action between the States.

With regard to the Federal attitude toward private forestry, it is suggested that the Government would work primarily through the State agencies. To initiate the proposed policy, a Federal law would be necessary authorizing the Government to co-operate with the States in bringing about the protection and right handling of forest lands within their borders and providing means for such co-operation.

BOOK REVIEW.

HAND-BOOK OF CHEMISTRY AND PHYSICS.—Hodgman, Coolbaugh and Senseman, seventh edition. 533 pages and index. Price $2.50. Published by Chemical Rubber Co., Cleveland, Ohio.

This book is a compilation of data prepared for the use of professional men. It would perhaps have served a much wider field if a page or so on the use of exponents and formulae had been included for the use of those not so well versed in scientific terminology.

Much of the work consists of extracts and data from other works, which presume on the part of the reader possession of information not given in the present manual. An example of this is in the quotation from Talbot's Quantitative Analysis on the method of silving chemical problems (pp. 526-8), in the second example, on calculating the volume of reagent required for specific operations. The weight of barium chloride required to precipitate sulphur is calculated closely, but no reference is made to the desirability of using an excess. Thus while the explanation would be required only by the novice, the operation is presumed to be carried out by an experienced analyst.

The mathematical applications and formulae are also of more use to men of considerable and continued experience in their use.

The inclusion of photographic formulae (pp. 490-4) is an unusual and very practical feature. The functions and composition of foods are not always readily available and their inclusion here (313-5) is to be commended. The table of decinormal solutions (pp. 245-7) is full and there is a good page on indicators, but incorrectly indexed by three pages. The table of squares and roots is also indexed three pages out (64 instead of 67).

A paper chemist would like to find sometime a table of factors giving the conversion from Barium sulphate to Aluminum sulphate, but that is too much to hope for.

Apart from the minor faults noted, the book is exceptionally compact, is well printed and bound, and covers an unusually wide range of subject matter, compiled from authoritative sources.

The publishers have shown a great deal of enterprise and deserve to be congratulated on producing such a useful and complete manual. The publication of works like this by industrial companies indicates the deeper interest taken now in the provision of working facilities by these firms, not only for their own employees but of general application.—C.

Editor's Note:—The Chemical Rubber Company will make a special offer to people purchasing several copies or ordering goods.

UNITED STATES NOTES

That the powerful financial interests responsible for the incorporation of the Hercules Paper Corporation intend to make the corporation a tremendous factor in the production of paper in America on a specialized service basis, is evidenced by the fact that on Friday, December 19th, they made a most important acquisition by purchasing the controlling interest of the Frank Gilbert Paper Company, Waterford, N.Y., from its President, H. I. Prankard. This Company is one of the oldest producers of paper in America and operates three mills consisting of a paper mill in Waterford, N. Y., a pulp mill in Cohoes, N. Y., and their recently erected large paper mill in Cohoes, N.Y., rated to be one of the best and most complete plants in the country. This Company has long borne an enviable reputation in the trade for the perfection of its product, the diversity of its papers and its location, which permits quick deliveries to the important markets. A gratifying feature of this transaction is that Mr. Prankard is to be Vice-President of the Hercules Paper Corporation as head of its division of manufacture, embracing the mills already acquired and those it may erect or acquire. He brings to this national organization twenty-five years' experience, a contagious enthusiasm, great ability as an organizer and in addition a splendid knowledge of the requirements of the large consuming trade.

Under direction of Dr. Otto Kress, head of its pulp and paper section, the Forest Products Laboratory at Madison, Wisconsin, is conducting experiments for the purpose of learning how to prevent an infection that causes a loss of more than $5,000,000 annually in wood pulp. The experiments will probably be financed by paper mill operators until Congress appropriates the necessary funds. The loss is attributed to molds or fungi that attack the trees, remaining in the ground wood and thus damaging stored pulp by destroying the fibre. Infected pulp is known to clog the paper machine, resulting in dirty, weakened paper, greatly increasing the amount of sulphite, besides causing a total loss of between 10 and 15 per cent in pulp, thus raising the price of paper. Dr. Kress's problem is to discover a spray that will kill the fungi. If the experiments result in a solution of this problem, the cost of print paper would undoubtedly be lowered, other factors remaining unchanged. Dr. Kress sees other relief for the present paper situation in the use of Western woods and wood from Southern Alaska, which, he believes, may be shipped through the Panama Canal and manufactured cheaply enough to compete with the New York market. One-third of the paper imported into the United States is exported mainly from Canada, and new development of paper mills appears to be at a standstill in the United States.

Plans for the launching of a general membership campaign were formulated at the first meeting, recently held in New York City, of the advisory board of the Salesmen's Association of the Paper Industry. This is a new organization in the paper trade and was formed during the annual gathering in November of the American Paper and Pulp Association.

Because his paper, the East St. Louis "Daily Journal," was hard hit by the newsprint shortage, Publisher A. T. Spivey was put to the necessity of getting out one day's issue last week on brown wrapping paper. When he heard that one of the company's orders of paper was caught in a railroad wreck at Tiffin, Ohio, Mr. Spivey obtained from friends in the paper trade enough brown paper to print his editions until his regular supply of newsprint again arrived.

A resolution calling upon Government departments to report immediately the amount of print paper used by them and whether a 10 per cent reduction could be made was introduced in Congress just prior to the holiday recess by Representative Steenerson of Minnesota, chairman of the House Post Office Committee. The departments will also be required to state whether the large amount of printed matter furnished to newspapers which do not request it could be discontinued. To determine whether newspaper publishers abide by the request of the committee to reduce their consumption of newsprint by 10 per cent for the next six months, Chairman Steenerson also introduced a resolution asking the Post Office Department for comparative weights of newspapers entered at first and second class post offices for the last six months and for the next six months. Action on the resolutions was deferred.

F. R. Gee, who has resigned as comptroller of the American Writing Paper Company to accept a position with the White & Wyckoff Manufacturing Company of Holyoke, Mass., will be succeeded by P. R. Browne, general auditor of the writing paper company. Mr. Brown, who is considered well qualified for the position of comptroller because of his association with Mr. Gee in the management of the department of accounting and supervision of the general office combined with his wide knowledge and experience, will assume his new duties January 1. Mr. Browne, prior to his coming to the American Writing Paper Company in August, 1917, was an accountant on the staff of Ernst & Ernst, prominent certified public accountants for four years, with the Parker-Potter Company of New York for three years, and before that he was for three years chief of the accountant department of the United States Metal Products Company of New York.

The Republic Bag & Paper Company of New York, whose business, the manufacture of flat and square bags, has been booming to such an extent that its present factory facilities have become inadequate, plans in the near future to erect a new factory building in Greater New York. For this purpose it has just issued $500,000 of 7 per cent preferred stock. The concern expects soon to offer the jobbers throughout the country a line of self-opening grocer's bags.

The first convention of the Kalamazoo Valley local division of the Cost Association of the Paper Industry, recently held at the Park-American Hotel, Kalamazoo, Mich., proved a huge success in every way. The gathering brought together several score of paper mill executives, cost accountants, auditors and others con-

nected with the industry. Interesting papers were read by S. L. Bush, manager of research of the Crocker-McElwain Company and the Chemical Paper Manufacturing Company; Norman Bardeen, manager of the Lee Paper Company, Vicksburg, and by D. E. Burchell, comptroller of the Eastern Manufacturing Company, Bangor. M. Bush, in his address, outlined the complete procedure used by the Chemical Paper Manufacturing Company in compiling its costs, illustrating with charts the points he made. Mr. Bardeen spoke on the "Benefit of Cost System to an Executive," and Mr. Burchell's talk was on "Fundamentals and Essentials of Cost Accounting."

An Associated Press despatch received last week from a correspondent in France who has been making observations of the reconstruction work now going on there, tells of the use in France of millions of yards of oiled paper as a substitute for window glass in the rebuilding work. The "transparency" is composed of two sheets of oiled paper stretched between the window casings and is re-enforced by a widely spaced network of strings. This substitute temporarily replaces glass while the glass works in ten departments, destroyed during the war are being rebuilt.

A new mill to be devoted entirely to the manufacture of newsprint paper, it has been learned, is soon to be placed in operation at Roanoke Rapids, North Carolina, by cotton milling interests who are planning to run such a plant as a side issue. It is understood that buildings for the enterprise have already been secured and the water power contracted for. The buildings, which have been heretofore used for other purposes, will be ready for the work of paper-making as soon as some necessary alterations have been made and the machinery has been installed. The plant, it is said, will have a capacity sufficient to supply all of the papers now published in Virginia and North Carolina.

GOOD CHEER CLUB.

Pledge to the Merry-Go-Rounds

To promote happiness, efficiency and civic welfare, I sincerely promise that wherever I am

I will talk **Health** instead of sickness.
I will talk **Prosperity** instead of failure.
I will talk **Good News** instead of bad news.
I will tell the **Cheerful** tale instead of the sad tale.
I will mention **My Blessings** instead of burdens.
I will speak of the **Sunshine** of yesterday and tomorrow instead of the clouds to-day.
I will **Encourage** instead of criticise.
I will be a **Friend** to everyone.

THIS IS AWFUL

As an example of what may be the result of an overheated machine room, the following gem from the Digester seems to be the real thing:

Why did the "Flow Box" the "Press," the "Wire Shaker," and the "Broke Beater?" Because the "Press" said in the "Digester" that it saw the "Dandy Roll," the "Felt Stretch" and the "Winder Reel." It must have been "Free Stock," but it's "Dryer" than H..... down there, anyway.

Editor's Note.—The above, which is contributed by a gent in the mill, naturally suggests the important question: Would the sulphite if the groundwood?"

WHERE MACHINE TENDERS GET $9.00 A MONTH

Discussing paper making conditions in India when visiting Grand Mere recently, Mr. J. N. McNicol, assistant paper controller, remarked that one of the chief differences between the Indian paper industry and that of Canada was in the matter of wages. "When I was in India," he told the Digester, "the machine tenders received nine dollars per month and had to find their own food and lodging out of that. The broke hustlers received about four dollars per month. And they worked a twelve-hour shift."

With the exception of the mill managers and the superintendents of departments, Mr. McNicol added, those employed in the Indian mills are all natives. While the natives receive but very small pay according to our standard, the pay rolls are not necessarily very small, because of the number of men employed. There is a very much larger number of employes per ton of paper turned out in India than in Canada. Each machine is manned by about three times the number of men as is required to handle the machines in a plant like the Laurentide. This is because, owing to climatic conditions, it is impossible for the men to work at high speed and it requires three Hindoos to do a job that one white man could easily perform. Then, too, sickness is very prevalent among the natives and this necessitates a very large staff.

Because of the large number of men employed and the very high cost of chemicals, which all have to be imported, the cost of production is high. There is no pulpwood available in India and the raw material for newsprint is a grass which is grown in the jungles, and which is called sabbi. It requires three tons of the raw material to one ton of paper. The grass is treated in cookers, similar to the digesters used in the Laurentide plant. For the coarse and strong grades of wrapping paper the sabbi pulp is generally mixed with stock made from the scraps from the jute mills, and in some mills rag pulp is also used. Most of the Indian mills turn out both newsprint and book papers.

The mills of India supply practically all of the newsprint required by the papers of that country. There are not many large papers printed in English and though there are a great many native papers they all have but very small circulation and require only a small supply. Of the writing paper and book paper the Government consumes a large percentage of what the mills turn out.

The largest mill in India is that of the Tittaghur Paper Company, near Calcutta, which operates eight machines. There are mills also at Lucknow, Gwalior, Poonaha, Surat and Bombay. They average three machines each.

Mr. McNicol spent fourteen years in India. He was in charge of the Scindia Paper Mills at Gwalior for four years. He then spent several years engaged in the reorganization of the Reay Mills at Poonaha, and was for eight years superintendent and manger of the Bengal Mills.

A very effective agent for moisture-proofing wood has been found in an aluminum leaf coating. This coating practically insulates the wood against any change in atmospheric conditions, and is partocularly valuable for use where accurate form and balance must be maintained, as would be necessary in an aeroplane propeller.

PULP AND PAPER NEWS

The International Paper Products, Limited, has been incorporated with a capital stock of $250,000 to buy, sell and deal in goods, wares and merchandise of all kinds. Among the incorporators are Percy R. Hoad, A. E. Johnson, W. W. Schoales, A. E. Way, W. J. J. Butler of Toronto.

Ritchie & Ramsey, coated paper manufacturers of Toronto, have been granted supplementary letters patent to increase the capital stock of the company from $250,000 to $450,000 by the creation of 250 shares of stock at $100 a share.

The Canada News Publishing Company, Limited, printers, stationers, lithographers, etc., have been granted incorporation at Winnipeg. The capital stock is $50,000 divided into 5,000 shares of $10.00 each. Among the incorporators are Rev. J. E. Lindburg, editor, and Rev. V. J. Tenguneld of Winnipeg.

The will of the late W. P. Ryrie, formerly managing director of Becker and Company of America, exporters of sulphite pulp and late head of the Ryrie Paper Company, has been filed for probate at Toronto. The estate is valued at $82,998.64 and as the deceased was unmarried twenty nephews and nieces will probably benefit from the will.

The Beaver Board Company, Limited, Thorold are making good progress with their building in that town. The factory will be of steel and mill construction. The Carswell Construction Company of Toronto have the contract.

Hambly Brothers, Limited, have been incorporated with a capital stock of $40,000 and will carry on a general printing and publishing business at 78 Richmond Street, Toronto.

The last issue of the Canada Gazette contains the announcement of the incorporation of the Lazier Paper Mills, Limited, Montreal, with a capital stock of $45,000.

Tenders for the purchase of the defunct Toronto Times were to have been in by noon of last Saturday but according to the statement of the Master in Chambers none had been received up to that hour. It was stated that a dozen people had looked over the property since September 5 and nearly all of them had reported it worth $125,000. Everything was in better shape, it was said, than when the paper ceased publication, as the machinery had been gone over. The upkeep was over 1,000 a month, including $625 a month rent, and insurance and caretaker's salary. There is a mortgage of $25,000. It was intimated that certain interests are seeking an option on the property but nothing definite is known of their intentions.

Mr. H. Sherriff of the Hodge-Sherriff Paper Co., Toronto, sailed on the Empress of France on Nov. 25th for a brief business trip to England. During his stay in London he will deal with several important matters in conection with the sale of the Wayagamack product in Europe. He will return to Canada early in January and in the meantime the Toronto office is taking care of all correspondence and enquiries.

The Franquelin Lumber and Pulp Wood Company, Limited, has been organized at Quebec and granted a charter to buy and operate timber lands and water powers. The capital stock is $550,000.

Rose-McLaurin, Limited, is the name of a firm that has been organized in Montreal. A charter has been granted permitting the concern to carry on business in pulpwood and lumber.

William L. Wills, manager of the H. G. Smith Company, Limited, wholesale paper dealers and stationers, Regina, was in Toronto this week calling on the trade.

Geo. McKee manager of the Donnacona Pulp and Paper was in Montreal last week. He reports excellent progress with their pulpwood operations. The wood is all cut and yarding well under way.

Members of the paper trade fraternity in Toronto were pleased to great Captain Fred. Fisher this week. Captain Fisher was at one time a valued employee of the Canada Paper Company and some time before going overseas he was in the bond business. He has just returned from some years spent on active service and is looking fit.

V. E. Nunez, superintendent of the Nashua Gummed and Coated Paper Co., states that preparations are going forward nicely at their new Canadian plant. About 2½ tons a day of paper will be waxed daily. As much as possible of the paper stock will be bought in Canada, but some grades required are not yet obtainable from mills in the Dominion.

Abitibi Reorganizes

The announcement of the reorganization in Montreal of the Abitibi Power and Paper Company, Ltd., was received with a good deal of interest in paper circles, particularly among those who frequent the stock exchanges. According to advices received in Toronto a new company has been formed—Abitibi, Limited—or is to be formed, with a capital of $31,000,000, divided into $30,000,000 common stock and $1,000,000 preferred. This new organization is to take over the Abitibi Power and Paper Company, Limited, as a going concern, giving the holders of the latter's common stock five shares of common stock for each share now held, the preferred holders receiving share for share alike. There would thus be issued at the outset of the new company's career $25,000,000 in common and $1,000,000 in preferred stock, leaving a balance of $5,000,000 in the treasury for disposal among the shareholders at the discretion of the directors. Holders of Abitibi, as of record Jan. 2, will receive a dividend of four and a half per cent bringing the disbursements for the year up to six per cent.

FIRE DESTROYS SAWMILL

Quebec, Dec. 30.—A large sawmill, owned by Leclerc and Belanger, at Lotbiniere, was totally destroyed by fire along with many thousands of feet of lumber. The material loss will run up to ten thousand dollars, with no insurance.

A fabric closely resembling silk is now being manufactured from trees that are natives of the tropical regions of Asia, Africa and South America.

BRITISH COLUMBIA NOTES

There are several movements on foot in the way of new undertakings but your correspondent prefers to wait until a full statement may be made regarding this. Such a statement will be forthcoming during the next week or two and should be of interest to everyone in the business. The prospects are that some important and large plants will be started during the coming spring. This will add greatly to the already important plants that are turning out pulp.

Transportation from British Columbia Needed

The demand is still great for water transportation facilities from British Columbia to all parts of the world. Your correspondent just had an interview with a man who has been active in the pulp and paper operations of the Province for some years and he laid particular emphasis on the fact that everything possible should be done to increase water transportation facilities at the earliest possible moment and particularly should we endeavor to have transportation facilities between British Columbia and the Atlantic Coast through the Panama Canal. This really applies to other industries besides pulp and paper manufacture.

Without doubt such facilities will be forthcoming just as soon as sufficient freight is assured for such a route. Just the same as facilities between British Columbia and the West Coast of South America will be assured when the freight is forthcoming.

Steamship companies are starting active canvasses of the different industries and endeavoring to find out just how much freight may be secured should the route via the Panama Canal to the East Coast be inaugurated. They would find that different associations connected with various industries would do everything possible to assist them in this canvass.

EXPORT TRANSPORTATION FACILITIES AT VANCOUVER.

The Canadian Mercantile Marine, Ltd., S.S. "Canadian Importer" sails from Vancouver for New Zealand and Australia about Jan. 15, 1920. By June, 1920 the Company hopes to have four regular freighters plying on this route. The plan is to have four stops. Two in New Zealand at Wellington and Auckland, and two in Australia at Sydney and Melbourne. This will mean that the business between Canada and the two Southern Pacific Dominions will have an immense increase.

From now on Canada must advertise Canadian goods in every country that the Government owned freighters reach. It will result in an inter-dominion trade beyond the imagination of Canada's most optimistic.

South America is another country which should prove of value to Canadian exporters. There is at present an intermittent service from Vancouver, that cannot be depended upon. Before 1920 rolls by it is hoped there will be a regular service to all ports on the West Coast of Central and South America.

A direct service is promised to South Africa from Vancouver before the end of 1920. This will mean real big export business from Vancouver to our sister Dominion in South Africa. Exporters of pulp and paper will be glad to know that shipping conditions with these countries are to be improved so soon, and will without doubt make active preparations to create new markets, and increase those they already have in the countries to be reached by the new Government line of steamers. It is up to Canadian producers to fill the hold of every steamer leaving our ports.

PUBLISHERS DISPUTE PRINGLE'S AUTHORITY

Toronto, Dec, 28.—The Canadian Daily Newspapers' Association on Saturday filed notice of appeals to the paper control tribunal against the order made by the paper controller, R. A. Pringle, K.C., on the 24th instant, fixing prices for newsprint paper supplied by the Fort Frances Pulp and Paper Company, Limited.

In that order the paper controller increased by an average of $10 per ton, the prices he had fixed during the first six months of 1918 for newsprint supplied by the Fort Francis company during that period and continued for the period from December 1, 1918, to date the differential of $3.00 per ton in favor of that company, in accordance with other newsprint manufacturers.

The publishers who form the association, contend that Mr. Pringle had no jurisdiction to revise at this time the prices for the first half of 1918, and that the effect of such revision is to deny the customers of the Fort Frances company the relief granted them by the paper control tribunal on the publishers' appeal against Mr. Pringle's order of September 26, 1918. As the paper control tribunal on that appeal fixed the same price for the Fort Frances company as for other companies, the publishers contend that Mr. Pringle should not have continued a special price for that company for the period from December 1, 1918, to date.

VANCOUVER SHIPPING

On December 8th, the S.S. "Joan of Arc" sailed for San Francisco and South American points with a cargo of pulp and canned fish. The pulp for San Francisco and the canned fish for Peru, Chile, and Bolivia.

The Overseas Shipping Agency Co., Cunningham. Manager, reports that the S.S. Annett Rolph will sail early in February on the same route as the Joan of Arc.

Jan. 20.—S.S. Methven, C. P. O. S. sails for Japan and China, freight only.

Jan. 22.—S.S. Empress of Russia, C. P. O. S., sails for Japan and China, freight and passengers.

Jan. 24.—S.S. Niagara Falls, Australian Line, sails for New Zealand and Australia, freight and passengers.

Jan. 5.—S.S. Eurydainas, Blue Funnel Line, sails for Liverpool direct, freight only.

Jan. 15.—S.S. Canadian Importer, Canadian Mercantile Marine, sails for New Zealand and Australia, freight only.

Jan. 15.—S.S. Mount Cervin, Dingwall Cotts & Company, sails for Tunis, Marseilles and Genoa, freight only.

Jan. 25.—S.S. Melville Dollar, Canadian Robert Dollar Company, sails for Shanghai, Hong Kong and Manila.

FAIR EXCHANGE

A young man returned from service overseas asked a neighbor of mine what he should do to get right into the thick of this reconstruction business. To which the horneyhanded farmer gave this laconic and trenchant answer: "Sell your wrist watch and buy an alarm clock." And I venture to assert that one might write volumes upon volumes and not say half so much. What we need most today is simply something to wake us up. We don't need to watch the passing of time to know when to quit work or to go to sleep. Quit when we have done all we can for one day, and kind nature will take care of the sleeping. The alarm clock will do the rest.—Valve World.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, December 27, 1919.—The feature of the week as far as newsprint is concerned was the agreement reached between the manufacturers and the publishers, fixing $80 per ton for the next six months as the price to be paid the makers, which practically terminates newsprint wartime control. After June 30th it was agreed that the lowest export price should prevail. In the paper trade generally the settlement of the matter is viewed with a good deal of satisfaction and there is a conviction that the agreement will result in stimulating the industry throughout Canada. In the meantime the scarcity continues and the demand is not decreasing any. There is a general impression that paper of most kinds will continue to be scarce in Canada as well as in the United States unless the publishers take some really serious move to cut down and save, because it is not anticipated that there will be any increase in production to speak of until the early part of next year. Newspaper publishers both in Canada and the United States are being urged in many quarters to make some concerted effort in the way of economy with the view to making the supply cover the demand and relieving a rather serious situation. It is stated that large publishers are in the market buying tonnage over their contract requirements and this has brought the market price of spot paper to around 7 and 7½c a pound.

The mills were notified by the Controller during the week that by agreement between the publishers and the manufacturers an order would be issued fixing the price to the publishers on sheet news, on 20 tons or over, at $4.60 per 100 pounds f.o.b. mill and shipments of 2 tons or over but not in carloads will carry a price of $4.75 per 100 pounds.

An equally interesting announcement by the Paper Controller was that an order had been made prohibiting the export shipment of newsprint paper from the mills of the Fort Frances Pulp and Paper Company, Limited, to the United States. Already seven carloads of paper from that mill are being held at the Canadian side of the border and the shipments will not be released until the mill has complied with the Controller's order to furnish newsprint to western Canadian newspapers, there being a danger that several papers in the west would have to suspend publication unless they got supplies from the Fort Frances mills. Late reports indicate that the mills are supplying the western papers on the understanding that the eastern mills will make up any excess tonnage that the Fort Frances mills has to supply beyond its quota. The latest order by the Controller is to the effect that the prices to be paid by publishers to the Fort Frances Company for newsprint in rolls in carload lots, is $66 a ton and less than carloads lots $67.50 per ton. The order emphasizes that its design is intended to compel the company to supply to its Canadian customers only its due proportion of its production in Canada, which, it states, is approximately 5,000 tons per year.

There has been no change in the price of standard lines of book and bond papers since Nov. 1 but lines are expected to go up early in the year. Owing to the shortage of groundwood pulp paper makers in these lines have to pay as high as $74.00 a ton for their raw material, except for the small lots they get through on their contracts, and these are said to be very small. There is also great difficulty in getting machinery, and equipment ordered months ago in the hope of increasing the output and adding to the facilities of a number of the Canadian mills, may not be installed for a year hence. In a few of the finer grades of bond there has been a jump in price of 2 cents a pound by some of the makers. Tag Manila has also undergone an increase of 15 per cent.

One of the features in the paper trade during the past week has been the all round rise in the paper board products. Filled wood board is now quoted at $90.00 per ton and news board at $87.50 per ton, f.o.b. mill in carload lots. The manufacturers say that practically everything that goes into the making of paper box lines is up in price, including labor and coal and that it is rarely known from day to day what the product is going to cost them to turn out. Hence the rise in prices. Some of the lines are now being quoted as follows: Vat lined one side, $87.50; woodboard, plain $92.00; lined one side $100.00; folding woodboard $103.00; grey folding $115.00; mill wrappers $80.00; mill heads $92.00; No. 65 test .018, $80.00; No. 100 test .018 $110.00; Manila lined news one side

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, NEW YORK

We buy all kinds of Canadian **WOOD PULP** AT TOP PRICES. Write us and be Convinced.

$100.00; Manila lined news, two sides $110.00; Manila lined chip one side $160.00; patent coated No. 1 pulp $160.00; new pulp $140.00; news back $130.00, two sides add $25.00.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$42.00 to $45.00
Sulphite, news grade	$75.00 to $80.00
Sulphite, easy bleaching	$92.00 to $95.00
Sulphite, bleached	$115.00 to $120.00
Sulphate	$85.00

NEW YORK MARKETS

New York, December, 27.—Christmas week has come and gone and if the slowing up of trade activity in the paper market that invariably develops at this season it certainly is not visible to the ordinary observer. Demands continues very active and is of such volume for most kinds of paper that manufacturers and distributors are at a loss to satisfy it. Prices are strong and on the ascendancy. Almost every day one hears reports of a further advance in quotations on this or that grade of paper, and the price situation is becoming such that it is a very difficult matter to get a line on definite values.

Buying interest in newsprint is still probably the outstanding feature of the market. Consumers of news are searching in various directions for supplies and are meeting the stiff prices quoted whenever they find paper available. At the same time publishrs are adhering to the regulations adopted by their trade association seeking to conserve paper supplies and are leaving no stone unturned in their efforts to save as much newsprint as present circumstances will allow. Publishers of all newspapers in New York except two, who already have increased their rates, will advance the price of Sunday papers in the country districts to 10 cents on January 4. This announcement was made several days ago by the American Newspaper Publishers Association, which added that publishers of all but one New York evening paper would not print on either Christmas or New Year's Day.

Illustrative of the acute shortage of available supplies of newsprint in this country may be cited the way in which an East St. Louis, Ill., publisher solved the emergency problem one day this week. This publisher, when his supply of newsprint ran out, printed several editions of his paper on light brown wrapping paper. That this is unlikely to become a common practice seems assured by the fact that the cost of the paper was about a cent per page. Then, too, should any metropolitan daily attempt to substitute wrapping paper for newsprint, the tonnage consumed in producing even a single edition would be so large that it would undoubtedly disrupt the wrapping paper market and send quotations skyrocketing.

Fine papers are steadily increasing in demand and mills are running under pressure endeavoring to keep up with the consumption. That the average writing paper manufacturer could readily dispose of from twenty to thirty per cent more paper than he is now producing seems a certainty. Export demand is brisk and the greater portion of it is going unfilled simply because mills, in their endeavors to keep domestic customers supplied, are not in a position to divert much of their output to foreign fields.

Coarse papers are firm and moving freely. Wrappings of all grades have experienced a record-breaking season prior to the holidays and indications are that there will be little, if any, recession of demand for some time to come. Box board mills are meeting with a pointed demand for their product. Box makers all over the States are actively engaged and are far behind in their deliveries notwithstanding their busiest season should be over. Prices on boards are strong.

Book papers are sought in increasing quantity and this condition is reflected by a very firm tone to quotations. Manufacturers are frequently turning down offers of additional business and have come to a point where they are merely trying to see that their regular customers are supplied. Magazines and other periodicals are commencing to adopt measures similar those which daily newspapers publishers are following to curtail consumption and to eliminate all wastage, presumably realizing that the mills of the country will not be able to fill requirements over the year at the present rate of consumption.

GROUND WOOD.—The demand for ground wood shows little or no abatement and the market presents a very strong appearance. Newsprint manufacturers are quickly absorbing all the supply offered and there are only occasional limited tonnages finding their way into the open market, so that a good many transient buyers are experiencing difficulty in covering their wants. Quotations on spruce ground wood of prime quality range from $50 upwards for spot shipments, talk being held in some quarters of sales at as high as $60. Whether or not the latter figure actually has been paid this week is problematical, but the probabilities are that it has. Grinders with few exceptions are sold up well into the future and are booking new business with caution.

CHEMICAL PULP.—The chemical pulp market is firm and moderately active. Trading has not been quite as lively during the past few days as previously, but this is due apparently to nothing else than consumers holding off to an extent pending the compilation of inventories, and manufacturers and dealers look for the market to reopen soon after the turn of the year displaying more activity than at any time during the exceedingly busy period of the past several months. There is a well defined belief among traders that a number of paper manufacturers have delayed in covering their forward requirements in wood pulp, probably in the hope that prices would readjust themselves more in their favor, and on all sides predictions are being made that demand will appreciably broaden early in the New Year. For the moment, prices are firmly maintained and there is an almost total lack of selling pressure in view. Holders of sulphite either are obtaining the prices wanted or else are refusing to let go of their supplies, and buyers looking about for "cheap" lots of pulp are finding very little available.

RAGS.—A veritable "boom" exists in some grades of papermaking rags. White rags lead in demand at present and dealers and packers assert that they are well nigh unable to satisfy the wants of mills for these rags. Sales have been recorded this week establishing prices on new high levels. New white shirt cuttings have sold at $17.50 per hundred pounds delivered mills, and predictions are made that this class of material will soar to the $20 level before the end of January. Old No. 1 white rags have brought as much as $14 delivered mills, which if not a record price is very nearly so. Thirds and blues are moving in larger volume and at advancing prices, sales of repacked thirds being reported at $5 per hundred pounds delivered mills. Roofing rags are exceedingly strong in price and are sought in a manner which indicates

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Quotations on Sulphite and Kraft Pulp Solicited.

that either felt manufacturers are short of material or else are laying in as large stocks as they can acquire. The market in its entirety is active and the upward march of values shows no signs of being checked for a while. Rather than halting their buying until after taking inventories, which is the common practice at this season, consuming mills seem to be increasing their purchases and dealers and packers, claiming to be receiving less than normal amounts of rags from collection sources, are repeatedly marking up their prices.

PAPER STOCK.—Waste paper is moving in consistent fashion and at firm prices. Demand covers practically all grades, and the undeniable scarcity of one or two descriptions has run prices up on these qualities until they now rest on record levels. White blank news cuttings, for instance, which are used as a substitute for mechanical wood pulp, have sold at $2.75 per hundred pounds, while No. 1 overissue news, which are scarce as a result of the economics practiced by newspaper publishers, is freely selling at $1.60 to $1.75 at shipping points. Shavings of all kinds are in good demand and commanding stiff prices. No. 1 hard white shavings readily sell to mills at $5.75 per hundred pounds f.o.b. New York, while soft white shavings or No. 1 quality have fetched up to $4.75. Flat stock is in steady demand and is quotable at $2 50 per hundred pounds at shipping points. Low grades are being readily absorbed at strong prices, folded news selling at $1.05 to $1.15 New York and No. 1 mixed paper at 85 to 90 cents.

OLD BAGGING AND ROPE.—Papermakers are purchasing old rope in good volume and at steady prices, strictly No. 1 Manila rope commanding $6.25 per hundred pounds f.o.b. New York. Old bagging is sought in relatively less tonnage and prices just about hold their own at a basis of $3 delivered mills for No. 1 scrap bagging.

ABITIBI TO RETIRE DEBENTURE BONDS

A circular has been received by the shareholders of the Abitibi Power & Paper Company announcing that the 7 per cent convertible debentures of the company will be retired on April 1st, 1920, at 110 and accrued interest.

The debentured stock of the company was offered to the public in April, 1918, at 87, and accrued interest, to yield over 8½ per cent and was nominally due December 1st, 1932. The company, howeved, had the option of retiring the debentures at 110 and accrued interest at any time on or before March 1, 1921, after which they were convertible at the holder's option into common stock at par. The amount of the offering was $1,000,000.

The retirement of the debentures will reduce the company's funded debt to $5,400,700, which, with $1,000,000 preferred and $5,000,000 common represents the outstanding capitalization of the enterprise.

Do you remember Lincoln's story about the little steamer with the big whistle?

"Every time they tooted the whistle it blew off so much steam that the boat stopped running."

That's the way with lots of people today. If they would only use their energy to drive the paddle wheel of opportunity instead of eternally blowing the whistle of discontent they would find themselves going up the stream of success so danged fast that the barnacles of failure wouldn't have a chance in the world to hook onto their little craft.—Makin' Paper.

BRITISH TRADE NEWS

(From Our London Correspondent)

The Sun Paper Mill of Feniscowles and Blackburn, in Lancashire, has just brought to a close a successful year, and the directors announce that the balance on the twelve months' working reaches £23,158 and that the reserve fund now stands at £50,000. The bonus and dividend to be paid will be announced at the annual meeting to be held shortly. A suggestion will also be made for the purpose of sub-dividing the existing preference and ordinary shares and increasing the capital from £92,000 to £120,000 by the creation of 28,000 additional ordinary shares at £1 each. Throughout Lancashire in other industries there is a rush for increasing capital, owing to expansion of trade and increased cost of production, and consequently the news of the Sun Mill going in for more money is not unexpected.

Newsprint Fire

There has been a big newsprint fire in London, which has lasted for several days and 25 firemen have been overcome by the fumes. The fire lasted for a week and tons of paper have been damaged by water and destroyed by the flames. Lambeth is the scene of the outbreak and the place was a large store used by some of the daily papers. One of the morning papers, "The Daily Express," has lost 400 tons of newsprint, which represents about 4½ million copies of the paper. These 400 tons are only a small item compared with the stock the Express holds in reserve. All London papers keep in stock enormous reserves of newsprint and they are usually stored in various places throughout London, so that if a fire breaks out only a small portion goes. As I write the firemen are still playing water on the smouldering paper.

Trade Fair

From February 23 to March 5, a Trade Fair will be held in London in the Crystal Palace. This is one of a series of three exhibitions to be held in this country under the auspices of the Board of Trade, each fair representing a specified group of industries. At the London Fair the exhibits will include paper and auxiliary industries, and I am told applications for the 14 acres floor space in the Palace already exceed the space available in the British market. There is no mention so far of what the Dominions and Colonies will exhibit and one would imagine that in a fair of this kind Canada would be asked to send specimens of her industries to let the British people and others see that her paper industry was on a par with others. Germany is out of the Fair altogether.

Canada's Paper Trade

One or two weekly papers here—one being in the paper trade—while agreeing with me that a measure of preference should be given to Canadian industries in the British market, contend that I am rather early in broaching the subject. My reply is, that it is better to be too early on the subject than too late. Before Germany, Austria and others get going in the market, and before the Scandinavians get a reduction in their freightage, I contend that the Canadian paper and pulp industries have a legitimate right for any preference they may ask for in the British market. They have that right before foreigners are encouraged in the country, and the sooner the matter is taken up in Canada the better for paper consumers on this side of the Atlantic. When the Armistice was signed we were to trade within the Empire, give ex-soldiers em-



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SOLE AGENTS in the United States, Canada, Mexico and Cuba for

Finnish Cellulose Union, Helsingfors, Finland

and in the United States, Canada and Cuba for

Finnish Wood Pulp Union, Helsingfors, Finland

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ployment, and not forget our obligations to Canada and Australia. Now, when the question of preference is mentioned the idea is pooh-poohed and we are told that Scandinavia is not able to meet British wants in newsprint and, therefore, Canada in Scandinavia's weak hour should not be considered. Such a policy is antiquated and narrow-minded. It is certainly not the view of the successful and progressive papermaker in England and Scotland. Today there is more Newfoundland and Canadian paper in England than there is Scandinavian. Still the British mills go on making a profit and give good employment.

Edward Lloyd, Ltd., to Move

London keeps changing and changing every day and one of the oldest landmarks to go shortly will be Messrs. Lloyd's offices at 12 Salisbury Square—the history of which is part of the history of the great metropolis. The new office will be 4-7, Salisbury Court, off Fleet Street, E.C. 4. Messrs. Lloyd's mills in Kent and Norway have a production of over 700,000 tons of paper. They have also two pulp mills in Norway turning out ground wood to the extent of 80,000 a year.

Paper Situation

Mills are busy and there is a disposition to turn down orders for the present. Prices are firm, but in fine papers there are some bargains to be had. Newsprint remains unchanged and some good stocks form Canada and Newfoundland are still here. The Scandinavians are under the impression that when they are exhausted there will be more business going their way. This is a matter for Canadians to look into, however, and I would suggest that their agents here be asked to give an official report. Germans and Austrians are still out of the market. France is taking more newsprint for the time being. It is really to make up for the strike lapses.

Pulps

Business in the pulp market is very fair for all grades. Soda pulp is slow in moving. Shipments from Canadian and Scandinavian sources are arriving regularly and the tonnage shows no reduction. Prices for all pulps are firm. Easy bleaching sulphite is greatly in demand.

Chemicals

The export trade in chemicals is brisk. Papermakers' chemicals show no change in prices, but they are firm. Alum is inclined to be scarce and quotations today are about £19.10s per ton. China clay is unchanged.

Notelets.

Mr. Fred Knight, of Smith, Stone & Knight, Ltd., papermakers of Birmingham, who died in June last, left a fortune of the gross value of £179,000. Several hospitals have received substantial help from his estate.

Yates & Thorn, papermakers engineers, have declared a dividend of 10 per cent, as against 7½ per cent for the preceding year.

F. T. Perry of the Imperial Paper Mills, Gravesend, was killed the other day by being struck on the head with some belting.

The compositors in Madrid are now on strike and some of the newspapers are closed down. They are following in the steps of Paris. British papermakers do a fair share of the trade in Madrid.

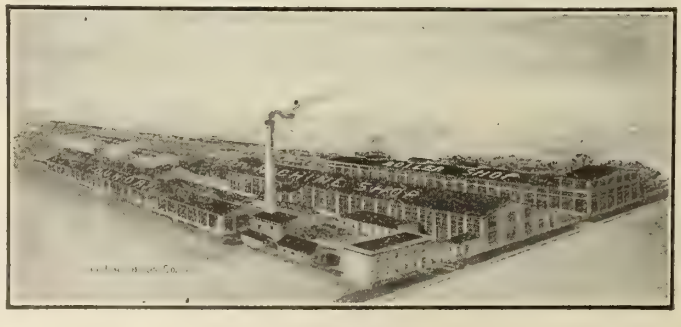
The "Daily Express," London, say they have lost by fire recently 16,000 miles of newsprint.

THE JOHN INGLIS CO., Limited

Engineers and Boiler Makers

"Inglis" goods are Made in Canada

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Boilers
Tanks
(Heavy Plate Work)



Special Machinery of all kinds.

WRITE US FOR PRICES.

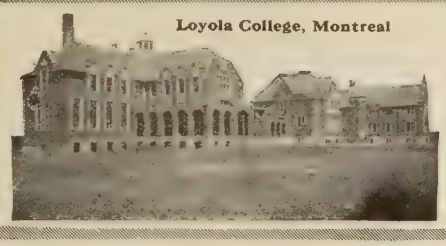
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Representatives in Eastern in Canada—JAS. W. PYKE & CO., Limited, 232 St. James St., Montreal.

Ottawa Representative—J. W. ANDERSON, 7 Bank Street Chambers.

Loyola College, Montreal

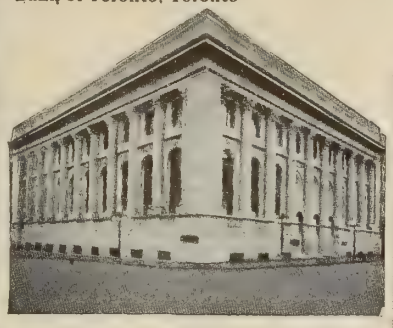




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Crane Limited, Montreal



St. Denis Theatre, Montreal



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Lorne C. Webster Residence
Montreal



NATIONAL SHIPS OF CANADA

By DAVID KALSAC.

Canada's great area is equal to 30 countries the size of the British Isles, and the population of the whole area is only about one-sixth that of the United Kingdom of Great Britain. Canada could look inward for thousand of miles. The ocean paths were open, but only to the minority. The majority of Canadians probably have never seen the sea. Their view point, like their environment, is insular although we could touch one country almost at all points along a four-thousand-mile boundary line. That sort of a situation produces national thinking only. The international habit does not come until there are means of contact with other lands. To all others we were shut out. One development alone could give us the means of expansion along international trading lines. That development was a fleet of ships. Of that fleet—Canada-built, Canada owned, Canada-controlled, we have already sixteen sturdy vessels varying between 3,750 dead-weight tons, and 8,400 dead-weight tons, in operation between ports in Canada, the United Kingdom, the British West Indies, Cuba and South America. Within a few weeks Australia will be included in the list. Sailings to other ports in Great Britain and elsewhere are now under consideration.

The Canadian federal plan calls for a fleet of sixty ships having a gross dead-weight of approximately 300,000 tons. They belong to Canadians as a whole. Canadian Government Merchant Marine, Limited is the name of the company to operate them under the direction of Canadian National Railways.

FIFTY FACTS ABOUT CANADA'S RESOURCES

In "Fifty Compact Facts" about the resources of Canada, the Department of Interior states:

Forests—Next to Russia and the U.S.A., Canada has the largest forest resources in the world. Care is taken to preserve the timber supply by airplane scouting, wireless telegraphy, portable power pumps, re-planting, Forest Products Laboratories, stricter legislation and Dominion and Provincial reserves.

Commercial Timber—The total area of land covered by timber in Canada is estimated at between 500 and 600 million acres. Commercial timber covers 225 million acres. Most of the balance is growth suitable for pulpwood.

Wood Pulp—In 1908 64% of Canada's cut was exported raw, and 36% was manufactured. In 1917, 70.4% was manufactured and 29.6% exported. Canada produces per day 2,400 tons of newsprint alone, equal to an average cut from 3,600 acres.

Wood Pulp Products—So far there is no factory in Canada producing textile goods such as cordage, carpeting, sacks or garments from paper yarn. Cellulose, too, from wood fibre, chemically treated, is a basis of celluloid manufactures of aeroplane dope and of artificial silk.

Aeroplane Spruce—Virgin Sitka Spruce is the best known material for aeroplane construction. In areas of Queen Charlotte Islands it form 35% of the timber stand. Nowhere else can it be logged on a commercial basis. In the last year of the war British Columbia supplied material for 30,000 aeroplanes.

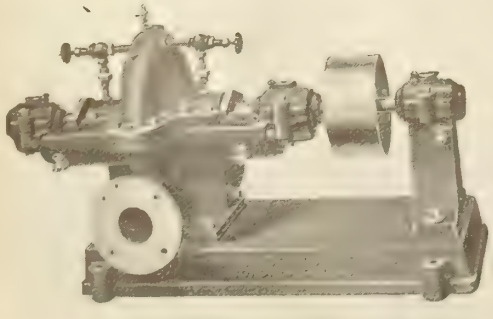
Copies of the full bulletin can be had from the superintendent of the National Resources, Intelligence Branch.

The rate of exchange on Canadian currency is getting higher and higher. A few days ago it was 10%, to-morrow it may be 25%.

How can we overcome this?

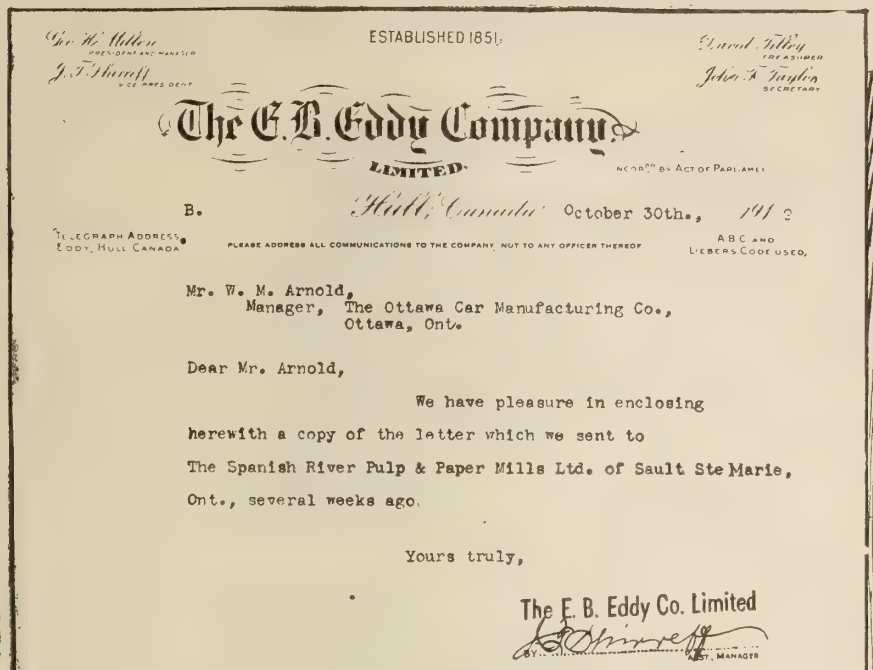
By buying Canadian made goods in every instance where Canada can supply as high class material and perfection of workmanship and construction as can be obtained elsewhere, you will do your bit towards bringing down the exchange rate on the Canadian currency; this will enable you to buy such necessities which can *not* be procured in Canada at a more reasonable price.

When you buy Bawden's Steam and Centrifugal pumps you get the best there is to be had—and Canadian made.



Selling Agents:
for the Province of Quebec, Maritime Provinces and Newfoundland.

Pulp & Paper Mill Accessories Limited
MONTREAL



Geo. H. Hilton, President and Manager
J. F. Sherriff, Vice Pres. Dept
David Tilley, Treasurer
John F. Taylor, Secretary

ESTABLISHED 1851.

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LIMITED.

Incorp'd by Act of Parliament

B. Hull, Canada October 30th., 191 3

Telegraph Address, Eddy, Hull Canada
Please address all communications to the company, not to any officer thereof
A B C and Liebers Code used.

Mr. W. M. Arnold,
Manager, The Ottawa Car Manufacturing Co.,
Ottawa, Ont.

Dear Mr. Arnold,

We have pleasure in enclosing herewith a copy of the letter which we sent to The Spanish River Pulp & Paper Mills Ltd. of Sault Ste Marie, Ont., several weeks ago.

Yours truly,

The E. B. Eddy Co. Limited
By J. F. Sherriff
Vice-President and Manager

PURCHASING DEPARTMENT

Geo. H. Hilton, President and Manager
J. F. Sherriff, Vice-President
David Tilley, Treasurer
John F. Taylor, Secretary

ESTABLISHED 1851.

The E B Eddy Company
LIMITED.

Incorp'd by Act of Parliament 1886

B. Hull, Canada October 11th. - 191 3

Telegraph Address, Eddy, Hull, Canada,
Please address all communications to the company not to any officer thereof
A B C and Liebers Code used,

COPY

The Spanish River Pulp & Paper Mills Limited,
Sault Ste Marie, Ont.
Canada.

Gentlemen,

We have your letter of the 7th.inst in reference to Acid Resisting Bronze Castings made by the Ottawa Car Mfg. Co.

Our experience with their Castings has been extremely satisfactory. We have used their Castings for a number of years now and so far we have still to find any which have not stood up to what is expected of them. We do not hesitate in recommending them for your use.

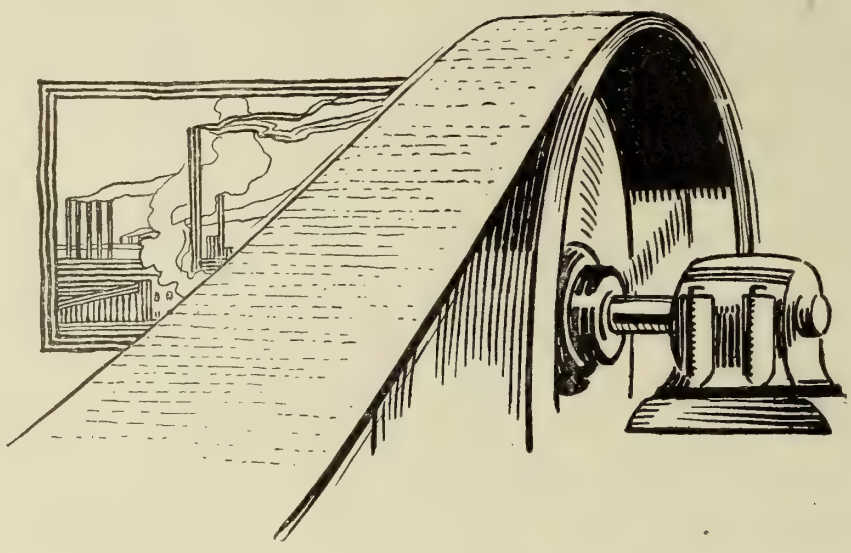
Yours truly,

PURCHASING DEPARTMENT

OUR AIM IS TO SATISFY

This Firm Is Getting Satisfaction Are You ?

OTTAWA CAR MANUFACTURING COMPANY, Limited, Ottawa, Can.



A Short Route to Increased Production

Efficiency of equipment is the shortest route through which you can increase production, and offset the high cost of material and labor.

Your first consideration should be to get the most out of the power that you are paying for

Dominion Friction Surface Belting

will transmit as near one hundred per cent. of each power unit as can be transmitted by a belt.

During more than fifty years of experience in belt building for power transmission, we have perfected a special friction compound that acts not only as a waterproofing, as a vulcanizer to the fabric plies of the belt, but enables Dominion Friction Surface Belting to take a grip on the pulleys that practically eliminates all power waste.

Our engineers will be glad to show you, without charge, how Dominion Friction Surface Belting shortens the route to increased production, thereby lowering **your** manufacturing cost. Their services are available through our nearest Service Branch.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Makers of
Dominion Hose, Packing and Industrial Rubber Goods and Dominion Tires, the GOOD Tires for every purpose.

Service Branches:

Halifax,	Toronto,	Fort William,	Edmonton,
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Glazed Papers	Grass Bleached Tissue
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Panzl Linings are Safest and Most Durable

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Chloride of Lime Bleaching Powder Caustic Soda

These products are now being manufactured in Canada in the only plant devoted to the purpose, and the manufacturers are in a position to make deliveries in any quantities on short notice. Order

(*Windsor Brand*)

Chloride of Lime, Bleaching Powder and Caustic Soda.

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Rolls 32" face by 16" diameter. Front feed table 32" deep over all Back return table 45" clearance, complete with F. & L. driving pulleys and reverse drive.

Counter shaft etc. In good working order, cheap for immediate sale, also Hydraulic Press.

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HOOVER PROCESS SULPHATE OF ALUMINA

Specially manufactured for use in paper mills making all grades of paper, excepting the high grade whites and delicate tints.

SOME OF OUR USERS:

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Auglaize Box Board Co., ... St. Marys, Ohio.
Marion Paper Co., ... Marion, Indiana.
Burmas Paper Co., ... West Dudley, Mass.
Aldrich Paper Co., ...Natural Dam, N. Y.

Arrangements can be made to manufacture at the mill, for large users.

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Sole Agents and Owners of Process in Canada.

GOODYEAR
MADE IN CANADA

EXTRA POWER BELTING

You can find no safer guide in selecting your belting equipment than the experience of others.

In over one thousand of Canada's plants Goodyear Extra Power Belting is being used with marked success. Scores of these have written us telling of their experience with Extra Power Belting.

Read this letter from The Dominion Steel Products Co., Limited, of Brantford, a concern noted for its progressive methods. It tells of a belting experience which must impress you.

Price was a minor factor with Dominion Steel Product·, but on this alone they made a saving of $4,000.

Length of service, general efficiency, continuous operation and power saving were the determining factors in their decision to use only Extra Power Belting in their plant.

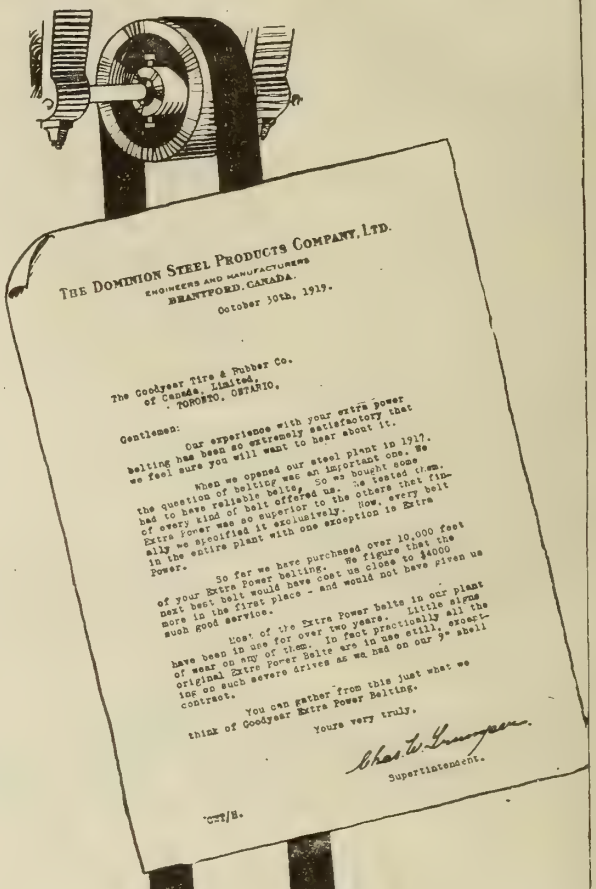
It may be that your plant is much smaller; that your saving would only be $400, but even this plus the greater efficiency of Extra Power Belting is too important for you to disregard.

You can easily prove to your own satisfaction that Extra Power would serve you as faithfully as it has the Dominion Steel Products Co.

Phone, wire or write our nearest branch, so that a man carefully trained in belting problems by Goodyear may call on you and present further evidence of the superiority of Extra Power Belting. No obligation other than fair investigation.

THE GOODYEAR TIRE & RUBBER CO. OF CANADA, LIMITED

Branches—Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, London, Winnipeg, Regina, Saskatoon, Edmonton, Calgary, Vancouver. Service Stocks in smaller cities.



THE DOMINION STEEL PRODUCTS COMPANY, LTD.
ENGINEERS AND MANUFACTURERS
BRANTFORD, CANADA.
October 30th, 1919.

The Goodyear Tire & Rubber Co.
of Canada, Limited,
TORONTO, ONTARIO.

Gentlemen:

Our experience with your extra power belting has been so extremely satisfactory that we feel sure you will want to hear about it.

When we opened our steel plant in 1917, the question of belting was an important one. We had to have reliable belts. So we tested them. Of every kind of belt offered us. We tested them. Extra Power was so superior to the others that finally we specified it exclusively. Now, every belt in the entire plant with one exception is Extra Power.

So far we have purchased over 10,000 feet of your Extra Power belting. We figure that the next best belt would have cost us close to $4000 more in the first place - and would not have given us such good service.

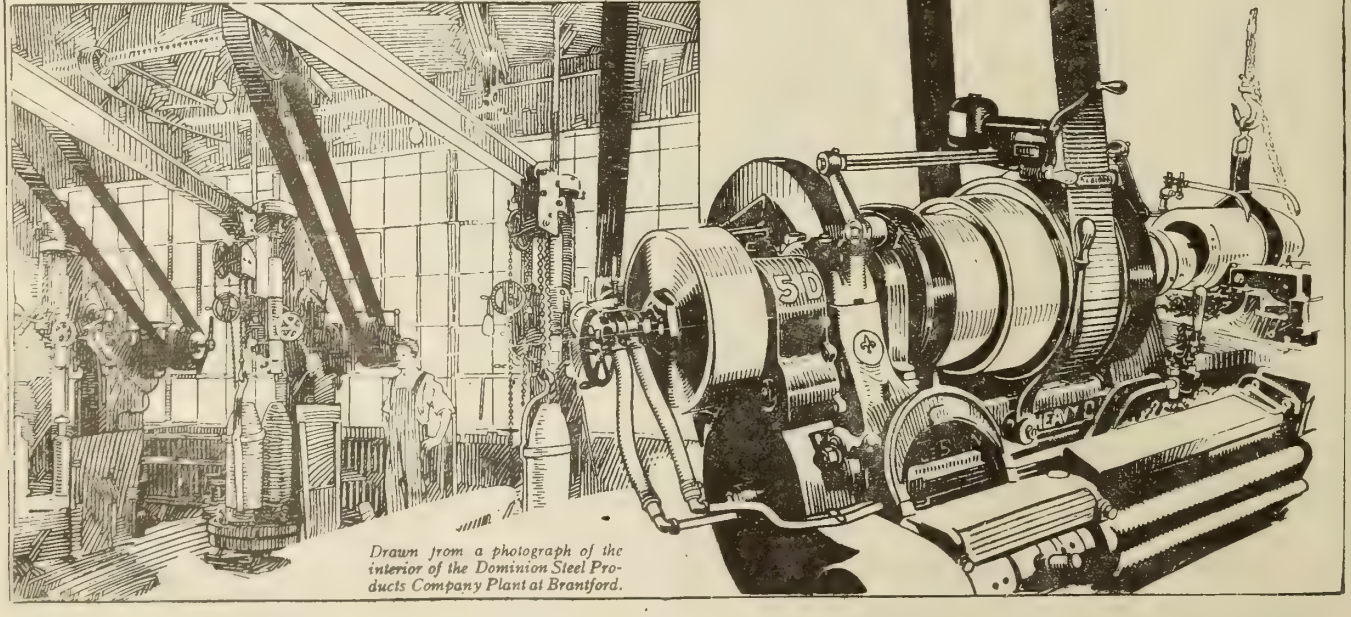
Most of the Extra Power belts in our plant have been in use for over two years. Little signs of wear on any of them. In fact practically all the original Extra Power belts are in use still, exacting as much severe drives as we had on our 9" shell contract.

You can gather from this just what we think of Goodyear Extra Power Belting.

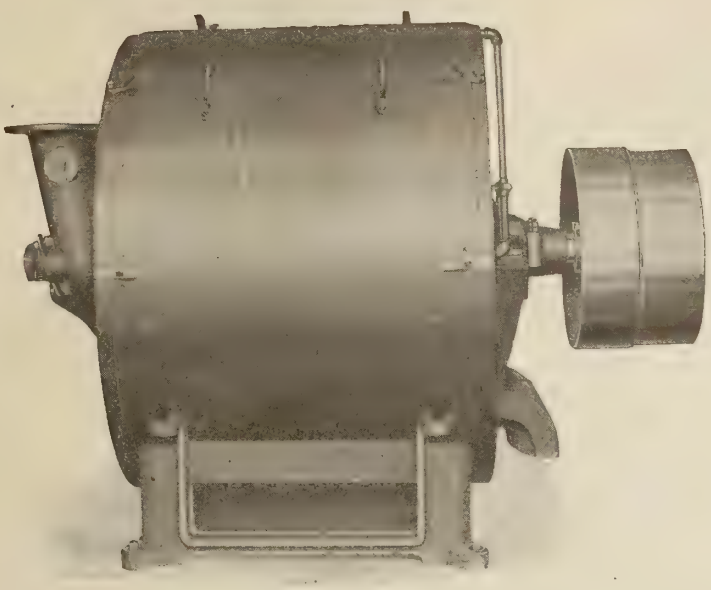
Yours very truly,

Chas. W. Thompson
Superintendent.

CWT/E.



Drawn from a photograph of the interior of the Dominion Steel Products Company Plant at Brantford.



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WESTBYE PULP SCREENS

Horizontal and Vertical Design
Belt-and Motor-Drive
Stationary and Revolving Screen Plates

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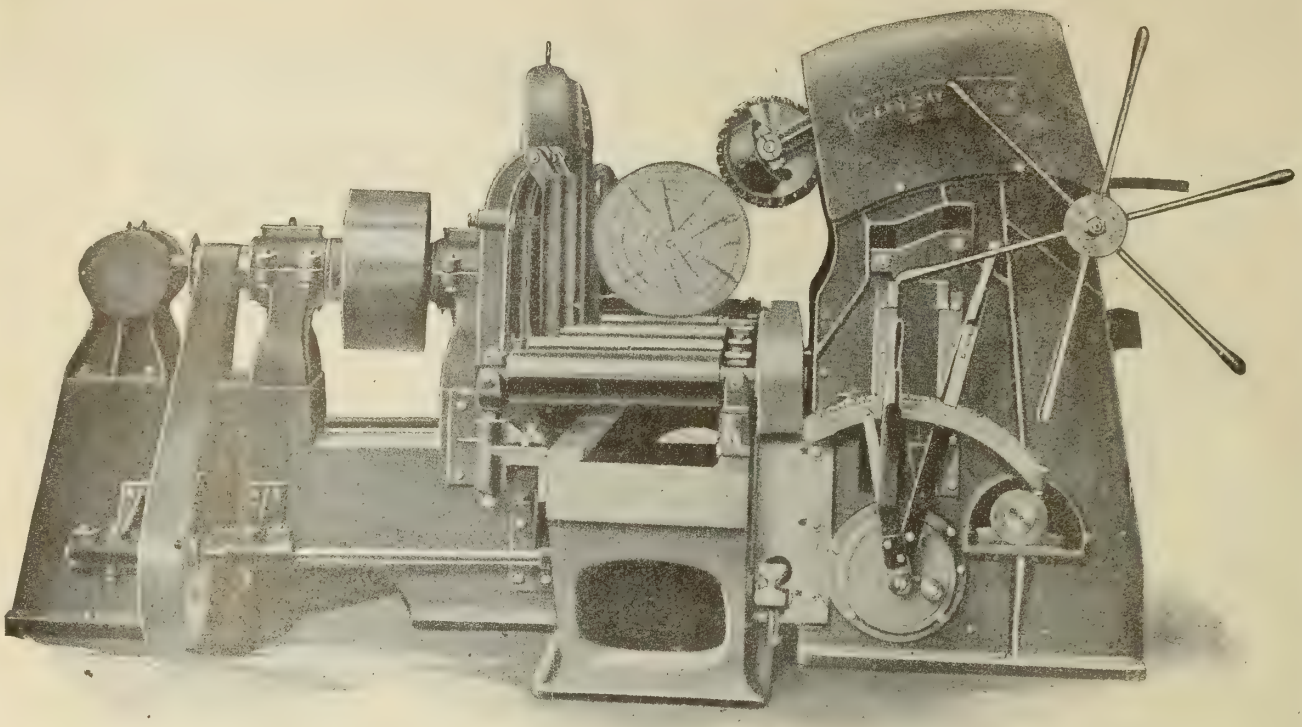
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Equip your Mills with Green Bay Barkers—Material and Labor Saving Machines

BARKERS that have stood the test of time—both normal and abnormal. Higher prices will be obtained in normal times for paper manufactured from wood barked on rotary knife barkers. Equip your mill to take care of normal business conditions.

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SAULT STE. MARIE, ONTARIO

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

Published every Thursday by the Industrial and Educational Press, Limited, Garden City Press, Ste. Anne de Bellevue. 'Phone 165.
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A. S. Christie, Eastern Manager,
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'Phone Main 2662.
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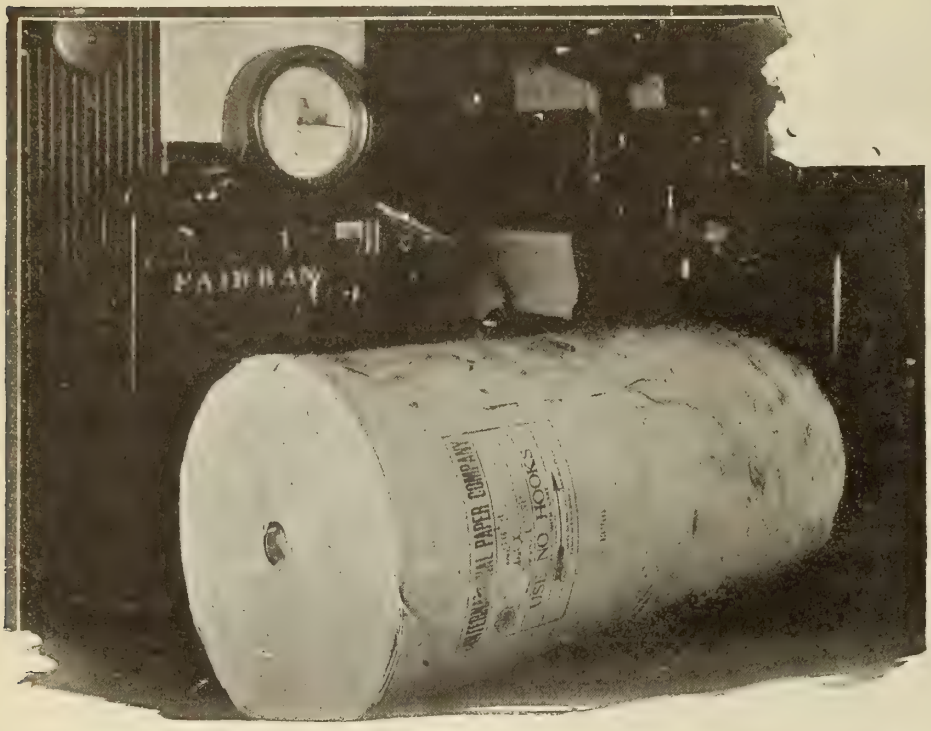
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EDITORIAL

A PAPER MAKER WITH BACK BONE.

On another page of the magazine this week will be found a newspaper account of recent developments with regard to the Orders-in-Council requiring Canadian mills to supply Canadian publishers with newsprint paper under the continuation of authority that has been assumed by the Government still to hold good under the War Measures Act. Since the declaration of Peace there have been repeated extensions of orders from the Paper Controller with regard to the price of newsprint in Canada and until the first of January the orders had been carried out by the newsprint manufacturers under protest. The manufacturers have not accepted such orders as having been proper. Some of the manufacturers have reached a point where a further observance of orders, which competent legal authority has pronounced *ultra vires,* have become not only decidedly irksome, but definitely interfering with their prosperity and particularly with their freedom of contract. No other industry in Canada is and few have been subjected to any such intereference with the legitimate conduct of their business affairs and relations with customers and the patience of concerns who have constantly endeavored to serve the best interests of the Canadian people, often even at considerable sacrifice, has in some cases become completely exhausted and humble submission to unfair and unnecessary interference is about at an end.

On several occasions where manufacturers' and publishers' committees have sat in conference the Canadian publishers have been assured that the manufacturers accept the principle that the Canadian press should be furnished with sufficient newsprint for legitimate requirements and the manufacturers have been ready to supply the necessary tonnage at prices to be arrived at through proper business communication. A number of Canadian papers are being supplied under contract with paper mills on terms that are entirely satisfactory to both parties and if all the publishers in Canada would conduct their business on such a basis there is every reason to believe that there would be no occasion for any such friction as has arisen through the apparently forced interference of governmental authority.

For a number of years investigations have been going on at the instigation of the publishers to ascertain the cost of the manufacture of paper, which certain publishers have complained of as having been sold to them at exhorbitant rates. In no case has any other item of expense in the publication of daily newspapers been investigated nor has any enquiry been made as to whether the cost of newsprint has actually caused financial hardship such as has been complained of. The dividends declared by some publishing companies is indication that a subsidy which the government has required the paper manufacturers to furnish the publishers has been entirely unnecessary. If the newspapers are the public necessity which has been claimed, and in the case of publications rendering an actual service, this will not be questioned, and if certain of these had to be maintained and could not have been maintained without external assistance, it was the part of the government to render such assistance according to the needs of the case. The government did distribute in the form of advertising and other emoluments during the last five years an average of approximately $500,000 annually. Of course, a large proportion of this, perhaps an undue proportion went to the support of papers which were already financially able to take care of themselves.

In a city of about 200,000 after the last Victory Loan campaign, the headquarters had $10,000 worth of *waste* paper.

Further than this the government appropriates $50,000 a year to the support of telegraphic news service over wires which are claimed would otherwise be unproductive and devote an additional $15,000 to the support of cable service, all of which is really a subsidy to the Canadian newspapers. If it were not for this service which practically donates a considrable proportion of the news of the world and the country to the newspapers for their use there would not be much except local items in the daily papers.

We do not question the importance or the value of the service rendered by the newspaper, but the public could certainly read all of the telegraphic and cable news in one paper in each city without finding it duplicated in from two to a dozen papers. Of course, this government-supported news service also has the great purpose of furnishing the newspapers with a skeleton on which to hang a large amount of remunerative advertising. In spite of the plea and claim that the newspaper is published in the benefit of the public, nobody seriously questions that the real reason for establishing a paper is that it furnishes an opportunity of making money. The paper manufacturers very properly object to furnishing the material basis for the profit of these newspaper enterprises at a sacrifice to themselves. If it were a matter of directly serving the people and the government without incidentally donating a very considerable contribution to another industry which should be sufficiently self-respecting to

be self-supporting, there would doubtless not be the present difficulty in regard to the observance of even such onerous orders as have recently been issued.

The issue has been particularly brought to a head by the flat refusal, on the advice of competent authority, by one of the large newsprint producers to observe an order which appears to be principally bluff and which will doubtless be found to be without proper legal foundation.

The order to furnish a certain proportion of paper produced to Canadian publishers by this concern, which has been faithfully obeying apparently legitimate orders, in war time, accompanied by a very aggravating incident, and one which has not been brought to the attention of the public. If this is typical of the attitude of the Canadian publishers who have not been willing to make business-like contracts, then the wonder is, not that one company has refused to obey such orders but that any companies have been willing to do so. It is commonly known that Lord Atholstan, who controls the Montreal Star, also controls the News Pulp & Paper Company. The Order-in-Council which has recently passed, required each manufacturer to provide approximately 15 per cent of its output for the use of Canadian publishers. This has left an opportunity for the News Pulp & Paper Co. to take a very mean advantage of a fellow Canadian industry. If we were in a period of low prices there is no question but that the whole output of the News Pulp & Paper mill would be used by the Montreal Star, providing cheaper paper could not be obtained elsewhere. At the present juncture, however, instead of so using the product of what is practically its own paper mill, the News Pulp & Paper Company takes advantage of the situation in order to make outside sales at prevailing export prices and the Star attempts on the strength of the Order-in-Council to obtain its paper at a Canadian price of $80 from a mill which can readily obtain from $90 to $100 for its product in the export market. The Star's mill meanwhile would make the extra profit of $10 to $20 on its export shipments of approximately 85 per cent of its output at the expense of obtaining this quantity of paper from another mill. The corresponding sacrifice of this mill under the provisions of the Order-in-Council would be from $250 to $500 more per day, a rather generous donation. The unfairness of such action is perfectly obvious and such an aggravation would be sufficient excuse for the attitude of a certain Quebec manufacturer if there were no other reasons for their recent action.

The whole handling of the newsprint situation in Canada has been an unfortunate affair and no one but the publishers who have derived a very large financial advantage at the expense of the manufacturers have had any satisfaction in the course of events during the last three years. The paper controller has stated that chaos would have reigned in the newspaper publishing world had not government control been extended beyond a period of the actual duration of the War. Mr. Pringle may have sufficient grounds for such an opinion, but we have always been firmly convinced that if the newspapers had acted with the manufacturers in an open, honest, business-like manner that they would not only have been assured of a sufficient supply of newsprint, but that amicable relations would have been maintained throughout the strenuous period of the War, and what is perhaps even the more difficult period of readjustment.

COBWEBS.

The January thaw will not have much work to do this year.

Apparently Sherbrooke is to have a ground wood mill. That is a good idea. Sherbrooke is well situated for wood, power and railway facilities. Success to the Howard Pulp & Paper Co.

With the Air Board looking for hydroplane bases in British Columbia, we may hope soon for an established air forest patrol in that province. The extension of such service will doubtless result in a better knowledge of actual forest conditions and certainly in less damage by fire.

The demand for high priced rags in the States might be taken to indicate that business will be good with the fine mills for some time to come. It also supports the general feeling that prices for all kinds of material will not be appreciably lower for a long while. The general public has money because labor is getting good wages; the spending of them has created a strong demand for materials and the payment of them has increased the cost of all these materials.

Mr. Phillip T. Dodge brings a comforting message from Europe. American and Canadian producers have labored under a heavy handicap for years, in the difference between labor's wages on the two sides of the Atlantic. The war has brought a levelling of conditions. It remains to be seen whether there will be any general change of import duties proportional to increased wages abroad.

Of course, we don't presume that firms sending out remembrances at this time of the year had the editor particularly in mind when making their selections, but the results could hardly have been happier if they had. For instance, Canadian Fairbanks-Morse did not know we lost our fountain pen, yet along comes a "Temprint" pen bearing the editor's initials and on the clip is the C.F.M. trade mark. Besides, the Toronto Paper Manufacturing Co.'s "Daily Reminder" and Gottesman's diary, there are a number of very acceptable calendars, especially the big figured memo calendar of Sadler & Haworth.

Prevention of Decay in the Timber of Pulp and Paper Mill Roofs

By R. J. BLAIR, Pathologist, Forest Products Laboratories of Canada, Montreal.

(*Continued from Last Issue.*)

Heating the Paper Mill.

Several systems for heating Machine Rooms are in common use. An air system is best, provided it is correctly designed and maintained in working order. In such a system the air used for heating ventilates the mill at the came time as it does the heating. Fresh out-door air is taken into a chamber filled with heating coils where it is heated to 65 or 70 degrees. A fan in the side of this chamber forces the heated air into large pipes which convey it into the mill near the roof. With a roof which is nearly flat these should be placed near the side walls extending the full length of the mill.

There should be enough outlets that the dry heated air reaches all parts of the roof equally. Only in this way is it possible to secure the maximum heating effect with the minimum of heat supplied. As the moist air is removed from under the hoods of machines the newly admitted air finds its way down replacing that removed with the steam so that a constantly changing

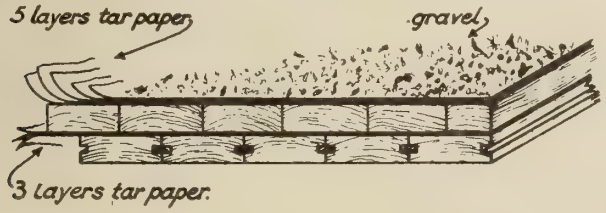


Fig. 11.—Plan for an insulated roof when wood is used for insulation.

layer of dry air is found at the roof. This is a feature which tends to keep the roof dry and thus prevents both condensation and decay. In very wide Machine Rooms, or rooms with steeply pitched roofs it would help if a third main supply pipe extended down the centre of the mill. If it happened that the supply pipes ended in a part of the mill exposed to cold winds it would be advisable to have a pipe supplying extra heat to this part of the mill in severe weather.

The disadvantage with a system of steam heating is that if moist air once gets up next the roof there is no incoming current of air to force it down and carry it out of the mill. If steam coils are used the pipes should be so separated as to distribute the heat as uniformly as possible. This result may be obtained if, instead of placing a bank of 4 pipes every 20 feet, the pipes are spaced singly 5 feet apart. In the neighborhood of doors which are frequently opened in cold weather the rooms need extra heating if moisture condensation is to be prevented there.

Pitch of the Roof.

The pitch of the roof has a certain bearing in regard to the heating since the less the pitch the easier it will be to keep the heat evenly distributed to all parts of it. The less the pitch, the less surface there is for heat loss through the roof. At the same time less material is required to build a flat roof than a steep one. Sometimes when the pitch is very low a false roof is raised at various points in the gutters to drain rain away more easily. As a rule no provision is made to prevent the entry of moist air from the mill into the concealed space formed by this extra roof. Moisture enters and within a short time rot develops to such an extent that it is necessary to renew all of the wood adjoining the space. The remedy lies in one or two things: either preventing the entry of moist air into the space by putting several plies of tar paper well mopped together on top of the first plank before the false roof is built, or else in building all the slant required in the first planks so that it will not be necessary to have any concealed spaces at all. The latter will be most satisfactory in the end although it would require more framing in the supports for the roof as well as a greater cutting of planks, which are used in the roof.

An Insulated Roof.

Reference to Fig. 2 shows that the ordinary type of roof fails because no provision is made to prevent the condensation in the roof itself, and the remedy for this is to build the roof in such a way that moist air entering the spaces between the planks is prevented from reaching their upper side where it is cooled to the dewpoint or further. Such a result is secured when there is placed in the interior of the roof a layer consisting of at least three sheets of tar paper well mopped together with pitch. For heat-insulating purposes there is placed on the top of this tar paper layer a thickness of some material which keeps it at such a temperature that if any moist air from the room reaches the paper it will not be cooled to its dewpoint. Most decay begins at the upper side of the roof next the roofing paper but if we are able to prevent moisture from reaching this point, we should be able to control the action of decay and prevent it altogether.

In making our choice for material to be used for insulation there are three points to be kept in mind. These are insulating power, cost and a texture which will give the roof when finished a firm upper side. The material, which most completely satisfies all three requirements, is undoubtedly wood, and the species best suited for the purpose are cedar and redwood. Both of these woods are very light in weight and consequently are the best ones we have for insulating purposes. They are also highly resistant to the attack of fungus. If it is impossible to secure wood which is naturally resistant to decay the next choice is timber which has been given preservative treatment.

The various insulating materials, which the market offers for such work, are usually of too soft a texture

to be used in roofs, because there is more danger of the roof covering getting broken with resulting leaks. The commoner of these materials are Cork-board, Insulite and quilts made of hair, seaweed or reeds. If conditions are such that one of these materials has to be used instead of wood, the essential point is that it be kept dry. This result may be obtained by making sure that the tar paper beneath forms a layer as proof against moisture as if it had been placed on the outside of the roof exposed to the weather. If moisture once gets into anyone of these materials the insulating power is destroyed and a roof insulated in such a way is worse off than if it were without insulation of any kind whatever.

For insulation, perhaps the cheapest material obtainable of all which might be used would be an inferior grade of sapwood lumber which has been given treatment with a preservative. One inch stuff is best suited for the purposes since it is easily handled, has more exposed surface, and is more easily treated than thicker material. Being an inferior grade of lumber, it has possibly been culled on account of incipient decay in some parts or else contains a lot of sapwood. The preservative treatment needs be but enough to kill the fungus already there and prevent another infection before wood is put into the roof, because when once in place between the two coverings of tar paper no further infection is possible. For reasons of economy this wood may be treated at the mill with creosote. For immersing the timber in the creosote it is necessary to have a tank with steam coils so that the oil may be heated. To carry out the treatment the oil is placed in the tank, heated and the lumber is then immersed in it for at least 12 hours, being kept hot all the time. While under treatment some of the oil will enter the wood wherever it is decayed and this along with the prolonged heating is expected to kill all the fungus in the wood, while the oil on the surface prevents any further entry of fungus before the wood is used. For these reasons the treatment described is deemed sufficient for the demands of the situation.

Table 1—*Thermal Conductivities of Building Materials*
(From Journal of American Society of Refrigerating Engineers.)

Material	Conductivity BTU 24 hrs. —ft. sq. 1" thickness degree F.	Density	Nature of Material
Air	4.		Horizontal layer, heated from above radiation eliminated.
Colorax	5.3	.064	Fluffy, finely divided mineral matter.
Hair Felt	5.9	.27	
Keystone Hair	6.5	.30	Hairfelt confined between layers of building paper.
Pure Wool	5.8	.107	Firmly packed.
Pure Wool	5.8	.102	Firmly packed.
Pure Wool	6.3	.061	Loosely packed.
Pure Wool	7.	.039	Very loosely packed.
Cotton Wool	7.	...	Firmly packed.
Insulite	7.1	.19	Pressed wood pulp—rigid; fairly strong.
Linofelt	7.2	.18	Vegetable fibres confined between layers of papers—soft and flexible.
Corkboard (pure)	7.4	.18	
Eelgrass	7.7	.25	Enclosed in burlap.
Flaxlinum	7.9	.18	Vegetables fibres—firm and flexible.
Fibrefelt	7.9	.18	Vegetables fibres—firm and flexible.
Rock Cork	8.3	.33	Pressed rock wool with binder—rigid.
Balsa Wood	8.3	.12	Very light and soft.
Waterproof Lith	9.8	.27	Rock wool, vegetable fibre and binder—not flexible.
Pulp Board	10.4		Stiff pasteboard.
Air Cell ½"	10.7	.14	Corrugated asbestos paper, enclosing air spaces.
Air Cell 1"	11.5	.14	Corrugated asbestos paper, enclosing air spaces.
Asbestos Paper	11.8	.50	Fairly firm, but easily broken.
Infusorial Earth	13.9	.69	(Block.)
Fire Felt (Sheet)	14.3	.42	Asbestos sheet coated with cement—rigid.
Fire Felt (Roll)	15.3	.68	Soft fleixble asbestos.
3-ply Regal roofing	16.7	.88	Flexible tar roofing.
Asbestos mill board	20.2	.97	Pressed asbestos—fairly firm; easily broken.
Woods—Kiln dried:			
Cypress	16.	.46	
White Pine	19.	.50	
Mahogany	22.	.55	
Virginia Pine	23.	.55	
Oak	24.	.61	
Hard Maple	27.	.71	
Asbestos (Sanded)	65.	1.97	Asbestos and cement—very hard and rigid.

(This table appeared on page 25 of the A.S.R.E. Journal, September, 1916, in an article by H. C. Dickinson, physicist, and M. S. Van Dusen, laboratory assistant, National Bureau of Standards, entitled "The Testing of Thermal Insulators.")

Amount of Insulation Required

The amount of insulating material which would have to be placed on a roof would depend upon three things: the state of the air in the room as to dryness—the thermal conductivity of the material used—and the climatic condition of the locality as to the amount and severity of the cold weather. What is required is that when the humidity of the air in the room is known, the roof be made of such a thickness that any air which reaches the layer of tarred paper in the interior of the roof be not cooled to its dew-point. The dew-point of the air in the room is easily determined, and when we have that, it is possible from the other given conditions to find how much insulating material must be put into the roof.

The dryness of the air in the room is controlled by the heating and ventilating systems, and from the plan of these the condition of the air as to moisture should be easily determined. If this is not possible the humidity may be found by referring the readings taken with wet and dry bulb thermometers to a set of Psychrometric Tables.

The Thermal Conductivity is one of the constants of any substance, and Table 1 lists this property for several of the commoner materials used in building construction.

The amount and severity of the cold weather is a condition which varies in different parts of the country and needs consideration when an estimate is being made as to the probable heat loss through the roof. These values will need to be secured from such local records as are available. To give an idea of what may be found in different localities, the following figures are offered. This list, which is arranged in Table 2, gives some data collected from various points in Canada and New England.

Table 2.—Severity of Cold Weather.

Locality	Normal Snowfall in inches	Minimum Temperature	Number of days in year when temperature is Between 0 & —10	Below —10
Halifax, N.S.	76.7	—17	4	**
Quebec, P.Q.	132.9	—34	24	14
Montreal, P.Q.	122.7	—28	20	7
Toronto, Ont.	61.0	—27	7	1
Winnipeg, Man.	51.9	—54	29	56
Calgary, Alta.	46	—49	20	25
Vancouver, B.C.	23.2	+ 2	0	0
Providence, R.I.	47	—12	2	*
Boston, Mass.	45.4	—14	3	*
New Bedford, Mass.	43.6	—11	1	*
Williamstown, Mass.	54.8	—26	12	3
Springfield, Mass.	58.9	—18	5	1

A Use for Bark

The situation offers the pulp mills a splendid opportunity for using up the immense quantities of bark which they have as a waste product and are often only too glad to get rid of. Bark consists largely of material of the same quality as cork which is a splendid heat-insulator. It should be possible to make the waste bark into a sheet specially suited for insulating roofs. The insulating value of such a sheet would compare very favorably with that of cork board. It is certain that if such a product were placed on the market it would find a ready sale. The question of insulation occupies a prominent place not only in the design of roofs, but also in the design of any building where artificial heating is supplied.

As it comes from the barkers, after screening to remove the very coarse particles, the bark could be easily formed into a sheet. There would be no great advantage in getting the stock reduced to a uniform consistency since spaces around the larger particles would add to the insulating value of the sheet when made. The fibrous quality of the inner bark would make it easy for the material to hold together. Bark is so abundant that any thickness of sheet could be made up affording any desired degree of insulation. The principal requirements would be to form a thick firm sheet of such a size as would permit of its ready application to the upper side of a roof.

Ventilation

A great amount of decay in mill roofs may be traced to defects in the ventilating systems and very few mills have systems which could not be improved. What is needed in the ventilating system for a paper mill is something which will remove the moisture without wasting the heat supply. Good results are obtained in machine rooms where large hoods are placed over the machines to catch the steam as it comes from the dryers, these hoods being in direct connection with a large fan to carry the steam away. The sides of the hood should extend downwards as far as the top of the dryers, if not further, so that a passing current of air carries but little of the steam out into the room. It is necessary that dry air in equal volume to that removed be supplied at the same time. These two sides of the systems in a large number of mills are very unevenly balanced. For instance, the capacity of the fans for removing moisture has been known to be three of four times that of those supplying the fresh dry air. In such a system either the exhaust fans run without carrying the amount of vapor it was intended they should, or else cold air is drawn into the mill from around the windows and other such places. A mill has been found which had a fan for ventilation, but no provision has been made for the admission of air to take the place of that carried away.

In groundwood mills it is as necessary to have hoods over the grinders as it is to have them over the machines in the machine room. Very few grinder room roofs have been found in good condition, and in only one mill had any attempt been made to catch the moisture coming from the grinders and carry it away.

Design of a Ventilating System

In the design of a ventilating system the first thing to receive attention is the amount of moisture which will leave the dryers. For a machine room this figure may be determined by finding the difference between the moisture of the sheet as it goes on to and leaves the dryers along with the output of the mill for any stated interval. It is also necessary to know the amount of moisture in the air as taken into the mill. Knowing the temperatures of the air as it enters the room and as it leaves, one can find with the help of Psychromatric Tables what amount of moisture may possibly be carried by any volume of air. A safe margin should be held so that one does not figure upon the air leaving the mill saturated with moisture. An idea of the amounts of moisture which may be held by air at various temperatures and various degrees of saturation is giv-

** Once in two years. *Part of day.

en in Table 3, where the data given has been selected or estimated from the complete tables contained in "Psychrometric Tables," by C. F. Marvin, of the Weather Bureau of the United States Department of Agriculture, Government Printing Office, 1915.

Table 3.—Amounts of Moisture Held by Air at Different Relative Humidities.

Grains of water in suspension per cu. ft. of air.

	Percentage of Saturation.				
Temp. F°	10 p.c.	40 p.c.	70 p.c.	95 p.c.	100 p.c.
—20	0.017	0.066	0.116	0.157	0.166
—10	0.028	0.114	0.200	0.270	0.285
0	0.048	0.192	0.337	0.457	0.481
10	0.078	0.310	0.543	0.736	0.776
20	0.124	0.494	0.864	1.173	1.235
30	0.194	0.774	1.354	1.836	1.935
40	0.285	1.140	1.994	2.703	2.849
50	0.408	1.630	2.853	3.870	4.076
60	0.574	2.298	4.022	5.459	5.745
70	0.798	3.192	5.586	7.578	7.980
80	1.093	4.374	7.654	10.378	10.934
90	1.479	5.916	10.353	14.045	14.790
100	1.977	7.906	13.836	18.765	19.766
110	2.611	10.445	18.278	24.806	26.112

As soon as one has determined how much moisture will be carried by any definite amount of moving air, and knowing the amount of moisture in it at the start, he can find what volume of air should pass through the system in any given time. The simplest way for finding if the ventilating system is sufficient may be noted by the presence or absence of condensation in any part of the mill, after the system has been running for some time with all doors and windows closed. The presence of any condensation would show one of two things: either that more air should be moving through the ventilating pipes, or else that it should be heated to a higher temperature. Any of these systems should be built so that the capacity may be easily regulated to correspond with varying changes of weather so that much more dry warm air may be sent into the mill on a very cold or a very moist day than on a day when the weather is moderate.

A system designed in this way should be satisfactory as regards condensation on the ceiling of the room, but it would not be sufficient to prevent condensation in concealed spaces between roof planks and the roofing paper. In all probability it would not be economically practical to attempt such a result with ventilation alone, but by following a scheme of roof construction designed especially to take care of these difficulties, the dangerous condition may be avoided. Such construction has been already discussed in connection with a heat insulating layer placed on the upper side of the planks in a roof.

A Concrete Example of Ventilating Design

Perhaps the various points involved in the design of a ventilating system can be made more clear if a concrete example were given and the following problem in this connection is offered along with its solution.

Problem.—Hom much air should be used to ventilate a machine room in a paper mill where 72 tons of water are evaporated by the dryers in 24 hours? The weather is —20°, the relative humidity is 70 per cent and the air used in ventilation leaves the mill at 110°.

Solution.—Moisture sent into the room by the dryers 72 tons per 24 hrs. = 3 tons per hour; i.e. 100 lbs. per minute = 700,000 grains per minute.

The fresh air at 70 per cent relative humidity and at —20° taken in for heating and ventilating the mill contains 0.116 grains of water per cubic foot (see table 3); suppose this air leaves the mill at a relative humidity of 95 per cent when heated to 110°. It is then carrying 24.806 grains of water per cubic foot. In passing through the mill it has taken up 24.806 — 0.116 = 24.690 grains of moisture per cubic foot. Then it will require $\frac{700{,}000}{24.69}$ = 28,351 cubic feet of air per minute to ventilate this machine room.

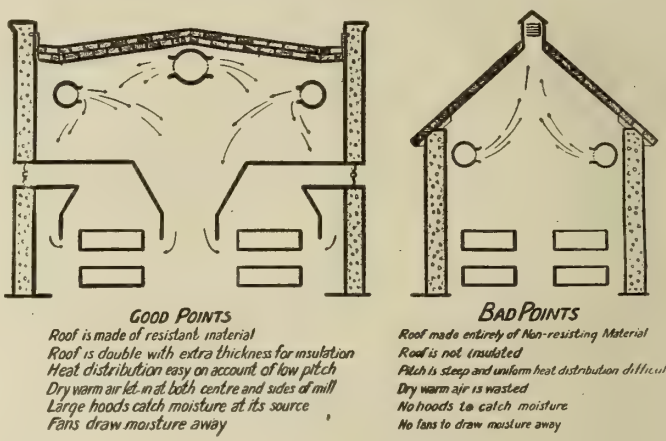


Fig. 12.—Contrast of the good and bad points found in most paper mill roofs.

Summary of Points for Consideration in Paper Mill Roofs

The problems of moisture condensation and decay of timber must be kept constantly in mind when designing the roof of a pulp or paper mill. These two conditions have the same cause, but both may be avoided by building the roof in a special way if efficient heating and ventilating systems are installed.

The roof should be built of cedar, redwood, cypress, or high grade southern pine, all of which are woods naturally resisting attack by decay.

Air systems of heating are preferable to those with steam coils. Whatever the system, all heat should be evenly distributed to all parts of the roof.

A roof should have an extra layer of wood or other material on its upper surface for purposes of heat insulation. Whatever this insulating material is, it should be kept absolutely dry at all times. The insulating should be separated from the main part of the roof by at least three sheets of mopped tar paper.

An efficient ventilating system supplied dry air to the mill and carries all moisture away. Fans connected with large hoods over paper machines collect the moisture and carry it off while other fans supply an equal amount of dry air which enters the mill near the roof.

A suggestion for building a mill roof would be to start with such a span as will carry two-inch cedar planks satisfactorily. These planks are dressed on one side, which forms the ceiling of the mill. On this plank are placed three thicknesses of tar paper well mopped together with pitch, then there are laid two or more inches of cedar and finally the roof is finished with a built-up roof covering.

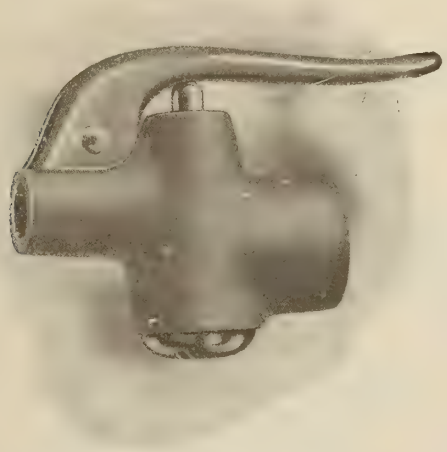
Compressed Air in the Pulp and Paper Industry

PART 2—CLEANING WITH COMPRESSED AIR

By F. A. McLEAN, Canadian Ingersoll-Rand Co.

There are many places in the paper mill where compressed air for cleaning may be applied to advantage, for cleaning walls, ceilings, windows, shafting, electric motors and generators, etc. The first cost of the equipment will soon be absorbed by the saving in time, increased efficiency, and reduction of the fire hazards.

Most paper mills now use electricity extensively, some operating their own power plants, and others using power obtained from central stations. The



Compressed Air Cleaning Nozzle of the Blow Gun Type

motors often become clogged with dust and dirt, causing them to heat up by reducing the openings provided by the manufacturers for ventilating purposes, and increasing the liability of coils burning out should the motor be overloaded at any time, as the additional heat cannot be readily dissipated. Dirt and dust also absorb moisture, which is in time liable to injure the insulation of the machine, and cause short circuits.

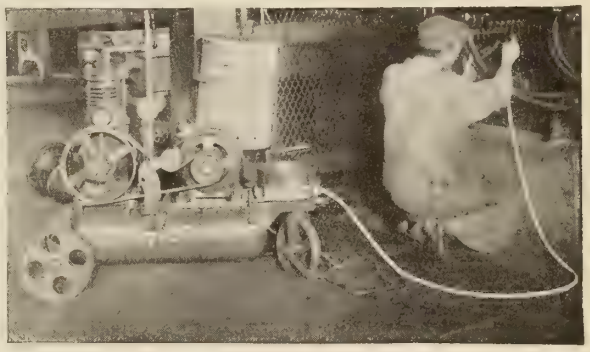
Motors and generators should be cleaned frequently, but cleaning by hand is often exceedingly difficult as the ventilation openings are usually too small to admit a brush, and the machines are often located on ceilings, or in cramped places where space in the building is at a premium, rendering it almost impossible to get at them without great trouble and inconvenience.

Under such conditions compressed air offers many advantages which make it especially suitable for this work. If the mill does not have a stationary compressed air power plant to operate hoists, pneumatic tools, air lifts, elevators, etc., already in use, a small compressor of the portable, or semi-portable type for belt or electric drive, with a capacity of 3 to 45 cubic feet at a pressure of 100 pounds per square inch and a receiver holding from 50 to 150 cubic feet (depending on the amount and frequency of the cleaning to be done) can be purchased at a low figure. Where a stationary air plant is already installed it will be more convenient to pipe the air about the mill, with suitable openings for hose connections in the various departments where the cleaning is to be done.

For blowing out motors and generators, also drilled or bored holes in the mill repair shop and cleaning in general, a nozzle of the blow gun type is the most suitable. The blow gun consists of a solid casting with a metal-to-metal valve seat, and having no springs, gaskets, or other delicate parts, it will last a long time, is fool-proof and not liable to leak. It is of a convenient shape to handle, and the long lever makes it easy to operate and insures the closing of the valve when pressure is released. These valves are obtainable with either fibre or metal nozzles of any desired length, for use around electrical machinery, paper machinery, etc. The principal advantage of this type of nozzle is that it does away with the necessity of kinking the hose to stop the flow of air, or the alternate opening and closing of a globe valve which, being considerably slower in operation, wastes air.

For cleaning overhead motors and shafting, ceilings etc., pieces of brass or iron tubing as long as required may be attached to these valves, and, since the amount of air required is not great, the tubing should be of small diameter for economy of air consumption. The end of the tubing may be bent, and nozzles formed of any desired shape for a particular use.

When large surfaces such as walls, ceilings, windows, etc., are to be cleaned, a nozzle formed by bending 3 or 4 inches of the tubing at right angles and plugging the open end after a number of small holes have been drilled in the side of the 3 or 4 inch. piece



Blowing out electric motors with portable compressed air cleaning outfit.

to form an "air brush", will be found most efficient. When using a nozzle of this kind the air pipes should be blown out before attaching the hose in order to prevent dirt or scale in the pipes from clogging the small holes.

One advantage which the air jet has over other mehods of cleaning which makes it of particular value to a manufacturing establishment is its ability to deslodge dirt and dust while machinery is running thus keeping the machines in the cleanest possible condition while in no way interfering with their rate of production.

The air pressure will depend on the work to be done 10 to 35 pounds being suitable for blowing

light particles, while for heavy oil laden dust and dirt, pressures of from 60 to 100 pounds are more effective. The cleaning is accomplished by the sharp impact of the air upon the material to be removed and with a suitable pressure this is as effectively accomplished with a small jet as with one of larger diameter. Nothing will be gained by using a large volume of air when a small one will do, as a heavy blast may result in scattering the dirt instead of merely dislodging it.

When cleaning machinery it is advisable to start at the top of the machine and work downward, thus avoiding the necessity of going over any part a second time. It may sometimes be found desirable to instruct the operator how to manipulate the nozzle to the best advantage so as to avoid blowing the dirt into the bearings of the machine. Where this trouble occurs it may be overcome by employing a lower air pressure. In attaching an air nozzle over a machine permanently, care should be taken to suspend it in such a manner that it will not be in the operator's way. It is often possible to suspend it from above so that it will fall back out of the way when released, and will just reach to the lowest part of the machine to be cleaned. As cleaning hose is subjected to considerable wear, it is advisable to use wire-wound or armoured hose. Three-eights inch hose is amply heavy for most cleaning purposes and is very easily handled.

Employees who have not been properly instructed sometimes remove the cleaning nozzles thinking that they will do better cleaning. Sometimes they will enlarge the opening in the nozzle by filing. This may be prevented by placing a reducer in the air supply line, or by inserting a hardened steel bushing in the tip of the nozzle. The most effective way of combating these abuses, however, is to instruct the operators carefully and see that the instructions are followed.

The air as taken from the receiver is usually in satisfactory condition for ordinary cleaning purposes. Where some of the older types of compressors are in use, however, oil is used too copiously which results in occasional small particles of oil being blown from the nozzle. For many purposes this is not objectionable, but for the use when cleaning textile and paper machinery, or surfaces which are to be painted or varnished, it is necessary to have air which is absolutely free from oil. An oil separator placed in the supply line will remove practically all of this oil, and when it is desired to clean the air completely it may be passed through muslin or other cotton cloths in addition.

In cleaning some classes of machinery it may be found desirable to use a double barreled nozzle the upper tube of which is connected to the air supply, and the lower by a piece of flexible tubing to a tank containing gasoline, acid, or any alkaline cleaning solution thus effectively cleaning parts of a machine which could not be properly cleaned by either method alone.

Pulp and paper mills operating on steam power will find compressed air much more convenient than steam for blowing soot and dirt from the flues of their steam boilers. For this purpose air at a pressure of 80 to 100 pounds will be found suitable. When steam is used for this purpose it is necessary to use heat proof hose, or to insulate the nozzle in some way so that the operator can hold it without trouble. The ease with which air hose may be handled and the absence of moisture in the jet tends to facilitate quick work and makes the men who are responsible for the care of the boilers more inclined to clean them frequently, resulting in a larger output of steam from each pound of coal consumed.

In many places where compressed air cleaning systems have been installed, new uses for the equipment have been discovered which were not thought of at the time the installation was made, and larger equipments have been purchased as a result of the excellent service rendered by the smaller units.

The correct basis for figuring the relative cost and value of any system of pneumatic cleaning is the saving that can be effected rather than the cost involved in the installation and maintenance of the equipment. The value of increased production made possible by being able to clean machines while in production instead of while shut down will often exceed the cost of supplying the air by a very large amount.

HYDROPLANE BASES FOR BRITISH COLUMBIA

Capt. C. W. Hobbs, as representative of the Air Board of Canada, has recently made a trip along the coast of British Columbia in the patrol boat "Stadacona" accompanied by the district engineer of public works and two representatives of the Provincial Forestry Department. Three probable sites were selected, which Capt. Hobbs will submit to the Air Board at Ottawa with a full report on Government aeroplane service in British Columbia.

BARNJUM MEANS BUSINESS

The following letter has just been received by the Secretary of the Canadian Forestry Association. The need for real work throughout Canada in regard to the perpetuation of the forest is not sentimental matter; it is a case of self-preservation of the wood using industries of the Dominion.

Annapolis, Royal, Nova Scotia, Jan. 6, 1920.

Mr. Robson Black, Secretary,
Canadian Forestry Association,
Ottawa, Ontario.

Dear Mr. Black:

In an article which I wrote last week that was printed in the Pulp & Paper Magazine you will notice that I offer to subscribe the sum of ten thousand dollars to the Canadian Forestry Association, provided all of the other pulp and paper mills in Canada will subscribe a like amount. This would give the Association a fund of nearly a million dollars, which amount invested in Dominion of Canada 5½ per cent bonds would produce an annual income of more than $50,000, with which it could do some real work towards the preservation and perpetuation of our greatest but most rapidly diminishing natural resource, namely, our forests.

I should be glad if you would take up this matter with the other mills through a circular letter or otherwise, and I fell sure you will meet with a generous response, as I know that our paper manufacturers are beginning to awake to the importance of conserving their raw material supply.

That the income from this fund will be wisely expended can be assured through the selection of an Executive Committee by the subscribers to the fund.

Very truly yours,
FRANK J. D. BARNJUM.

Sir William Price States Company's Stand---Pringle Replies.

An important development in the application of recent orders-in-council regarding newsprint in Canada is the determined stand of Price Bros. on the propriety of the Controller's action. The Canadian Press account of the matter is as follows. (Editorial comment is to be found in page 25.)

Several Canadian newspapers have published the following statement from Sir William Price, head of the firm of Price Brothers & Co., Limited, who replies to the statement made by Mr. P. D. Ross, chairman of the newsprint committee, relative to the difficulties between the paper controller and Price Brothers regarding the delivery of newsprint paper to newspaper publishers in Canada.

"I read this morning a dispatch, dated Ottawa, which purports to put before the public the difficulties which have arisen between the paper controller and the firm of Price Brothers & Company, Limited, with regard to the delivery of newsprint paper to newspaper publishers in Canada. This despatch contains things which are more or less a true summary of what has taken place, but omits to mention much which is material and contains an insinuation which has no foundation whatsoever.

"It may be clever to spread about the intimation that an appeal may go to Washington to stop export of United States coal to Canada, as it may have the effect of prejudicing Canadian public opinion against our firm, but this allegation is absolutely untrue and the first news we have had of it is contained in the dispatch.

Asks Mr. Ross to Explain.

"In his statement, as reported, Mr. P. D. Ross, chairman of the newsprint committee of the Canadian daily newspapers, gives figures showing the daily output of paper of the Canadian mills, the amount of this output sold to the United States and that sold to Canadian purchasers and the price at which deliveries in Canada have been fixed by the paper controller. He omitted to disclose, however, the reason why newsprint should be selected for the exercise of restrictive powers of the Government (which at best are contested) when the price of other commodities that are necessary to life is left unrestricted.

"During the war we have, like all other good citizens, bowed before all orders issued by the Government of Canada and by its commissions, although in many cases we were advised that these orders went beyond the power of those issuing them, but now that the war is over and no question of patriotism or want of loyalty to the state can be raised, we are determined to resist what we think are arbitrary, oppressive, unreasonable and unlawful commands.

"As business men, the whole question for us is as to whether we, manufacturers of paper, of all other producers, are to be restricted in our constitutional right of dealing with whom we choose and of retaining our right of freedom of contract.

"We base our refusal upon the total absence of jurisdiction in the Ottawa authorities and in the paper controller in the premises, and we will seek, by all legal means at our disposal, to resist the carrying out of the orders given. Our views in this connection were laid before Mr. Pringle by our counsel prior to the rendering of the disputed order. Of course, the Government of Canada has the use of powerful weapons, such as the closing of the frontier to our products, or the threats of levying an unjust and discriminative taxation upon our business to bring about a compliance with its orders, and the courts do not give us an adequate measure of relief, as the Government cannot be sued without its consent. But, nevertheless, we will resist to the utmost of our power so that our own, as well as the industrial and commercial liberties of others, may be protected against vexations and arbitrariness."

PAPER CONTROLLER GETS NEW ORDER.

Ottawa, January 6.—An order-in-council signed today by the Governor-in-Council, gives the Minister of Customs power to refuse export licenses to anyone seeking to export newsprint paper, the product of a mill which has refused or is refusing to comply with an order of the Commissioner and Controller of newsprint, book paper, etc.

Another order-in-council sanctioned today provides that when the Paper Controller shall have ordered any newsprint paper manufacturer to provide newsprint for the use of any newspaper publisher or publishers in Canada at prices fixed by the Controller, the Controller may, by notice in writing, requisition on behalf of His Majesty any such quantity, within the limit fixed by such order, of newsprint paper made by or belonging to the said manufacturer, in whose possession soever it may be found and the Controller may enter any building to take possession of the newsprint paper requisitioned.

The order governing refusal of licenses follows:

"His Excellency the Governor-General-in-Councell, on the recommendation of the Minister of Finance, and under the provisions of the War Measures Act, is pleased to authorize and doth here authorize the Minister of Customs to refuse, upon the request of the Commissioner and Controller of newsprint, book paper, etc., export licenses to anyone seeking to export newsprint, the product of a mill which has refused or is refusing to comply with any order of the said Commissioner or Controller."

Commandeering Of Stocks.

Requisitioning of stocks of newsprint is provided for in the following regulations:

1—Whenever the Controller of newsprint paper appointed under the order-in-council of 3rd November, 1917, shall have ordered any manufacturer of newsprint paper in Canada to provide newsprint paper manufactured by him for the use of any newspaper publisher or publishers in Canada at a price or rate of prices fixed by the Controller may, if such manufacturer refuses, neglects or fails to comply either in whole or in part with such order, by notice in writing, requisition on behalf of His Majesty any such quantity, within the limit fixed by such order, of newsprint paper made by or belonging to the said manufacturer, in whose possession soever it may be found; and it shall thereupon be lawful for the controller to enter into and upon any building or premises where the requisitioned paper may be and to take possession of the paper so requisitioned, and to supply and deliver the

same to the publisher or publishers for whose use the same is required and for the purpose of entry and obtaining possession the Controller may order and direct that any sheriff or peace officer of the locality shall assist as may be necessary; and it shall be the duty of such sheriff or peace officer to comply with any such order or direction, in doing which he shall have all the powers of entry, search and taking possession of a peace officer for executing a search warrant under any provision of the Criminal Code.

"2—The manufacturer shall be entitled to compensation for the paper so requisitioned and taken at a rate not exceeding the price which would have been payable therefor by the publisher if the same had been delivered by the manufacturer to the publisher in compliance with such order.

"3—Moreover, if any manufacturer refuse, neglect or fail to comply with any order lawfully made by the Controller for the sale or delivery of newsprint paper manufactured by him, the manufacturer, and every officer, manager, agent or employee of the manufacturer who is responsible for such refusal, neglect or failure, shall incur a penalty enforceable by summary conviction under part vx. of the Criminal Code of $500 for each day of a period not exceeding ten days, during which the paper so ordered to be sold or delivered to the publisher remains unsold or undelivered to him."

Controller Says Liberal Rate Has Been Allowed.

Toronto, January 6.—R. A. Pringle, Government controller of newsprint paper, in an interview here today, referred to the threat of Price Brothers to close their paper mills because the control of the Canadian paper product, which was begun during the war under the War Measures Act, was still being continued. "This would be most unfortunate," said the Controller, "as it would be a serious loss, both to themselves and to the publishers with whom they now have contracts. It would also throw a large number of workmen out of employment. I have no indication whether or not the threat will be put into force. It is not for me to say whether what is being asked is reasonable or not. It is only a small percentage of newsprint that is required from the company. The prices now being paid are satisfactory, both to the publishers and manufacturers, other than Price Brothers, and all manufacturers, except Price Brothers, are loyally obeying the orders.

Controller Pringle replied to Price Brothers' claim that the control of paper, now that the war is over, is ultra-vires and that the Act of 1919, which ratified and confirmed all previous orders-in-council in connection with the control of newspapers, is invalid on the ground that the Dominion has not jurisdiction in matters which pertain solely to the provinces. Such action on the part of the Government, Mr. Pringle said, was absolutely within its jurisdiction and was in the public interest. He said the Government had seriously contemplated doing away with paper control, but the situation was such that if the Government had suddenly broken the bonds of control and an unrestricted scramble ensued the results would have been disastrous.

There is an unprecedented shortage in newsprint in the United States Mr. Pringle said and the shortage may reach 200,000 tons this year. "Canadian manufacturers of newsprint are being called upon to supply the press of the United States and find that they are unable to do so," he continued, 'notwithstanding that the highest prices ever paid for newsprint are now being offered."

Even though Canada is daily manufacturing 2,775 tons of newsprint and require only fifteen per cent of this tonnage at the most, Canadian newspapers would have been unable to obtain it if the control had been entirely removed, Mr. Pringle declared. Under the circumstances the Government felt constrained to continue the control, especially as the manufacturer was allowed not only a fair price, but a liberal price for the tonnage supplied to the Canadian papers.

Adequate Supply for Canada.

"So far as I am concerned as Controller," said Mr. Pringle, "my duty is to see that the Canadian press has an adequate supply of newsprint at reasonable prices. I have experienced great difficulty in keeping this supply going and up to the present time no Canadian paper has had to cease publication for the want of newsprint. With regard to the contention of Price Brothers, I would personally not be drawn into a controversy. Up to a short time ago, I may say, they supplied Canadian newspapers. Latterly, however, they have felt strongly that, the war being over, all vexatious hindrances of Government control should be removed."

Controller Pringle said that Price Brothers were in a unique position. They had limits of tremendous value, had large capital, were well situated with regard to labor, had efficient management, and were in a position to manufacture cheaply and meet competition in any market. "They have sold practically all their production through the Canadian Export Company, whose head office is in Montreal, to American publishers," continued Mr. Pringle. "These publishers are insisting upon their contracts being carried out. I, as Controller, am asking them, and have ordered them, to supply their quota of Canadian tonnage, which is approximately 11,500 tons, for the six months period from January 1st to July 1st.

"They have absolutely refused to comply, and consequently the Minister of Customs has placed at their mills officials who will prevent the export of paper from Canada to the extent that may be necessary to ensure to the Canadian press their quota of paper.

"A campaign has been started in the United States by the publishers interested in Price Brothers' paper. It includes some of the largest publishers in the United States, such as the Washington Evening Star, Boston Post, Buffalo Express and Pittsburg Leader."

Controller Pringle said he was most anxious not to interfere with the supply of newsprint, except to the extent necessary to ensure Canadian papers of their quota of Price Brothers' product. Price Brothers had threatened to close their mills, and had so wired the Controller.

PUTTING THE AXE TO ACCIDENTS

By organizing a safety department in the fall of 1917 and conducting a vigorous safety campaign throughout the entire following year, the United Alloy Steel Corporation, anton, Ohio, was able to decrease its accident frequency 59 per cent. The number of injuries causing loss of time beyond the shift was reduced from 1440 in 1917 to 583 in 1918. Pretty good record for one year, isn't it? The average number of employees in this plant during 1917 and 1918 was 4,000.

BRITISH TRADE NEWS

(From Our London Correspondent)

The returns of the Trade Board for November show a considerable increase in the exports and imports of paper, and a remarkable feature are the supplies of newsprint from Newfoundland and Canada. The following figures will give an idea of the trade that has been passing—the return including, newsprint, hangings, boards, etc., in tons:—

	Nov.	Jan.-Nov.
Imports	49,095	322,676
Exports	5,543½	39,692¼

The United Kingdom imported newsprint from Canada in November to the extent of 1,774 cwts., making 549,611 cwts. for the eleven months of 1919. From all sources the supply of newsprint received amounted to 16,035½ tons in November, and for the eleven months, January-November, 94,233 tons. The exports of British mills to Canada were as follows in cwts:—

	Nov.	Jan.-Nov.
Writing Paper	41	204
Printing Paper	34	382
Other Paper	51	1,071

These figures showed remarkable decrease in exports to Canada. The increases in the exports are principally shown in printing paper, kraft wrapping and packing paper, and writing paper, France and British India being the largest buyers.

Pulp Figures.

The pulp figures showed substantial increase and the following was the tonnage in November and for January-November from all sources:—

	Nov.	Jan.-Nov.
Chemical bleached	1,857	16,253
Chemical unbleached	39,069	326,933
Chemical wet	112	3,049
Groundwood (dry)	737	32,428
Groundwood (moist)	32,391	454,471

A total of 74,166 tons for November, valued at £1,293,081 (compared with 33,465 tons valued at £978,786 in 1918) and for the eleven months, Jan.-Nov., 833,134 tons valued at £13,411,836 (compared with 367,419 tons in 1918, (valued at £11,367,099. The imports of ground wood, moist, were from the following sources:

	Nov.	Jan.-Nov.
Sweden	4.059	80.935
Norway	16,738	263,528
Canada	7,674	89,488
Other countries	3,920	20,520

Here we get a total of 32,291 tons for Nov. valued at £267,352, and for the eleven months 454,471 tons valued at £3,845,007.

Canada's Newsprint.

The position of newsprint in the Dominion is being closely followed here. The consensus of opinion is that the order in Council embargo is irregular, particularly at a time like the present when the Dominion and the mother country are trying to expand trade and develop their industries before Germany and Austria get into the market. At the time of writing the position of the Canadian mill men is not clear as the reports from Toronto and other places are somewhat contradictory. One said that an embargo was being placed on Canadian paper exports. Should this become an accomplished fact it would mean a serious situation for the consumers of newsprint in this country who are largely depending on Canada and Newfoundland. If the mother country does not interfere with the output of the mills why should Canada interfere with her mill prices because the States have allowed themselves to drop into a haphazard way in looking after their newsprint resources. On this side of the Atlantic we can only go on statistics and from these it is quite evident that the consumption of newsprint exceeded the output of the mills in the States. Why was this state of things allowed to go on? American newsprint consumers have been making a rope for a long time to hang themselves with in their mad rush of competition and the feeling is in this country that the demand exceeding the supply is now reflecting on Canadian producers of newsprint.

The Economic Position.

I gather from the figures recently published in the States concerning newsprint, that very little has been done to economise. It is only twelve months ago that the armistice of the Great European War was signed Peace has not been signed nine months yet, but when it was there was an avalanche of advertising on newsprint consumers for the reason that a dormant world of industry was coming to life again. Foreign countries removed embargoes on paper coming into their country, the British mills had to recover after a rude shock, Scandinavian mills had a shortage owing to labor and other troubles, and the world had to turn to Canada, Newfoundland and the States for supplies in any quantity. With all their organization, all their science and business-like methods, it is beyond the dreams of business man here to think what has allowed the hustling States to get into its present newsprint position.

Australia in Trouble.

Australia is like the United States—suffering from a shortage of newsprint. It seems strange that Australia should only find out now that it was depending on imports to keep their great printing industries going. We are told in a cable from New South Wales that the consumers of paper were crying like whipped children, because, the British and other markets could not meet their demands. The dullness of the States is also being reflected in Australia. The more one costs his eye round the consuming countries of newsprint the more scope one can see for the Canadian and Newfoundland paper and it is to be hoped that at a time like the present no Government department will be so ill-advised as to start putting up barriers before manufacturers, who have pioneered, nursed, and created two great industries like pulp and paper in Canada, to the detriment of the Dominion as a whole. Let the Dominion take a leaf out of the book of the mother country—that is leave the paper men to work out their own newsprint salvation.

Notelets.

The eleven months supply of newsprint from Newfoundland is 752,081 cwts., valued at £1,200,173; from the States 68,610 cwts., valued at £102,192.

France, Italy, Germany and Austria, are not supplying paper to the British market. Small quantities are arriving from Belgium. France wants all her own output as she is studying her economic position.

It is unfortunate to have so little snow, just at a time when woods operations are in full swing. There has been enough in many localities and as the weather has been generally good for chopping, we may see plenty of snow for yarding the logs.

PAPER CONTROLLER REOPENS BOOK PAPER ENQUIRY

Toronto, Jan. 5.—Commissioner R. A. Pringle, K.C., opened today what may be a two-day session of enquiry into the book paper situation in an endeavor to ascertain whether or not the manufacturers of book papers are making undue profits in their transactions with the publishers and to fix the prices that are to prevail, in fairness to both manufacturer and consumer. Both the publishers of class papers and the mills were represented by counsel. A great deal of time was taken up over the contention of Mr. Osler for the publishers that the report of the accountants who conducted the investigation into the cost of book paper at the Toronto Paper Company's mill should be admitted into the records. It appears that since that examination was made the company went out of the book paper making business but counsel for the publishers maintained that that was no reason why the result of the examination there should not have a bearing on the present enquiry. The contention was also made that it was not only for the future that a fair price for the product should be set but it was desirable to get at whether or not firms like the Toronto Paper Company had been operating on a fair basis to the publishers in the past. It was pointed out that in order to get at a fair basis of cost it would be necessary to go more fully into the cost of sulphite pulp than had apparently been done in the past. In the latter respect counsel for the publishers maintained that the report of the examining accountants had been too much of a bird's-eye view of the situation and that the report was of such an incomplete nature as to carry with it no conviction to the publishers that a complete enquiry as to cost had been made.

The Paper Controller took the ground, however, that the thing to do was to get at the prices and cost prevailing in the three or four mills that were making book paper in Canada today and that little could be gained by including in the records the result of the examination into the books of the Toronto Paper Company which had gone out of that end of the business, particularly as he had been advised by the accountants that the report on the Toronto Paper Company cost would be of no importance in the issue under consideration. It was brought out in a general discussion that the Commissioner had compelled the examination into cost at the mill in the face of objections made that it would not be convenient just at a time when the company were closing their financial year. If any customer would come forward and lodge any complaint or say that the Toronto Paper Company had been overcharging, the Commissioner declared he would investigate, but not otherwise.

"I secured you a reduction of $40 a ton previously and if you can show me that any of the manufacturers are trying to put something over I will be willing to spend $10,000 of Government money in following the matter up," declared the Paper Controller, who further declared that it was the desire of the Government to bring about the end of restrictions and control and get the paper business and other lines of commercial activity back to normal again.

With the whole nation practicing self-denial, give more than your breath to national purpose.

NEW RECORD IN PULP AND PAPER EXPORTS.

Canadian exports of pulp and paper for October were the largest for any month in the history of the industry, reaching a total valuation of $11,863,578, an increase of $3,533,021 as compared with the preceding month and of $5,301,636 as compared with the corresponding month of last year. They were made up as follows:—

Month of October.	1918.	1919.
Paper and Mfrs. of.....	$3,251,500	$5,954,916
Pulp, chem. prep.....	2,914,255	3,965,946
Pulp, mech. ground	396,187	1,942,716
Totals	$6,561,942	$11,863,576

Newsprint paper formed the chief item of paper exports, amounting to 1,414,860 cwts., valued at $5,024,934, some of the largest importing countries being:

	Cwts.	Value.
United Kingdom.....	57,212	$ 213,534
United States.....	1,234,768	4,375,185
New Zealand.....	43,747	152,700
Australia	56,482	194,933

The Argentine Republic, Brazil, Cuba, Peru and other countries also figured as buyers of Canadian newsprint.

Next to newsprint, paper boards figured in importance, their value being $380,967. Kraft wrapping paper exported amounted to $358,762 and roofing paper $41,133 in value.

In chemical pulps the United States, Japan, New Zealand and the United Kingdom ranked as buyers in the order named.

The tremendous increase in the quantity and value of the ground wood exports are largely accounted for by United Kingdom buying, that country taking 1,228,280 cwt., valued at $1,091,242, as compared with none at all in October 1918. Exports of ground wood to the United States in October 1919 practically doubled in value compared with 1918, while France figured as a buyer for the first time since the war, taking 268,603 cwt. valued at $237,430.

Exports of unmanufactured pulpwood for the month amounted to $596,486, compared with $652,634 for October 1918.

For the first seven months of the Canadian fiscal year exports of pulp and paper reached a total value of $55,609,550, an increase of $8,810,416 over the corresponding period in 1918 and of $18,821,645 over the same period in 1917. Figures for the seven months follow:—

Seven months	1917	1918	1919.
Paper	$20,808,284	$25,073,415	$33.074,162
Pulp, chem.....	11,455,040	18,817,444	17,974,334
Pulp, mech.....	4,524,581	2,908,275	4,561,054
Total....	$36,787,905	$46,799,134	$55,609,550
Pulpwood	5,478,900	9,980,535	5,686,179
Totals....	$42,266,805	$56,779,669	$61,295,729

A general census will be taken in the United States this year. The past decade included five years of almost no immigration continued with a large amount of immigration. The new figures will almost be a measure of natural propagation in the States.

Annual meeting C. P. & P. A. Jan. 29 and 30.

Technical Section

WHAT IS YOUR MILL OR TOWN DOING?

The chairman of the Educational Committee wishes to have as complete a record as possible of the educational activities in pulp and paper mill communities.

He would be much obliged if members of the section would see to it that some sort of information is at hand of any schools, classes or other special educational work. Do not wait for or expect the proper individual to do this, but feel called upon to do it **yourself.** If we get more than one report on any school we shall be heartened at your interest and incidentally get more than one viewpoint.

Please sit down and tell us something **now** so that our annual report may include your mill's activities. If you wait for details, the chances are we shall not get them.

School and class plans must be in view now, as next fall and winter bid fair to inaugurate our new text books and system. Any news of class work in three-shift mills will be especially valuable.

Please send information to

T. J. CROSSLEY,
43 Scott St., Toronto.

PROGRESS OF COMMITTEE ON EDUCATIONAL REFORM

For somewhat more than a year Mr. T. L. Crossley, the chairman of the committee on Education for the Technical Section, and the editor of the Pulp & Paper Magazine, who is a member of the same committee, have been acting on behalf of the Canadian Pulp & Paper Association on a special committee on Educational Reform which represents the Technical Association and other business and labor organizations in Canada. This committee has been developing a program of practical possibilities in the way of improving educational conditions in Canada, particularly as regards the coming schools.

Having worked out such a program, which has been published in this magazine in the form of a memorial intended to be presented to the various educational authorities and of which a copy has been sent to all members of the Canadian Pulp & Paper Association, the committee has since been working on the placing of this program before the proper parties.

Dr. W. L. Goodwin of Kingston, Ontario, Chairman of the Committee, attended the Dominion Educational Conference in Winnipeg in October and saw a number of the items of the committee's recommendations included in various resolutions of the Conference.

More recently Dr. Goodwin headed the delegation consisting of Mr. Tom Moore of the Trades & Labor Congress, Mr. Crossley of the Pulp & Paper Association, and Messrs. Segsworth and Dunlap of the Canadian Mining Institute, who waited on Hon. E. C. Drury, Prime Minister, and Hon. R. H. Grant, Minister of Education for Ontario. Dr. Goodwin, who represents the Canadian chemists on our Committee, reports a very satisfactory interview in which the delegation came into close touch with these influential authorities and it is evident that Ontario intends to keep in the forefrfont of educational developments. The assistance, suggestions and support coming to these educational authorities from influential delegations of this character will do much to improve the work of training up future generations of loyal, responsible and efficient citizens, which is the true end of public instruction.

The committee will keep in close touch with developments in Ontario as well as those in the West which are being promoted under local guidance and the committee is now about to organize the work in the eastern provinces.

It is particularly gratifying that the pulp and paper industry is collectively and as individual concerns interested in this important development.

WASTE PAPER MILL BARK AS A SOURCE OF TANNIN

The feasibility of using waste hemlock bark from paper mill operations for tanning purposes has been further demonstrated in recent tests made by the Forest Products Laboratory. Results obtained first in an experimental way were so encouraging that the investigation was finally carried out on a semi-commercial scale in co-operation with a paper mill, a tannery, and a manufacturer of drying equipment.

The conclusions reached are: (1) no great technical difficulties stand in the way of utilizing paper-mill bark for such purposes; (2) the product is satisfactory from the tanner's standpoint; (3) it can be prepared at a cost which will allow it to compete with leaf bark.

The use of paper-mill bark for tannin would mean a source of income for the paper mill from a material which is now of little or no value. In many cases it would also be the solution of a serious problem of stream pollution.

The tanner would be assured of a constant supply of dried bark which would allow him to keep much less material in stock, to reduce his fire hazard, and to wipe out the depreciation and interest charges which must be carried against a yard full of leaf bark.

The lumberman would avoid increasing difficulties of obtaining satisfactory labor for bark peeling and would do away with the fire hazard and expense incidental to the peeling and seasoning operations, all of which combine to make the production f leaf bark an unsatisfactory business, even at the present market price.

It is believed, therefore, that the utilization of waste paper-mill bark for tannin is a conservation measure which from every standpoint is worthy of being put into immediate practice.—Technical Notes.

A-11. English kaolin. Paper-Maker, through Papier, **22**, 303-5, (Oct. 1919). A description of the method of mining and purification.—A.P.-C.

E-5, F-5. Manufacture of chemical pulp. Fr. patent No. 493,578. Ed. Justin-Mueller, France. Papeterie, **41**, 447, (Oct. 25, 1919). The usual cooking is preceded by treatment with an oxidising agent such as alkaline hypochlorites, chlorine, chromic acid, alkaline permanganates, peroxides, persalts, etc., resulting in economy of time and chemicals and in easier purification of the pulp.—A.P.-C.

UNITED STATES NOTES

The wholesale paper business of Hugh Stone at Scranton, Pa., has been taken over by D. J. Reese, formerly superintendent of the Scranton Republican printery, and C. M. Shreiner of the Scranton Bookbinding Company, who, following a reorganization, are now trading under the name of the American Paper and Twine Company. The new concern deals in all kinds of paper, paper bags and twine.

Speaking on botany at the recent meeting in St. Louis of the American Association for the Advancement of Science, Dr. John Marle Coulter of the University of Chicago, retiring president of the association, declared that branch of science would do more to relieve the print paper shortage than anything else. "Botany played a great part in winning the war," said Dr. Coulter. "Timber production, so important during the war in airplane building, is a branch of botany. Forestry comes under the same head. The question of the supply of newsprint, so vital to the newspaper publishers now, is a botanical question. The shortage of wood pulp, and therefore of newsprint paper, is due to past waste in forestry, and much can be done by the use of cutover lands. This is a problem for the Canadian Government, as well as our own."

An association of dealers in paper and paper bags was organized recently in New York City when no fewer than sixty such dealers met. The organization will be known as the Greater New York Bag and Paper Association. Its meetings will be held every other Saturday, and its offices will be at 667 Willoughby Street, Brooklyn. The officers elected for the coming year are: Max Schlauger, president; Morris Rosenfeld, vice-president; J. Jonas, secretary, and Isaac Schrier, treasurer.

Robert S. Conklin, Commissioner of Forestry of the State of Pennsylvania, reports that the forest tree nurseries operated by the Pennsylvania Department of Forestry have produced more than fifty million trees, most of which have been planted already within the State. Pennsylvania, he says, outranks all other States in the development of State-owned forest land and in the degree to which it co-operates with private owners in the care and development of their forest land. Mr. Conklin predicts that more than four million forest trees will be planted by private owners of woodland during the spring of 1920. His department will furnish healthy and stocky trees for planting anywhere within Pennsylvania. The only charge which the applicants must satisfy is the cost of packing and shipping, which is usually less than fifty cents per thousand trees.

The Tidewater Paper Company, which has grown into one of the principal industrial plants in Newport News, Va., is said to be planning still further extensions and improvements in the near future. It is understood that the management of the concern and those back of it are getting into concrete form plans which when carried out promise to make the Tidewater Company one of the Virginia city's biggest assets.

The North Portland Box Company plant at North Portland, Oregon, which was destroyed in a recent fire with a loss of $25,000, will be rebuilt. The new machinery will be electrically operated. The Coast Steel and Machinery Company, of Portland, has contracted to supply most of the new machine equipment.

The recently organized Paper Products Company, Inc., formed to do business at Cumberland, Maryland, with a capital stock of $100,000, has secured a building formerly occupied by the Cumberland Cereal Company, which it expects to have completely remodelled so that operations can be begun this month. The officers and directors of the new paper concern are: Harry Footer, president; Elvin E. Schartel, vice-president and manager; Leander Schaidt, secretary-treasurer; William Engelhart and Charles H. McFerran.

SECRETARY STEWART RESIGNS FROM A. P. & P. A.

Linwood B. Steward, has resigned as Secretary of the American Paper and Pulp Association and the executive committee of the association has accepted the resignation with expressions of regret and good wishes for his future.

Mr. Steward's resignation does not become effective until January 31, 1920. In the meantime he will continue to direct the secretary's work at 18 East Forty-first Street, until his successor is appointed. It is also understood that his services will be at the disposal of his successor in making arrangements for the annual meeting next April.

On February 1, 1920, Mr. Steward will take up his new duties as executive sales manager for the firm of Shuttleworth. Keiller & Co., 474 West Broadway, New York. This firm is an outgrowth of one of the oldest firms in New York specializing in the manufacture of paper bags and folding boxes.

RECOVERY OF WASTE PARAFINED PAPER.

In the process of manufacturing paraffined paper and various products such as cartons, cups, and wrappers, large quantities of impregnated paper stock are now wasted. In the making of paraffined paper alone, it is estimated, the daily waste amounts to 8 or 10 tons.

An opportunity for the recovery of a large part of such waste paper and impregnating material is offered in the application of a method recently developed at the Forest Products Laboratory, providing mill trials are as successful as the semi-commercial laboratory work indicates.

The recovery method consists in treating the finely shredded waste with petroleum oil solvent in a series of extractions, which removes practically all the paraffin. The paraffin, which is afterwards separated from the solvent, which is used again. The solvent left clinging to the extratced paper is also recovered by a steaming process. A paper fully as strong as the original can be made from the remaining pulp.—Technical Notes.

PULP AND PAPER NEWS

Announcement is expected shortly of a new issue of preferred stock in connection with the Howard Smith Paper Mills, Limited. The company prior to its recent reorganization, purchased the Toronto Paper Company, and also timber limits, saw mills, etc., thus giving them the necessary supply of raw materials. The company is installing an additional paper machine at Beauharnois and increasing the capacity of the sullphite pulp mill at Cornwall. It is understood that Messrs. Nesbitt, Thomson & Co., Limited, Toronto, will shortly offer the company's eight per cent issue to investors. The present outstanding common stock in the Howard Smith Paper Mills has undergone a marked advance in the past few months from $65 to $150 a share.

Joseph Gibson, secretary of the Spanish River Pulp & Paper Mills, Limited, Bank of Hamilton Building, Toronto, spent the Christmas holidays at his parental home in Ingersoll. Lieut.-Colonel T. Gibson, general counsel of the Lake Superior Corporation, was also at his home in Ingersoll over Christmas and later left on a trip to New York.

P. L. Colbert, General Manager of the National Paper Company at Valleyfield, Que., and Archie Reid, accountant, spent the holiday season in Toronto. The firm has completed a 36 x 100 ft. extension to their mill and have added considerable equipment which will help solve the problem of taking care of the company's greatly increased business.

The many friends in the paper trade and other circles will regret to learn of the bereavement suffered by George E. Challes, sales manager of the Riordon Pulp and Paper Mills, in the death of his daughter, Muriel Louise, which took place in Toronto on December 27th. The deceased was the youngest daughter of Mr. and Mrs. Challes and death came following a considerable period of ill-health.

The announcement was made this week that the Canada Vegetable Parchment Company at Merritton, Ont., would make its first run of vegetable paper on January 20th. The plant has now been completed and it has been splendidly equipped for the manufacture of the highest grades of paper. The company is looking forward to a successful year and already many enquiries have been received looking to the purchase of their product.

The Howard Smith Paper Company, Limited, have vacated their offices in the Trusts and Guarantee Building and have established their Toronto office in Room 502 Royal Bank Building. The Toronto Paper Company, having been taken over by the Howard Smith Company, the Toronto office of the former company, which for the past thirty years has been in the Mail and Empire building, has also moved its office equipment to the new office.

John Martin, of the John Martin Paper Company, Winnipeg, was in Toronto, and other parts of Ontario this week visiting a number of the paper mills. Mr. Martin, who is president of the Winnipeg company, has been ill for some time, but is improving in health and his many friends in the east were pleased to greet him again.

The Canadian Paper Trade Association has established a credit bureau in Toronto for the exchange of cherit information. The department will fill a long-felt want and should further strengthen the paper trade generally in Canada.

N. L. Martin, secretary of the Canadian Paper Trade Association, Toronto, was in Montreal on December 22nd attending a conference on the subject of freight classification in connection with paper products. At the meeting a schedule of freight rates was drawn up and the proposals will be submitted to the railroads on January 6th.

This week's bulletin issued by Hamilton B. Wills, broker, Bay Street, Toronto, referring to North American pulp says: "N. A. timber limits are estimated to contain 20,000,000 cords of wood, and the company is producing mechanical pulp at the highest rate in its history. During the first half of 1919 the corporation sold its product at prices ranging from $26 to $29 a ton, while the last sales were made at around $42.50. The company also increased its output of chemical pulp, which is now running at over 112 tons a day, as compared with about 80 tons a day during the first half of 1919. At the same time operating costs have been reduced over $10 a ton."

The death took place in London, Ont., on January 1 of Walter J. Blackburn, president and general manager of the London Free Press Publishing Company, following an illness that had become acute during the past few weeks. The late Mr. Blackburn was the eldest son of the late Josiah Blackburn who founded the daily issue of the London Free Press in 1855. He served through the North-West Rebellion campaign. As a lover of fine horses he had gathered together a stable of huntersr second to none in America. Surviving Mr. Blackburn are his widow, one brother, A. S. Blackburn, secretary and acting general manager of the Free Press, and three sisters.

The printing pressmen, bookbinders and job printers in about thirty shops in Hamilton, Ont., went on strike on New Year's Eve, when their demands for $35 a week with $37 weekly July 1 were refused.

Mr. Gustave F. Kuhring, B.Sc.F., from the University of New Brunswick, has resigned his position with the New Brunswick Forest Service to accept a lucrative position with the Riordon Pulp & Paper Company at Montreal under their forester, Mr. Abyberg. Mr. Kuhring commenced his forestry work with the Laurentide Pulp & Paper Company in 1913. Mr. Kuhring, who has over four years' service overseas to his credit, and who was wounded three times and honorably mentioned in dispatches, has been engaged with the N.B. Forest Service on forest survey work since returning. Mr. Kuhring expects to leave Montreal early in January for an extensive dog-train trip into the North. Mr. Kuhring is one of the several New Brunswick foresters

who have recently accepted responsible assignments with private lumber and pulp companies.

Geo. H. Mead, H. P. Carruth, and J. G. Rue, of the Mead Paper Co., Dayton, Ohio, were in Montreal this week. They have been visiting some Canadian paper mills. Dr. Rue expects to be at Edmunston for some time yet.

BEAVER COVE PLANT MADE PULP

The Beaver Cove Plant Company turned out their first lot of pulp during the latter part of December. Their shingle plant has been working for some time past. In an early number the Pulp and Paper Magazine will have a full descriptive article of this new up-to-date plant.

* * *

The Ocean Falls plant of the Pacific Mills, Limited, recently shipped 2200 long tons of newsprint to Australia in one shipment. This is one of many shipments made. The entire plant is continuing on the seven day run and turning out a steady stream of product that is pleasing to all concerned.

* * *

At Powell River they are unable to turn out orders fast enough although working to full capacity. A great deal of new building is going on in the town. More than $50,000 worth of frame buildings are being built or will be started at once. Most notable among the items of building is an addition to the Powell River Hotel owned by the Company which will give an additional eighteen rooms, and fifteen new cottages for workmen.

In addition to this a temporary building has been started for the Canadian Bank of Commerce. Next spring it is the intention of the bank to erect a permanent building. New stores are also being planned which will be started during the next few months.

Mr. William McBain, Mill Manager at Powell River, has gone to California with his family for a few weeks.

HOWARD PULP AND PAPER COMPANY, SHERBROOKE.

Sherbrook, Que., Jan 6.—A new mill, to grind wood pulp, to use three thousand to three thousand five hundred horse-power, and to employ some one hundred men, as a start, was the subject of principal interest last night at the first regular meeting of the city council this year, when Mr. B. C. Howard appeared before the aldermen with a request for exemption from taxation and a special rate for surplus power, which he would purchase from the city from their present unused supply.

The company which is to be known as the Howard Pulp and Paper Company, is capitalized at $1,500,000. The land on which the plant is to be erected is from nine to nine and a half acres in area, and is situated on the bank of the St. Francis River, with accessibility for tracks on every one of the four railways which pass through Sherbrooke. The company plans to use from 3,000 to 3,500 horse-power and it was in this regard that Mr. Howard addressed the council.

PRINGLE REQUIRES DEFINITE COMPLAINTS.

There was no Tuesday session of the Book Paper Industry in Toronto this week. At the Monday session, the commissioner declined to commit himself and required the publishers as a preliminary to state exactly their complaints as to 1920 prices. Mr. Pringle said there was no question of supply and the matter was on entirely different ground from the newsprint situation. Mr. Osler for the publishers was not prepared in the figures, but maintained that the first step was to get the costs of production. Mr. Pringle concluded:

"I will make a direction that any users of Book print in the Dominion of Canada who have any complaint to make in regard to the prices charged by the manufacturers of book print in Canada, shall, on or before Monday, the 12th day of January, A.D. 1920, lodge with, or mail to me, as Paper Controller, such complaints, stating the prices charged and their grounds of complaint, and also any complaint they have in regard to the supply by the different manufacturers.

"I also order and direct that the Provincial Paper Mills Compny, the Toronto Paper Company,The Canada Paper Company, The E. B. Eddy Company and any other manufacturers of book print do, on or before January 12th, 1920, furnish me the prices being charged for the different grades of bookprint."

TRADE AND CLASS PAPER SECTION OF THE C. P. A.

A reorganization meeting of the publishers of trade and paper and periodicals other than daily and weekly newspapers will be held in Toronto Jan. 15th and 16th. The purpose of this meeting is to develop an organization of the third body which, with the organization of the daily newspapers will hereafter constitute the Canadian Press Association. The daily and weekly sections organized themselves immediately following the meeting at which the reorganization of the Canadian Press Association was accomplished.

Under the new arrangement each of the three sections will appoint an equal number of representatives to act as directors of the C. P. A., and while provisional representatives were appointed at the November meeting it is felt necessary to have a special meeting of publishers of trade and class papers which will be more representative of Canada for the purpose of making permanent provision. Owing to considerable variety in the character of the various trade and class papers and the considerable difference between their interests in many cases and those of the newspapers, the coming meeting will doubtless be a very important one and there should be a strong representation.

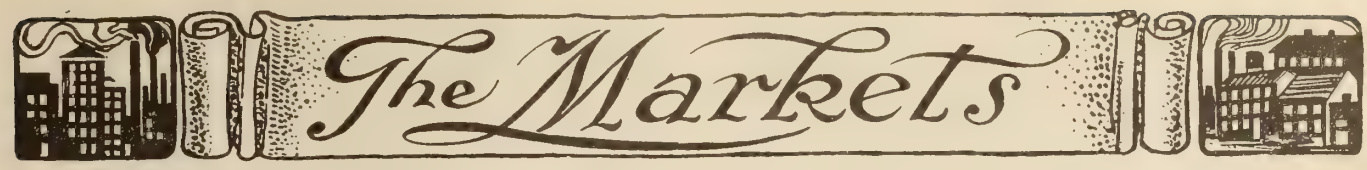
Some of the more important matters which will come up at the meeting are as follows:—

1. Appointment of 10 delegates to represent the trade and class paper association on the council of the Canadian Press Association.
2. Appointment of advertising, paper, circulation, postal and parliamentary, and any other necessary committees for carrying on the association's work.
3. Decision re name which has been tentatively selected.
4. Arrangements for selecting and appointing a manager.
5. Arrangements for a permanent office.
6. Setting forth the duties of the manager.

The announcement of the meeting further states that one of the matters to be dealt with by the new association is the paper investigation which has been under way for the past couple of years.

Distrust is poison to friendship.

Many people spend so much time in earning a living that they have no time to live.



CANADIAN TRADE CONDITIONS.

Toronto, January 2, 1920.—The old year with its problems in the paper trade has passed and while some of them will of necessity be carried over into the present year there is a general feeling of opinion that the coming twelve months will see an early return to normal conditions as to price and demand and that the era of prosperity will continue. Viewed from most angles the outlook for the coming year in the trade appears to be satisfactory and the removal of wartime restrictions, which were contended by some to have retarded expansion, will permit unhampered development during the coming year. There is still, however, a decided shortage in the production of many lines, chiefly newsprint, but there are signs that consumers are recognizing the wisdom of economy and conservation of supply and it is confidently expected that ere long the situation as to supply and demand will become more equalized. The market, particularly during the last half of the year, has been an advancing one and there is still a strengthening demand for the products of practically every paper mill in Canada. In newsprint as well as in the higher grades of paper the mills continue to be behind in their orders but there is a feeling that this situation will right itself during the coming year and that with a spirit of cooperation between consumers and mills in the way of economy, together with the increased output ensured by the expansion of a number of the mills and the construction of new ones, a stable condition will be attained before the new year has advanced very far. It is pointed out that not only are existing mills being enlarged, such as the Laurentide Company at Grand Mere, Price Bros and Co. at Kenogami: the Abitibi Power and Paper Company at Iroquois Falls and the Spanish River Pulp and Paper Company at Espanola but it seems practically assured that entirely new mills will be constructed at Saguenay to be erected by Price Bros & Co.: one at Three Rivers by the International Paper Company and one at Port Arthur by the Great Lakes Paper Company. These prospects, when they are realized, should help greatly in bringing the supply of paper or a more even line with the demand particularly in newsprint. The average contract price for Canadian newsprint paper during the year has been around $73 a ton. The probabilities are that next year's prices to the American consumers, who virtually buy from the Canadian trade in an open market, will be considerably higher and the mills are likely to get from $85 to $90 a ton. Roughly speaking this will bring about ten million dollars more into the country on the price increase alone outside of the consideration of exchange.

In the meantime all the mills are busy, the market in nearly all lines of paper is firm with a growing demand. Kraft paper has gone up another half cent a pound and the demand in that line keeps up. Book and bond papers are in great demand and the turning over of the Toronto Paper Company's machines from book to high grade bonds, antiques, etc., has not helped the book paper situation any. Wrapping paper prices are on the advance, two of the mills adding ten dollars a ton to the price of their output recently while tissue and toilet papers took a slight advance during the past week. Paper boxes, it is predicted, will go up in sympathy with the increases in box boards noted in last week's correspondence. Jobbers in all lines of paper stock are extremely busy and Christmas stock-taking now in progress is revealing a good year's business. Practically every jobbing house is booked some months ahead with orders while similar conditions exist among the manufacturers of paper products in the line of envelopes, writing papers, papeteries, etc. In these lines also the shortage of paper is reflected. Jobbers in book papers find it difficult to get adequate supplies and while several mills for the manufacture of this line chiefly are in contemplation, the present year will hardly see their completion in view of the difficulty of getting machinery and equipment. In view of these conditions there is little prospect of the shortage being materially lightened in the first half of the new year at least.

The pulp market remains very firm with prices in the various lines unchanged and the stocks of ground wood particularly being rather low with no great supply in sight. All branches of rags and paper stock are very firm, slight increases being recorded in a few of the lines.

The following list shows the prices for paper lines prevailing at the opening and close of 1919.

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, **NEW YORK**

We are always in the market and ready to pay good prices for **SULPHITES** Bleached and Unbleached of Canadian manufacture. Write and let us show you what we can do.

Prices.

	Prices Jan. 1919.	Prices Jan. 1920.
*News (rolls) at mill, in carload lots	$3.45	$4.00
*News (rolls) in less than carload lots	3.52½	4.25
*News (sheet) at mill, in carload lots	3.80	5.25
*News (sheets) in less than carload lots	3.92½	5.50
xBook papers (carload), No. 1	9.75	9.75
xBook papers (ton lots), No. 1	10.00	10.00
xBook papers (carload), No. 2	9.50	9.50
xBook papers (ton lots), No. 2	9.75	9.75
xBook papers (carload), No. 3	8.25	8.25
xBook papers (ton lots), No. 3	8.75	8.75
Ledgers	18c up	18c up
Sulphite bonds	.13½	.13½
Light tinted bonds	.14½	.14½
Dark tinted bonds	.16	.16
White wrapping	5.25	5.25
Writings No. 2 (M.F.)	.12½ up	.12½ up
Coated book and litho. No. 1	12.50	12.75
Caoted book and litho, No. 2	11.25	11.75
Coated book and litho, No. 3	10.50	11.00
Coated book and litho, colored	12.50 to 14.00	13.00 to 14.50
Grey browns	5.25	5.75
Writing No. 1 (S.C.)	.13 up	.13 up
Fibre	3.75	7.85
Manila No. 1	7.35	7.85
Manila B	5.60	6.10
Tag Manila	6.50	7.00
Unglazed graft	9.00	9.50
Glazed kraft	9.00	9.50
Tissues, bleached	1.35 to 1.90	Plus 5%
Tissue, (unbleached sulphite	1.35 to 1.75	1.35 to 1.75
Tissues, cap	1.00 to 1.40	1.00 to 1.40
Tissues, manila	.90 to 1.20	.90 to 1.20
Natural greaseproof	.15	.16
Bleached grease proof	.19	.20
Genuine vegetable parchment	.27	.28
Bleached white glassine	.22	.28
Drug papers, whites and tints	.9 to .10	.9 to .10
Paper bags, Manila (discount)	35%	35%
Paper bags, kraft	27½ and 10%	27½ and 10%
Confectionery bags	34%	34%
Gusset bags (Manila)	35 and 15%	35 and 15%
Straw board	75.00	80.00
board	75.00	75.00
Vat lined chip board	80.00	85.00
Filled wood board	83.00	88.00
Newsb board	80.00	85.00
Double manila lined board	90.00	90.00
Manila lined folding board, chip back	87.50	92.50
Pulp folding board	95.00	105.50
Jute board, No. 3	75.00	80.00
Tag board	155.00	165.00
White patent coated board	115.00 to 130.00	145.00
Grey folding board	115.00	125.00
Pasted board	95.00	105.00

* For Canada only.

x These prices are for machine finish, super-calender one-half cent higher.

NEW YORK MARKETS.

New York, January 3. — The Christmas and New Year holidays have come and gone, and members of the paper trade appear to be on edge awaiting for a fresh spurt of business activity which everyone seems to look to develop during the next several weeks. Demand at present is very keen and voluminous and covers practically all grades of paper. Consumers in various parts of the country are placing orders with a consistency and calling for such quantities that indicates that consumption is at a top-notch point.

The consumption of newsprint in the United States in the final quarter of 1919 reached a record-breaking level, along with prices, according to a statistical summary on this division of the paper industry issued by the Federal Trade Commission. The average cost of newsprint at mills at the beginning of December, the Commission states, was $3.90 a hundred pounds, as against $3.75 a year ago, and $1.88 in 1916, the latter being the lowest point reached by the market in several years. High prices failed completely to cut down consumption, however, and the Commission estimates that in 1919 14 per cent more newsprint was used than in 1918. During the fourth quarter of 1919, particularly, newsprint consumption was running up, and the Commission says that the increase then over the similar period of 1918 would be between 25 and 30 per cent. December figures have not yet been tabulated, but last November the 727 publishers reporting to the Commission consumed 161,602 tons of newsprint, as compared with 123,874 tons in the same month of 1918.

Phesident Philip T. Dodge of the International Paper Company, which, as every paper man knows, produces about a third of the newsprint paper consumed in the United States, has just returned from a visit to England, France, Germany and Switzerland, and he states explicitly that the American newsprint industry will not have to consider European competition in the future, it being his opinion after his observations abroad that cheap labor costs which made competition possible in the past have vanished forever. Mr. Dodge asserts that export orders for Europe for newsprint could be obtained at present at prices representing an advance of 25 per cent over the quotations ruling in the domestic market, but adds that the International is not looking for any foreign business, as it is having extreme difficulty in supplying consumers in this country. England, Mr. Dodge says, is planning to increase its output of paper, and is installing many new machines, but labor costs will not permit cheap production. Commenting on Germany, he said he thought the present Government would survive the winter, and in that case it probably would become strongly enough entrenched to attain permanency. Coal and food shortages he considers the most serious difficulties facing the new Government.

No change of any moment in prices have been recorded this week, but there is a very strong undertone to quotations and the belief is common that paper values have not yet reached their maximum. Manufacturers and dealers are of the opinion that demand will broaden during the next few weeks to an extent sufficient to further enhance values, and, with this situation in view, are pursuing a cautious policy at present. Many mills are flatly turning down orders calling for future deliveries of their product, it being their contention that they are sold so far ahead and that the future is surrounded with so many potential difficul-

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ties that they are not justified in entering into commitments further off at this time. Buyers in consequence are meeting with no end of trouble in covering all their wants. When turned down by one manufacturer of jobber, they look in another direction for supplies, with the result there is a seemingly unending flow of inquiries for various kinds of paper.

GROUND WOOD.—The market for mechanically ground wood remains exceedingly firm, and offerings appear to becoming fewer every day. Most manufacturers have disposed of their output of mechanical pulp for some time ahead and are reluctant to accept orders for shipments further into the future, probably figuring that it will be more to their advantage to conserve what surplus supply they are likely to have during forthcoming months for sale in the transient market. Quotations on pulp for spot or early delivery therefore are mainly nominal, and while the prices named range from $50 to $60 per ton at grinding plants, it is problematical at just what figures sizable tonnages of pulp can be bought. Newsprint manufacturers are eagerly seeking supplies and seem satisfied to grant almost any figures within reason to obtain ground wood. Other consumers are equally as inquisitive about available supplies and are absorbing all the pulp to be had.

CHEMICAL PULP.—A good, steady, healthy business is current in chemical woodpulps. Buyers are following as reserved a course in their operations as their pressing requirements will permit, presumably with a view of keeping from exciting the market to their own disadvantage, but it is quite significant that all the pulp offered is quickly removed from the market and at full quoted prices. Sulphite of all qualities is in pointed demand, yet buyers are purchasing in such a manner as to make it appear that present supplies are ample to cover requirements, with the result that quotations remain on a more or less stationary level. Bleached sulphite of standard No. 1 quality is bringing around 6 cents a pound at the mill, while easy bleaching sulphite of domestic origin is selling at 4.50 to 4.75 cents and newsprint sulphite at 3.50 to 3.75 cents. Offerings from Sweden have fallen off owing to the closing of the Baltic, and buyers of Swedish sulphite are devoting most of their attention at present to contracting for supplies to be shipped at first open water. The markets in Scandinavia are strong and prices high and hopes for an easing off of quotations in the spring are vanishing in many directions.

RAGS.—The market for papermaking rags is very strong, and despite the prevalence of prices on record-breaking levels, there is a firm uptrend in values with no perceptible signs of it being checked for some time to come. Mills are placing orders in extensive number and calling for large quantities of material, and the movement into consuming channels has reached a stage where available supplies of some kinds of rags are getting down to the danger point of lightness. White rags of all qualities are eagerly sought, and there is an especially brisk demand for new white shirt cuttings and old repacked No. 1 whites, the former selling at $16.50 to $17 per hundred pounds f.o.b. shipping points and the latter grade at $11 and more. Thirds and blues show more life and prices are strengthening, while inquiry for roofing rags is very active, with sales of No. 1 roofing reported at $3.25 to $3.50 per hundred pounds at points of shipment.

PAPER STOCK.—Waste paper stock meets with a ready sale at strong prices and the market appears to be gaining in momentum each day. Consumers are placing orders in a manner commensurate with the business they are transacting in their own product, and, frequently experiencing trouble in obtaining all the supply wanted, are granting stiff prices presumably with a view of stimulating collections by packers and dealers. No. 1 hard white shavings are freely fetching $5.75 to $6 per hundred pounds f.o.b. New York in sales to mills, while soft white shavings of No. 1 quality are quotable at $4.75 to $5. Flat stock is firm and in good demand, with sales of heavy books and magazines reported at $2.60 to $2.75 New York. Newspaper is actively sought and flat folded news is selling at $1.10 to $1.20 New York, white news cuttings at $3 and over-issue newspapers at $1.70 to $1.80.

OLD ROPE AND BAGGING.—The old rope market is possessed of a firm undertone, and business of consistently large volume is being consummated. Current quotations range from $6.25 to $6.50 at shipping points for No. 1 Manila rope and prices appear to be gradually working nearer to the top level. Old bagging is moving in rather limited quantities, but at steady prices at a basis of around $3 per hundred pounds at shipping points for No. 1 scrap bagging.

U. S. NEWSPRINT PRODUCTION ABOVE NORMAL.

The following is a review by the Federal Trade Commission of the reports received from America's manufacturers of newsprint paper, from jobbers buying and selling newsprint paper and from leading publishers using newsprint paper. Import and export figures of the Department of Commerce are also included in the review. Whenever possible the figures for 1919 are compared with those for the corresponding period of 1918.

The figures which follow, not only show the results of the Commission's tabulation of the reports for November 1919, compared with November 1918, but also give the tonnage for the preceding period of 1919, compared with the corresponding period of 1918, and the total production and the shipments for all the months tabulated.

The average or normal production in the U. S. of total print and standard news based upon total production for the years 1917 and 1918 amounted to 101,352 tons of total print and 91,416 tons of standard news for a period corresponding to November. The average production based upon the weekly and monthly reports for the 18 months' period ended September 30, 1919, amounted to 103,032 tons of total print and 92,904 tons of standard news, whereas the actual production amounted to 116,603 tons of total print and 101,264 tons of standard news.

The increase in the production of newsprint in November, 1919, over November 1918, amounted to about 15 per cent for Total Print and more than 17 per cent for Standard News.

Mill stocks of both standard news and total print decreased during November, 1919.

Reports from 81 mills operating 187 machines running full or partial time on newsprint paper show that the total time the machines were idle increased from 1,089 hours in October to 2,470 hours in November. No lost time due to lack of orders or lack of coal was reported by newsprint mills.

Imports and Exports.

The imports and exports of printing paper valued at not above 5 cents per pound (practically all news-



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U. S. Newsprint Production 1918 and 1919.

	Mills	Net Tons	Net Tons	Net Tons
TOTAL PRINT				
First nine months of 1919	76	1,009,917	1,010,994	18,331
First nine months of 1918	67	952,778	964,168	20,323
October 1919	76	125,216	127,447	16,100
October 1918	64	105,169	104,760	20,732
November 1919	81	116,603	117,377	15,336
November 1918	61	101,403	101,838	20,297
Total 1919	- -	1,251,736	1,255,808	15,336
Total 1918	- -	1,159,350	1,170,766	20,297
STANDARD NEWS:				
First nine months of 1919	54	910,752	912,065	14,343
First nine months of 1918	50	856,588	867,417	15,653
October 1919	55	110,902	112,599	12,646
October 1918	50	94,330	93,252	16,732
November 1919	56	101,264	102,120	11,790
November 1918	50	86,371	86,406	16,696
Total 1919	- -	1,122,918	1,126,884	11,790
Total 1918	- -	1,037,289	1,047,075	16,696

print) and of wood pulp for the month of October, 1919, compared with the month of October, 1919, compared with the month of October, 1918, were as follows:

	Oct. 1919	Oct. 1918
Imports of Chemical Wood Pulp (total	73,143	39,631
Imports of Newsprint (total)	62,029	45,818
From Canada	61,988	45,818
Exports of Newsprint (total)	7,252	5,645
To Argentina	1,314	440
To Brazil	524	147
To Cuba	427	204
To Japan	233	298
To other countries	4,754	4,556
Imports of Ground Wood Pulp (total	26,037	18,672
Unbleached Sulphite	36,636	27,166
Bleached Sulphite	6,406	1,449
Unbleached Sulphate	29,646	10,441
Bleached Sulphate	455	575
Exports of Domestic Wood Pulp	3,364	576

The imports of newsprint for October, 1919, which were practically all from Canada were 16,211 tons greater than for October, 1918. The exports for October, 1919, were 1,607 tons greater than for October, 1918.

The tonnage to "Other Countries" under the "Exports of Newsprint" for October, 1919 includes 3,169 tons to France, 373 tons to China, 282 tons to Philippine Islands, 230 tons to United Kingdom, 178 tons to Dutch East Indies, 92 tons to Chile, and 67 tons to Mexico.

The imports of mechanically ground wood pulp for October, 1919, were 7,365 tons greater than for October, 1918. The exports of domestic wood pulp were 2,608 tons greater than for October, 1918.

The imports of chemical wood pulp for October 1919 were 33,512 tons greater than the imports for October, 1918 . The bulk of this tonnage was unbleached sulphite and sulphate from Canada. The chemical pulp imported from Norway and Sweden in October, 1919, totalled 33,334 tons.

Jobber's stocks of both rolls and sheets decreased during November, 1919.

Publishers' stocks decreased 13,937 tons during the period. There were less tonnage in transit at the end of November than on October 31st. Publishers of leading papers used almost three thousand tons more paper than during October notwithstanding the need for conservation and the fact that November was the shorter month. Publishers' stocks and transit tonnage on November 30th represented slightly more than 30 days supply at the existing rte of consumption. Fifty-eight publishing concerns held about 45 per cent of the tonnage on hand at the end of the month.

Mill Prices to Publishers.

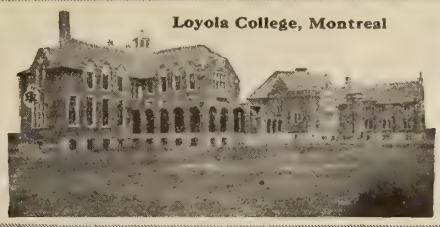
The weighted average price of contract deliveries from domestic mills to publishers during November, 1919, f.o.b. mill in carload lots for standard news in rolls was $3.782 per 100 pounds. This weighted average is based upon November deliveries of more than 80,000 tons on contracts involving a total tonnge of more than one and a half million tons of paper manufactured in the United States. These contracts most of which extend until December 31, 1919, include a few long-term contracts made prior to the war at very low prices.

The weighted average contract price based on deliveries from Canadian mills of more than 19,000 tons of standard roll news in carload lots f.o.b. mill in November 1919, was $3,757 per 100 pounds. This weighted average is based upon Canadian paper. The greater number of these are short-term contracts covering the year 1919 .

The weighted average market price for November of standrd roll news in carload lots f.o.b. mill based upon domestic purposes totalling more than 8,000 tons was $5.079 per 100 pounds.

In a recent issue of "Canada," which is published in London in the interests of Canadian-British business relations, there is an interesting article accompanied by excellent illustrations of the pulp and paper industry in Canada. The article has principally to do with the financial prospects of the industry, the prices of stocks and earning powers of the principal producers.

Loyola College, Montreal

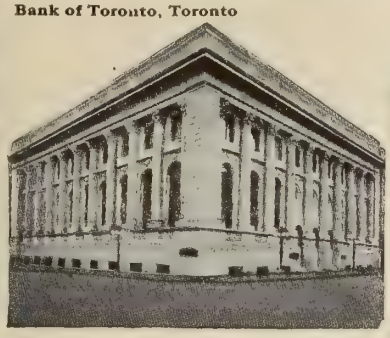




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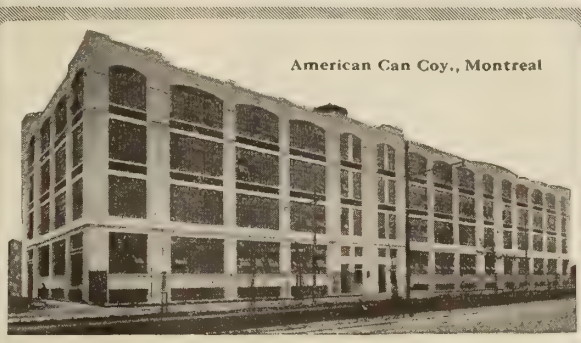
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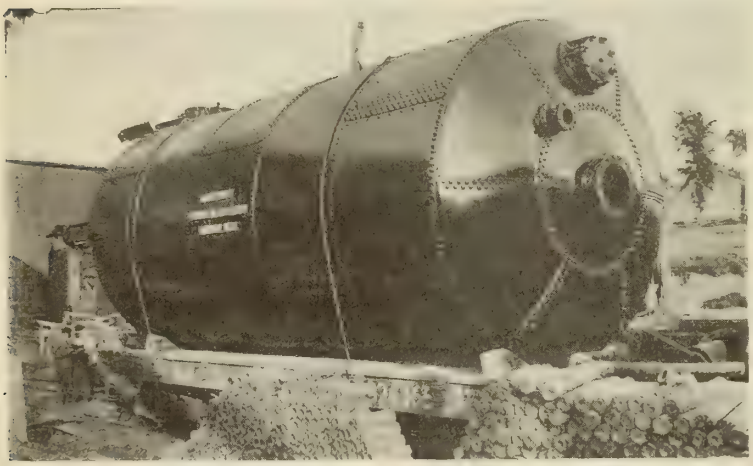
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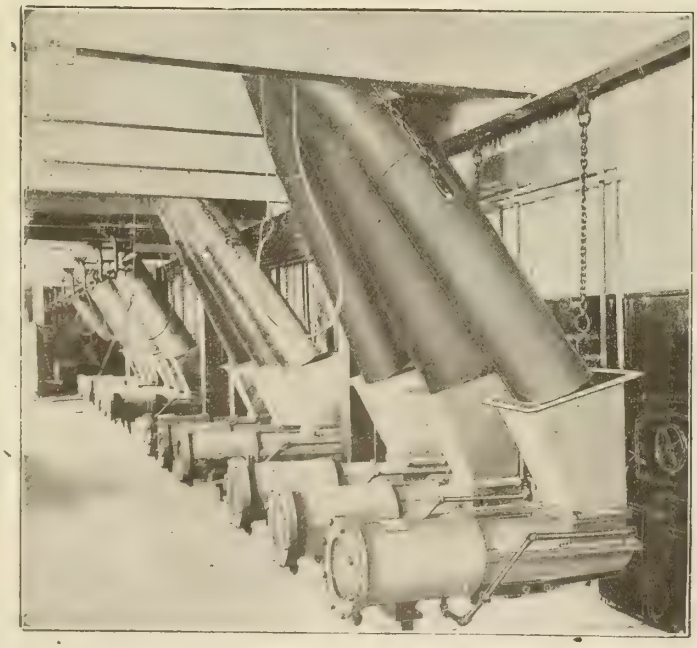
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Mr. W. M. Arnold,
Manager, The Ottawa Car Manufacturing Co.,
Ottawa, Ont.

Dear Mr. Arnold,

We have pleasure in enclosing herewith a copy of the letter which we sent to The Spanish River Pulp & Paper Mills Ltd. of Sault Ste Marie, Ont., several weeks ago.

Yours truly,

The E. B. Eddy Co. Limited

J. T. Shurrett
Vice President and Manager

PURCHASING DEPARTMENT

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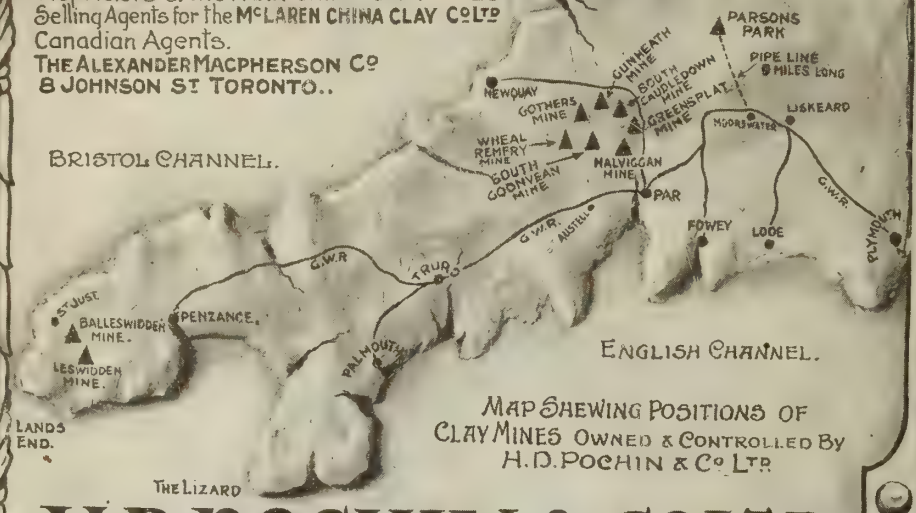
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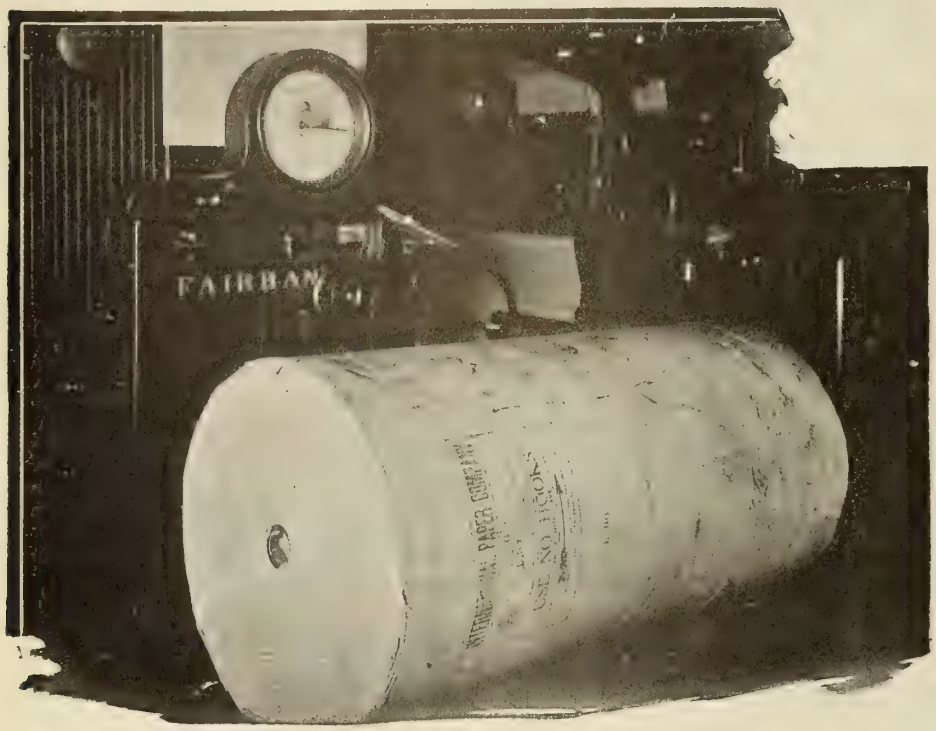
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EDITORIAL

A SERIOUS SITUATION.

The Fort Frances Pulp and Paper Company has been given a prominent place on the front page of many Canadian newspapers this week. Last week Price Bros. enjoyed a similar publicity. Important events are certainly transpiring in the Pulp and Paper Industry. Western Canadian newspapers have let themselves become dependent on a single paper mill without providing themselves with any assurance of continuity of supply other than month to month orders from the Paper Controller, whose authority in latter days has been based on a War Measures Act, the validity of which has for some time been very much in question and which, now that the treaty of peace is actually signed, must be defunct.

There may be a moral obligation for a mill to assist a necessary public institution but there can be no such obligation to sell material to a concern that refuses to pay its bills, and that is what it amounts to when a newspaper relies on a government official with rather generous inclinations to order a manufacturer to supply paper at a reduced price. A comparison of the quantity of newsprint paper consumed per capita by Americans and Canadians, as made by Mr. Imrie is quite wide of the mark. The American uses (or wastes) 50 per cent more than the Canadian, which is largely if not entirely covered by the larger amount of business represented by advertisements in a country fifteen times the size of Canada, and whose city folk will often buy a dozen different papers and editions a day. Nor is the issue cleared by saying that a mill need sell only 15 per cent or so of its production in Canada to supply Canadian publishers. Some mills would as soon sell all their production in Canada—on proper terms. They all object, and some of them refuse, to supply paper at less than its market price, even to such a worthy philanthropy as the press of the Dominion. We should say "part of the press," because some newspapers are sufficiently sensible to conduct their affairs on a business basis. The Western papers, much as we are sorry for their present plight, are simply suffering from their own policy. They have refused, or at least neglected, previous opportunities to get paper from Eastern mills because they say the freight was excessive. What about butchers and grocers in Toronto who have used wrapping paper from British Columbia? Who paid for it? The consumer, of course. The newspapers can do the same as every other business does, pay the market price, or a properly arranged contract price, for all materials and let the consumer pay a fair price for the service rendered, including the material used in supplying it.

Fort Frances Pulp and Paper Company declines to serve certain clients. A grocery store, hardware man, or printing press builder could do the same—and would, under the circumstances. The statement that Spanish River Pulp and Paper Mills can be induced to supply some of the Fort Frances' American customers may not be satisfactory to either the mill or the customers. As Mr. P. B. Wilson remarked to the Controller at the meeting in Montreal, "There will be no trouble over the supply of newsprint if Canadian publishers will pay the proper price." Certainly no paper mill wants to see newspapers suspend publication but there is a limit to the amount of charity in the make-up of even a generous paper maker. The mills are making all the paper they can, and are willing to go to some inconvenience to supply the newspapers of Canada, but they cannot be expected, after three years of pestering, to go on giving away their valuable product, even were the recipients the indigent paupers they claim to be.

Let the papers pay for their paper and let the sheriff stay outside.

TECHNICAL SECTION OR DEBATING SOCIETY?

That heading is principally to attract the readers' attention but it also holds the kernel of thought we wish to develop.

When some one at the last meeting of the Executive of the section suggested a debate, it was hailed as a joke and everybody laughed. In the course of a few minutes, however, the possibilities of a debate to bring out the thoughts and experiences of members were recognized. In working out the idea it was decided to call it a discussion, but anyone who feels argumentative is invited to come on January 29th to the Ritz-Carlton Hotel in Montreal and join the battle. The subject of the discussion or debate will be, "The width of newsprint machines from an operating standpoint."

Mr. R. A. McInnis, Manager of Abitibi, Limited, and Mr. John Ball, Manager of Price Zros. & Co., Ltd., will lead the discussion. Now Abitibi has the record for nerve in the matter of width of machine and Price Bros. are typical of the conservative size. The services of these gentlemen have been enlisted to get their ideas and also to break the ice for a general discussion. We want our readers to get that—**a general discussion.** It is hoped that representatives will come

from British Columbia as well as from the Ontario and Quebec mills, where machines more than 200 inches wide are in operation. There are seven or eight.

Coupled with any consideration of the width of a paper machine are the other factors in production, speed and breaks. That is why the subject matter is to be discussed from the operating standpoint. The design and construction of machines are interesting, but the paper maker is primarily concerned with its operation and production. The meeting of the Technical Section this year will, therefore, be especially attractive to superintendents and boss machine tenders as well as managers and technical men. It will be a good move on the part of paper companies to send some of their "practical" men to this meeting. And let them come prepared to say something, at least willing to express their approval or disapproval of ideas expressed by others.

This is not the only interesting feature of the program of the annual meeting, as will be seen by referring to the full program on the Technical Section page. Mr. Geo. H. Mead, President of the Spanish River Pulp & Paper Mills, Ltd., has not announced his subject but he thoroughly understands and appreciates the value and the proper function of the Technical Department in the manufacture of practically every grade of pulp and paper. He can tell where and how the technical and manufacturing men can co-operate, making the work of both easier and more efficient and raising the amount and standard of production.

Another important part of the program is the paper by Mr. F. J. Hoxie on "Fungus and its Relation to Clean Pulp." The effects of this enemy of the forest and factory have just recently been given the attention and careful study they deserve. A very extensive investigation is going on in the United States. Mr. Hoxie, supported by Mr. R. J. Blair of the Forest Products Laboratories, will bring out some points of vital interest to manufacturers of pulp and paper.

There will be reports of the usual committees, but some of them will be unusual reports. The way to find out what the Section is doing is to hear the reports of committees. The way to help what the Section ought to do is to come and discuss these reports and to render all the assistance possible to those who are willing to give time and effort in organizing and leading the work.

And, finally, then come the Technical Section smoker and the Association dinner.

You Can't Afford to Miss this Meeting!

BOOKS FOR PAPER MAKERS.

The Pulp and Paper Magazine has just received a few copies on orders for books of value to paper makers. These include: **Wood Pulp and Its Uses** by Cross, Bevan and Sindall for $2.25 and **Millwrighting** by Hobart (revised edition) for $4.50, both postpaid.

COBWEBS.

Guess we shall have to quit throwing matches and cigar butts in the waste paper basket and useless blue-books and things out of the windows. Since receiving several Safety Calendars we now realize that such practices are dangerous.

It will be something of a job to find a jury of his peers to sit in judgment of Wilhelm Hohenzollern. He has no peer.

The editor had a flying visit this week from Mr. Frank Barnjum of Nova Scotia. It does one good to meet such an enthusiast in a good cause. Mr. Barnjum realizes the jeopardy of our wood using industries and is devoting much of his time, energy and means to effecting a remedy before it is too late.

HELPING HIM OUT

Our genial friend, the contributing editor of "Paper" has written a New Year's wish that strongly appeals to us. He intimates it may not be very widely read, and as we think it should be, it is a great pleasure to pass it on to readers of the Pulp and Paper Magazine.

"Here's to You!"

"I hope the year nineteen and twenty may be a year of peace and plenty to every one who may, perchance, pick up this paper just to glance at what I have to say. But few are they who read: so here's to you, in ignorance doomed to grope for ages because you fail to read the pages on which each week I spill in ink the things I think, or think I think.

"I do not know how well you fared last year: nor am I now prepared to make up any loss sustained—nor ask a share in what you gained. But I could never make complaint, if what you have and what I haint, should get all mixed up in a way that you would come to me and say: "I'll treat you as I'd treat a brother. You take one half; I'll take the other." No matter what I'd get that way, I'd have more wealth than's mine today.

"I trust this coming year may bring you health and wealth and everything. I hope you'll also have the heart to use a very liberal part of help sustain and bring good cheer to hapless victims of the year. For, after all, who fails to give, when he is blest, fails too to live.

"I hope you mill may from this date be filled with orders, size and weight to meet your heart's desire; that prices all may still go higher; and costs entirely disappear before the ending of the year: that you may have to take no chance, but get your money in advance. That every customer you've squeezed will call for more and say he's pleased: that labor, for a generous pay, may give a full and honest day: that you may never have to wait for cars, or coal upon the grate: and that your income this year waxes until it breaks you paying taxes.—C.F.M.

Arthur C. Hastings, for four years president of the American Writing Co., and for five years president of the American Paper & Pulp Association, has joined the firm of H. G. Craig & Co., New York.

Pulp and Paper Industry of Canada During 1919

By A. L. DAWE, Secretary of the Canadian Pulp & Paper Association
(*From the Montreal Gazette Annual Review.*)

The pulp and paper industry, throughout the year just closed, continued to play an important part in Canada's industrial development. The last half of the year was marked, in particular, by a world-wide shortage of newsprint paper, which is one of the industry's leading products. Demands for additional tonnage of newsprint came to Canada from practically every quarter of the globe. Prices rose accordingly. Unfortunately, the manufacturers were not in the best position to meet these increased demands, owing to the fact that development had been retarded during the war years by Government regulation of the industry, which might otherwise have been employed in preparing for post-war expansion. Foreign buyers of newsprint paper, during the last three months of the year, were offering as high as $150 a ton for paper ordinarly sold at from $70 to $80 a ton. Canadian manufacturers, however, reaped little actual benefit from these conditions. In Canada the selling price is still fixed by Government regulation, while most of the paper sold for export had been disposed of under contract prior to this period.

With the end of Government regulation—adopted as a war expedient—believed to be near, the industry promises a considerable expansion in the immediate future, and the year just closed may be regarded as having been marked by the preparations for this expansion.

Among the Canadian companies which have installed additional machinery during the year or have entered upon undertakings for doing so are the Ontario Paper Company, Limited, at Thorold, Ont.; the Brompton Pulp & Paper Company, Limited, at East Angus, Que.; the Howard Smith Paper Mills, Limited, at Beauharnois, Que.; Prices Bros. & Company, Limited, at Kenogami, Que., the Abitibi Power & Paper Company, Limited, at Iroquois Falls, Ont., the Spanish River Pulp & Paper Mills, Limited, at Espanola. Ont.; the Laurentide Company, Limited, at Grand Mere, Que.; and the Riordon Pulp & Paper Company, Limited, at Kipawa, Ont.

Price Bros. & Company, Limited, who now operate mills at Jonquiere and Kenogami, Que., with a total daily output of paper and boards of 325 tons, have announced plans for a new mill near Chicoutimi, Que., which, when completed, will bring their total daily output up to 800 tons. The newsprint capacity of the new mill will be between 400 and 500 tons daily. The plans include the location of a new town to be known as Saguenay, after the river on which it will be located. Construction work, it has been stated, will begin in the spring and will take some two years to complete. An unofficial estimate of the cost places it at between ten and fifteen million dollars.

The Great Lakes Pulp & Paper Company, Limited, a new company just incorporated at Port Arthur, Ont., with a capital of $5,000,000, plans to build a plant covering 100 acres and having a capacity of 75,000 tons of sulphite pulp and 35,000 tons of newsprint paper annually, at or near Port Arthur, Ont. Contracts, it is stated, have been signed with the Ontario Hydro-Electric Power Commission for 12,000 horsepower and construction work is to begin immediately.

The International Paper Company of New York is now engaged in building a 200-ton sulphite pulp mill at Three Rivers, Que., which is to be followed immediately by the erection of a groundwood mill and a paper mill capable of turning out 200 tons of newsprint daily. Their plans involve an outlay of between $5,000,000 and $6,000,000. This company owns 10,000 square miles of pulpwood limits in the Province of Quebec.

Important Development

An important development in connection with this expansion of the paper making industry in Canada is that paper-making machines are now being built here for the first time. Heretofore, they have been imported from Great Britain or the United States. The Dominion Bridge Company are now building at their plant in Lachine, Que., two 50-ton machines for the Laurentide Co., Limited, which may involve an outlay of nearly three-quarters of a million dollars. It is probable that other machines will follow immediately.

Eastern Canada is not alone in sharing this industry's development. British Columbia now has four important companies, with a total capitalization of $27,102,500. Last year they produced 112,206 tons of newsprint paper, 8,277 tons of wrapping paper, 66,054 tons of sulphite pulp, 12,188 tons of sulphate pulp and 91,145 tons of groundwood. Their principal markets are the Pacific Coast States of the United States, the far Western Provinces, Japan, Australia and New Zealand.

Complete figures of the year's production are not available, nor are the export returns for the full year. Canadian Government returns for the fiscal year ending March 31st, 1919, however, show the value of the Dominion's exports of pulp, paper and pulpwood to have been $99,259,166, compared with $71,825,500 for the fiscal year 1918, $52,975,457 for 1917, $36,159,945 for 1916, $31,593,054 for 1915, and $26,440,490 for 1914—the fiscal year 1914 being the last full "peace" year. Values in the subsequent years were, of course, affected by the general upward trend of prices, and the quantities shipped probably did not icrease in the same ratio as values but a jump from $26,000,000 to a sum nearly four times that amount in the short space of five years indicates a remarkable development of Canada's foreign trade in these articles.

The industry ranks third in the volume and value of its products exported abroad and second in the amount of capital invested. With reasonable encouragement and left unhampered by Government restrictions, such as those imposed during the war, it should become, in a very short time, Canada's premier manufacturing industry.

Canada's trade in pulp and paper during this period was chiefly with the United States—wholly so in the case of pulpwood—though in the fiscal year 1919 shipments to "other countries" increased to such an extent that the American share fell to 81 per cent from the previous 83 to 87 per cent. The detailed Government figures for the last six years follow (see Table 1)

TABLE 1.

Articles.	Fiscal year ended Mar. 31—					
	1914	1915	1916	1917	1918	1919
Paper, and manufacturers of:						
Felt and roofing	$50,131	$85,066	$148,288	$251,656	$337,341	$310,778
United States	13,221	15,113	39,082	150,297	146,972	127,313
United Kingdom	499	22,725	63,216	55,196	28,297	95,717
Newfoundland	(a)	42,228	28,224	35,103	52,765	61,608
Other countries	36,411	5,000	17,766	11,060	109,307	26,140
Films for photographers' use and for moving pictures	(b)	31,244	18,280	50,569	142,079	1,302,886
United States	(b)	25,719	13,241	23,667	23,533	1,045,270
United Kingdom	(b)	1,415	4,534	25,841	28,477	130,953
Other countries	(b)	4,110	505	1,061	90,069	126,663
Paper board	(b)	(b)	(b)	1,214,963	1,826,118	3,037,279
United States	(b)	(b)	(b)	803,291	1,298,563	1,887,389
United Kingdom	(b)	(b)	(b)	367,440	359,544	873,331
Other countries	(b)	(b)	(b)	44,232	168,011	270,559
Printing	11,386,845	14,091,662	17,974,292	23,594,134	33,978,347	40,718,021
United States	9,818,539	12,126,982	15,839,780	20,973,548	30,741,564	36,031,358
United Kingdom	122,207	180,598	210,046	137,412	86,969	38,484
Australia	454,183	745,946	866,315	1,106,617	1,835,207	2,081,911
New Zealand	427,206	509,907	457,425	667,920	638,158	862,402
Other countries	564,710	528,229	600,726	708,637	676,449	1,703,866
Wall	45,328	53,916	54,050	98,372	113,695	360,567
United States	622	2,486	1,231	3,265	2,080	12,245
United Kingdom	200		766	1,367	180	
Australia	7,499	10,049	7,822	22,586	26,918	122,519
Newfoundland	10,650	14,130	6,961	19,532	34,760	62,421
Other countries	26,357	27,251	37,270	51,622	49,757	163,382
Wrapping	615,310	408,360	492,122	801,418	1,294,725	2,452,296
United States	578,595	279,111	227,900	87,738	516,651	454,377
United Kingdom	1,053	2,792	91,638	432,669	232,861	30,649
Australia	(a)	(a)	(a)	80,083	211,631	473,119
Other countries	35,662	126,457	172,584	200,928	333,582	1,494,151
Other	c589,282	d839,334	d1,352,518	112,103	173,025	983,968
United States	c155 382	d429,793	d767,297	42,422	62,518	108,583
United Kingdom	c386,859	d386,923	d542,154	18,893	2,665	2,676
Other countries	c47,041	d22,618	d43,067	50,788	107,842	872,709
Total paper and manufactures of	12,686,896	15,509,582	20,039,550	26,123,215	37,865,330	49,165,795
United States	10,566,359	12,879,204	16,888,531	22,084,228	32,791,881	39,666,535
United Kingdom	510,818	594,453	912,354	1,038,818	738,993	1,171,810
Other countries	1609,719	2,035,925	2,238,665	3,000,169	4,334,456	8,327,450
Pulp wood	7,388,770	6,817,311	5,743,847	6,448,189	8,339,278	15,386,600
United States	7,388,770	6,817,311	5,743,847	6,448,189	8,339,278	15,386,600
Wood pulp:						
Chemical	e6,364,824	4,806,622	6,801,011	14,032,920	19,133,813	30,226,856
United States	e4,913,634	4,550,196	6,405,616	11,107,819	16,171,096	26,256,265
United Kingdom	e1,167,882	800	36,777	2,677,923	1,603,738	611,399
Japan	(a) (e)	(a)	(a)	204,417	1,233,306	2,775,486
Other countries	e283,308	255,626	358,618	42,761	125,673	583,703
Mechanical	(f)	4,459,539	3,575,537	6,371,133	6,487,079	4,479,915
United States	(f)	2,893,618	2,967,153	5,487,424	6,487,079	4,418,555
United Kingdom	(f)	1,495,521	299,264	379,488		3,033
France	(a) (f)	(a)	(a)	481,040		
Other countries	(f)	70,400	309,120	33,181		58,327

a Included in "Other countries" under this head.
b Included in "Other paper, and manufactures of".
c Includes films and paper board.
d Includes paper board.
e Includes mechanical wood pulp.
f Included in "Chemical wood pulp."

The figures given above for "paper, and manufactures of" do not include books, pamphlets, maps and other printed matter, photographs, or stationery. An important feature of the returns is the large amount of pulpwood exported; shipments have grown in the last three years from 982,671 cords to 1,597,042 cords.

Post-war conditions have increased materially Canada's exports of pulp and paper. The American market continues to absorb the greater part of our exportable surplus, despite the fact that European producers, shut out from the States during the war, are once more getting their products into that market. Demands for Canadian pulp and paper from Great Britain, France and the trans-Pacific countries have also increased since the armistice, and exports to these countries are only limited by the producers' ability to supply and the availability of shipping facilities. Table 2, on next page, gives the comparative value of Canada's pulp and paper exports, month by month, since the armistice, compared with the same previous corresponding months.

Exportation of unmanufactured pulpwood has fallen off during the year, indicating that more of it is being utilized in home manufacture. Figures for the first nine months of 1919, compared with the corresponding period of 1918, are given in Table 3.

The Province of Quebec continues to lead the other provinces in this industry. Official returns, for 1918, made to the Bureau of Statistics and covering 12 paper mills, 12 pulp and 12 combined pulp and

paper mills in this province, give the following:

Capital invested, $95,402,347.

Salaried employes, 976; salaries paid, $1,733,969.

Wage-earners employed, 10,513; wages paid, $9,287,869.

Pulpwood consumed, 1,063,523 cords; value, $10,798,650.

Woodpulp produced:	Tons.
Mechanical pulp	466,355
Sulphite pulp	180,972
Sulphate pulp	124,507
Soda pulp	3,031
Total	774,865

Woodpulp produced for sale:—

	Tons.	Value.
Mechanical pulp	192,106	$ 4,887,805
Sulphite pulp	104,548	6,266,735
Sulphate pulp	99,279	7,591,939
Total	395,933	$18,746,479

Paper production:—

	Tons.	Value.
Newsprint	296,618	$17,980,825
Book and writing papers	14,241	4,413,807
Wrapping paper	33,618	4,244,552
Boards	35,827	2,740,882
Other paper products	28,572	2,302,438
All other products	.....	1,276,797
Total	405,876	$32,959,304

TABLE 2.

PULP AND PAPER EXPORTS SINCE THE ARMISTICE.

	1917.	1918.
November	$4,356,758	$7,300,137
December	5,325,306	6,487,335
	1918.	1919.
January	$4,477,744	$7,138,302
February	4,042,970	7,366,127
March	7,390,991	8,239,036
April	5,688,491	4,968,939
May	6,960,370	7,810,601
June	7,213,822	6,557,525
July	6,845,119	7,730,162
August	7,188,390	8,348,179
September	6,140,990	8,330,557
	$65,630,951	$80,276,801

TABLE 3.

UNMANUFACTURED PULPWOOD EXPORTED FOR THE FIRST NINE MONTHS OF 1918 AND 1919.

	——1918——		——1919——	
	Cords.	Value.	Cords.	Value.
January	49,114	$ 484,653	97,915	$ 972,874
February	36,515	359,486	145,747	1,411,100
March	58,481	560,520	147,925	1,408,143
April	64,525	635,144	68,680	629,189
May	152,837	1,436,786	62,352	608,199
June	199,077	1,906,440	75,285	788,326
July	229,284	2,253,884	122,069	1,234,527
August	206,283	1,878,012	97,588	944,877
September	128,646	1,217,635	89,470	884,575
	1,124,762	$10,932,560	907,031	$8,881,810

HOWARD SMITH in N.B. re NEW MILLS.

C. Howard Smith, of Montreal, president of the C. Howard Smith Paper Mills Company, operating two mills in Quebec Province and one in Ontario, appeared before the Provincial Government of New Brunswick this morning and placed before Premier Foster and his associates a proposition for the establishment of pulp and paper mills in New Brunswick by a new corporation.

IF PULP COULD TALK AS A HUMAN CAN, THIS IS THE TALE IT WOULD TELL TO MAN

I was once a tree in the forest deep,
In the velvet gleam, where the conies leap,
Where the purple rays of the Northern Lights
Flash and dance through the stilly nights,
Where the beasts of nature roam at will,
Or lie in ambush to catch and kill;
Where the mountains palisade me round,
Where the howl of the wolf is the only sound,
And I spread my limbs 'neath a sky of blue,
I stood by the trail of the Carabou.

Many a year has passed since then—
When I was the pride of the northern glen,
Where the roaring stream from the mountains high
Rolled swiftly on with a rippling sigh
To join the rapids that wait and croon
And madly dash to the gates of doom.

Oh, I was young and my dress of green
Was gay and bright with a sunny gleam,
And my close-knit limbs, so straight and long,
Sheltered a sweet voiced feathery throng.
So year by year I grew and grew,
Until the first man paused to view
And he stopped and cut in my trunk below
A certain mark that his friends would know.

Then on he went, from tree to tree,
And as he cut, he sang with glee.
His comrades came and cut me down—
I, who was a Monarch of renown,
I, who had ruled the forest wide
Before a white man crossed the tide,
I, who had lived a hundred year—
Was now defiled without a tear.

My limbs they tore, then left them raw,
My trunk they cut with cruel saw.
Through under-brush they made a road,
Then piled us up to make a load.
They hauled us to the river bank,
Then skid us into the waters dank.
We floated in the waters down
From Forest dense, to sweating town.

We lay in waters—cold and still—
Silently waiting our turn for the Mill.
They take off bark and put us through
A hundred treatments, old and new.
They pass us on through gas and vapor
Until at last we are—just paper.

A thing to roll your parcels in,
A thing to cover all—but sin,
But maybe I shall most be seen
Bearing the print of a magazine
Or a catalog of boots and shoes
Or a daily paper, full of news,
Or gilt edged bond perhaps I'll be
A bank note or a guarantee.
Whatever form in which I be—
REMEMBER, I WAS ONCE A TREE.

Alex. Gibson,
Machine Room Poet,
Port Arthur Mill, 10/11/19.

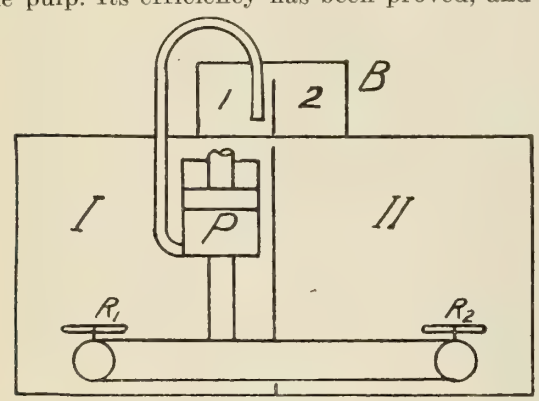
Notes of the Manufacture of One-Ply Bristol

(Translated from La Papeterie, 41, 11, (May 25th. 1919), by A. Papineau-Couture.)

One-ply Bristol is composed mainly of bleached spruce sulphite, to which may be added 10 to 20 per cent of unbleached pulp. Bleached straw, to the extent of 20 to 40 per cent, is often added to give more glitter. Broke forms about 10 to 15 per cent of the furnish. When intended for lithographic impressions, chromos, etc., about 30 to 40 per cent of chemical poplar and cotton rags is used, and the loading consists of 15 to 20 per cent of talc.

The beating of the pulp should be very closely watched. It must be made as short as possible both to facilitate the felting of the fibers on the wire and to reduce the amount of water to a minimum. The pulp should not be allowed to hydrate; consequently the roll should be dropped on the bed plate right at the start, and the time of beating reduced to a minimum. The pulp should be sent from the beater to the chest as soon as it is ready and should not be allowed to remain in the beater.

The method of feeding and distributing the pulp greatly influences the uniformity of strength of the finished product. The device shown in the sketch is simple and cheap, and insures a uniform distribution of the pulp. Its efficiency has been proved, and it can



readily be attached to existing chests. It possesses the further advantage of allowing of switching from one chest to another without stop and without sensible variation in the consistency of the stock. The various chests, I, II, etc., Notes on the manufacture of one-ply Bristol (2) are connected by a pipe TT, there being valves, R_1, R_2,..... for each chest. The stock is drawn up by the pump P and sent to the head box B, the end of the delivery pipe being lower than the overflow so as to prevent splashing. The head box B is divided into 2 compartments, 1 and 2. From 1, into which it is delivered, the stock is fed to the machine, while the excess from 1 overflow into 2, whence it returns to the chest.

In the manufacture of one-ply Bristol the consistency of the stock should be maintained as high as possible, as, for reasons which we shall give below, the elimination of water by means of pressure should be as low as possible, and, at the same time, the sheet should be as dry as possible when it reaches the dryers. The slope of the wire should therefore be considerable, about 2 to 3 per cent. In order to avoid the addition of an excessive amount of water and at the same time to obtain proper screening, only such screens should be used as will work properly with the wash-water valve wide open. The Lamort screens, with slits 0.3 mm. (about 12/1000") wide, give excellent results. The pulp should be siphoned on to the machine, as this gives a uniform weight over the whole width of the sheet.

One-ply Bristol oftens exhibits transverse streaks, which are visible only by reflected light, i.e., when the sheet is laid down flat, and which remain even after calendering. This may be corrected by using thicker aprons (mm.) bevelled at an angle of 45 degrees, the level being turned towards the wire. The wire should not bag, as this would cause transparent creases.

The elimination of the water must take place mainly on the wire. If you attempt to press either at the couch or press rolls, the felt will be printed on the sheet, and the impression cannot be removed. If, on the other hand, it is too wet when it reaches the dryers, it will crease. The wire should therefore be as long as possible and should have a sufficient number of table rolls. The amount of water should be kept as low as possible, and the shaking should be of small amplitude and high frequency. It is essential to have powerful pumps, five of them being needed. If the rolls can be moved back from the dryers, a moderate pressure is permissible. At all events the roll should be somewhat worn, but still in excellent condition. In our experience "Simon" rolls are those which give the best results.

A machine for the manufacture of one-ply Bristol should have two couch rolls, and one press roll. The felts, if not new, should be in very good condition, and **scrupulously clean.** It is advisable to use a felt washer at the first couch roll.

The sheet should be kept slightly moist and need not be remoistened on the machine in this way glazing will be easily obtained. The dryers should be in sets of two or three (say two paper dryers and one felt drier), and there should be sufficient space between successive sets to allow of the removal of the vapor.

A machine having an 18 meter wire, 50 table rolls of 60 mm., 5 powerful pumps, 2 couch rolls, 1 press roll, 18 800 mm. dryers and 2 pairs of calenders, can make 2 one-ply Bristol at from 4 to 9 meters a minute according to the strength of the sheet.—J.J.

LAURENTIDE CO. IS REORGANIZED

Advices from Ottawa last week stated that letters patent under the Companies Act have been issued to Laurentide Company, Limited, authorizing a capital of $35,000,000. The new company, the official statement reads, is to take over as a going concern, the business now carried on by the present Laurentide Company, Limited.

The fact that the capital of the new company is placed at $35,000,000 will probably cause some surprise in local brokerage house circles, where the general expectation was that this would be $30,000,000. It was stated in an authoritative way, however, that only $28,800,000 of the authorized amount would be issued at this time, and that previous forecasts that the splitting up of the old shares would be on a three for one basis were correct.

With this effected, the company will have $6,200,000 of stock in its treasury, to be issued when additional capital may be required for extensions of plant, the acquisition of new properties or other purposes.

Notices calling a special meeting of shareholders on January 26th to ratify the proposal of the directors are now in process of being sent out.

The Conservation of Pulpwood

By GEORGE CHAHOON, Jr.
President, Laurentide Company, Limited.

(*From the Montreal Gazette Annual Review.*)

The present economic situation in Canada makes it imperative that our industries produce the greatest possible amount for export. Our war debt can only be paid and the adverse rate of exchange turned in our favor by exporting as much as we possibly can, preferably manufactured articles, so that our labor can profit by the increased value of raw materials made into finished products. No other industry is doing so much to swell our exports, nor is any other industry likely to do so much in the future, as the pulp and paper industry. Its exports have risen since 1914 from $22,120,934 to $82,092,776, an increase of 271 per cent and there is no reason why this growth should not continue, if proper steps are taken to provide a permanent supply of raw material. Canada has large areas of spruce and balsam forests, which supply the best possible material, and abundant water powers for its cheap conversion, and may be said to be, today, in a more favorable position for the manufacture of pulp and paper and the new products which are based on them as raw materials than any other country in the world. According to the latest reports from the United States, the supplies of pulpwood are dwindling rapidly and will approach exhaustion in the next fifteen or twenty years. This is evidenced by the purchase of pulpwood lands by United States concerns in Canada and the construction of mills on this side of the line.

Unfortunately, our own supplies are by no means inexhaustible, and rapid inroads are being made on them. In the past, forest fires have taken an enormous toll of our forests and have destroyed more than has been used; but this menace, while not yet entirely overcome, has been enormously reduced, and with the building up of special protective forces of trained men will will be still further reduced and will be held in reasonable bounds.

We still have large areas, which though sparsely timbered, still have in the aggregate very large amounts of timber on them; but they are far from the mills. In the supply which it is economically possible to use with the present means of transportation, there is quite a large amount of waste of low-grade material and also some loss in driving the wood the long distance necessary to reach the mills. These problems are being studied, and it is hoped that methods will be so improved that such wastes can be largely reduced.

The ideal situation for which all foresters are striving is that of a sustained yield; of which term a simple definition is that a region shall be so lumbered that no more wood shall be removed in any one year than the amount which actually grows per annum. By such a system of management the forest becomes perpetually productive, and as long as it is not destroyed by fire, it will be an unfailing source of raw material. Under this system, mature trees may be cut over areas where the trees are of different ages and sizes, leaving the smaller trees to grow for a future crop, or a portion of the territory may be cut over entirely clean and a new crop obtained by natural seeding or by planting young trees which have been raised in a forest nursery.

All of these systems have been thoroughly tried out in Europe and are in use separately and in combination wherever forestry is practised. Our Canadian forests have, in general, been handled under the first or selection system not any carefully thoughtout plan, but a fortunate chance. Unfortunately, the system has been carried out, not as in Europe, by taking the oldest and poorest trees and leaving the best most vigorous for the future crop, but by taking out the best and largest trees and by leaving the feeble and decaying ones or the young and stunted ones, which either never recover or take a very long time. Studies have shown that on the pulpwood lands of Quebec, under the present system of cutting, it will in all probability take sixty years to produce a crop and that the amount which can be cut at that time will be only one-quarter of the amount which is being cut today, an amount too small to make profitable logging possible.

Problem Must Be Faced.

If a proper system of cutting should be adopted, the present cut per acre would, under a selective system, be reduced and logging expenses increased, but each year would see a larger possible cut, until the land had reached a maximum yield three or four times as large as that at present produced. If, on the other hand, we should begin to cut our lands clean, we should more than double the present yield, but we should have to wait for forty or sixty years for another crop, depending on whether we replanted the forest ourselves or left the restocking to nature. The crop at the end of the period would then be nearly eight times that at present obtained per acre. Any system will, for the immediate future, increase the price of pulpwood, but as the forest increases in yield the cost will drop progressively until the full yield is reached and will then remain practically stationary. The problem has to be faced, and the longer we wait before beginning a sane and practical policy, the more it will cost. Everyone in the country is vitally interested in this problem, and the cost should not be saddled entirely on the manufacturers of pulp and paper, but should be borne in great part by the provincial governments, which are the owners of the land. Th price of wood is rising rapidly and will continue to rise until proper steps are taken to insure a permanent supply, and the cost will naturally fall on the consumer of the product. Newspaper publishers should be vitally interested in this question as they are probably the largest consumers, and they should do their part by economizing in the use of paper and by educating the public and the voters, so that a sound policy can be adopted and the proper legislation passed to make it effective. All classes of the population are interested.

The pulp and paper companies have foreseen the difficulties which confront them in the waning supply and the increased cost of logging and transportation, and have given much study to its solution. This great industry has organized and perfected a system of fire protection and has obtained from the Government the enactment of better laws for the protection of the forests. It has proposed legislation for reforestation and is urging the Government to pass it. It has spent

money for experimental work, so that there would be a sound basis of facts on which to lay down rules for forest management and on which to base a wise forest policy. Experimental plantations have been made to determine the best species to plant and the proper soils on which to plant them.

The Laurentide Company, Limited, were the pioneers in this work, and have a large forest nursery, experimental plantations and cutting operations and are planting nearly two million trees the coming season and will rapidly increase the number.

The Riordon Pulp & Paper Company, Limited, are doing the same kind of work and have been planting for several years; 750,000 trees in the spring of 1919.

The Abitibi Power & Paper Company, Limited, and Price Bros. & Company, have commenced planting, and the Wayagamack Pulp & Paper Company, Limited, and the Spanish River Company, Limited, have the matter under consideration.

This whole question of managing the forests for a sustained yield and for the good of the country at large cannot, however, be left to private or corporation effort. Since the forests actually belong to the Dominion and Provincial governments, it is their plain duty to manage them properly. Then, too, the long term investment required, the length of time necessary to raise a crop of trees, the low rate of interest which must be charged against the principal invested, require that such work and management must be undertaken by the only certain long-lived agency capable of such work—the Government. In all the provinces a large part of the general expenses of government are taken out of revenues, and in no instance is a reasonable or properly adequate sum being used in the upkeep and perpetuation of the property. Our legislators and administrators are beginning to realize the situation, and much progress has been made in the past five years. We are far ahead of the United States, but there is much need of further progress and in this work both the governments and the public can be assured of the broad-minded and public-spirited attitude of the pulp and paper industry and can be assured that it will cooperate in every way to develop a forest policy which will place Canada on a firm and solid basis as the greatest pulp and paper producing country in the world.

HOW TO DISTINGUISH DOUGLAS FIR FROM SITKA SPRUCE LUMBER

Douglas fir and Sitka spruce are frequently put to the same uses, particularly in the building of airplanes, but they do not have exactly the same properties. This fact makes it desirable to have a ready means of identifying the lumber of these species. The use of the following key prepared by the Forest Products Laboratory at Madison, Wis., should help in telling the two woods apart:

General Characteristics—Douglas fir is darker in color than Sitka spruce, and has more pronounced annual rings. Of the two, Douglas fir is decidedly the more resinous.

Color—The color of Douglas fir as seen on a freshly cut longitudinal surface, is orange-red to red; that of Sitka spruce is pale pinkish brown. The color varies in both species, however, so that the darker spruce is about the same as the lighter fir. There is a marked contrast in color between the heart-wood and sap-wood in Douglas fir; in Sitka spruce the difference is less pronounced, both being quite light in color. Douglas fir is not so lustrous as Sitka spruce which has a very noticeable "silky sheen."

Annual Rings—In both species each annual ring is made up of a light, soft band or layer, known as springwood, and a dark, dense band known as summerwood, the summerwood being on the side toward the bark. In Douglas fir the bands of summerwood are usually very conspicuous and clearly defined from the springwood, but in Sitka spruce the springwood merges gradually into summerwood.

Resin—Douglas fir is more resinous than spruce and often shows abundant exudations on cuts made before the lumber was seasoned. Such exudations of resin are scarce in spruce.

Tangential Surface—Tangentially split surfaces (surfaces made by splitting along the rings) of Sitka spruce usually have numerous slight indentations giving it a "pocked" or dimpled appearance never found in Douglas fir. This characteristic is more pronounced in spruce with narrow annual rings and may be missing entirely in wide-ringed material, especially that near the center of the tree. Therefore, this observation should be made where the rings are narrowest. Occasionally the eastern spruces also show this uneven tangential surface to a slight extent. Some trees of western yellow pine also develop a "pocked" appearance of the wood, but the pine can be distinguished by the larger and more numerous resin ducts.

Bark—Pieces of bark, if found on the lumber, afford a reliable means of distinguishing between Douglas fir and Sitka spruce. Douglas fir has a thick bark with characteristic whitish layers. Spruce has a thin bark without whitish layers.

Cell Walls—With the aid of a compound microscope, Douglas fir can easily be distinguished from Sitka spruce. Douglas fir has spiral thickenings on the inside of the cells similar to the thread in a nut, but the cell walls of spruce are without such spirals. —Technical Notes.

INSTALLING HARLAND DRIVES.

During the past month the Harland Engineering Co. of Canada, Ltd., Montreal, have received contracts for the supply and erection of all electrical equipment for individual motor drives controlled by the Harland Patent Interlock for the drive for the 92" machine to be installed for The Howard Smith Paper Mills, Ltd., of Montreal at their Crabtree mill, and the drive for the 148" tissue machine to be installed for The Interlake Tissue Mills, Ltd., at their Merritton plant. Both machines are under construction by the Dominion Bridge Works, Montreal. Shipments of machinery to the Interlake Tissue Mills will begin by July 1st.

LAURENTIDE MEETING, JAN. 27.

Notices were received yesterday by shareholders of the Laurentide Company Limited that the special meeting at which sanction will be asked to the proposal of the directors to transfer the present enterprise as a going concern to the new Laurentide Company, the capitalization of which has been authorized at $35,000,000, will take place on Tuesday, January 27 next.

The meeting is to be held at noon on the date mentioned at the offices of the C. R. Hosmer, the vice-president of the company. Proxies are being asked for in the names of Mr. Hosmer, Geo. Chahoon, Jr., and Edwin Hanson.

How 1920 Looks to Riordon and Bothwell

The New York "Sun" appreciates the close business relations between Canada and the United States. On December 30th, last, the following opinions on the prospects for 1920 of two of the best known pulp and paper manufacturers in Canada were published in a special Canadian section. Mr. Riordon is interested in the manufacture of high grade sulphite and soda pulp and book paper while Mr. Bothwell's activities include the manufacture of ground wood, sulphite and sulphite pulps and news, wrapping and other papers.

The opinion of Carl Riordon, Vice-President and Managing Director Riordon Pulp and Paper Company, Ltd., Montreal:—American readers are familiar with the general aspects of the industrial problem in Canada in so far as it closely resembles that which exists in the United States. But many people in the United States, and indeed in Canada also, fail to realize that we have in this country a special factor making strongly for sane thinking and good feeling in industrial relations. I refer to the large proportion of native French Canadians among the industrial workers of Canada.

While chiefly centered in the Province of Quebec, these people have also important settlements in other provinces, and exercise an important influence upon industrial relations throughout Canada. They constitute the oldest element in the European population of the continent, and have a deep and passionate attachment to this soil and to the institutions which they have established and perpetuated here.

As workers they are characterized by an admirable loyalty—I will not say to the employer, but, what is more important, to the "job." That is, they are conscientious, earnest and genuinely interested in the product of the work which they have in hand.

It is sometimes claimed that they have been a drag on the general cause of labor by their philosophical acceptance of hard conditions and small pay, and it is doubtless true that they have in the past been less ambitious for economic advancement, more easily satisfied with what they could easily get, than other classes of labor in North America; but they have of late years made great progress in their standard of living, and I believe that they afford today one of the best reasons for hoping that the problem of industrial relations will be settled in Canada upon lines of loyal co-operation between employer and employed for the general benefit of the industry and, through it, of the community which it serves.

How the future appears to J. A. Bothwell, President Canadian Pulp and Paper Association, Montreal:—There is no question that the outlook for Canadian industry in 1920, so far as the pulp and paper manufacturers are concerned, is a very favorable one. The demand for printing paper, which now exceeds the manufacturers' ability to supply it, gives no indication of abating in any marked degree, notwithstanding the organized efforts in the United States, backed by government authority, to reduce consumption and put a stop to the misuse of newsprint.

Big undertakings, looking to enormously increasing Canada's output of paper, have been started and will begin to bear fruit during the coming year; but the indications are that several years must elapse before the supply of paper overtakes the demand, if it ever does.

The world's markets for high grade pulp, book, writing and wrapping papers, as well as for boards, have also stiffened up during the last three months. Canadian makers of these commodities are looking forward to the future with a great deal of confidence.

Under arrangements entered into by the paper manufacturers and the newspaper publishers of Canada, with the sanction of the government, price fixing of paper in Canada will cease on July 1, 1920, and open competitive market conditions will return. Whether this will inure more to the benefit of the consumers than to that of the manufacturers remains to be seen; but it is certain that government control, instituted three years ago at the instigation of the consumers, has not brought to the latter the benefits which they anticipated. It is at least certain that, when once more unshackled, the newsprint industry will enter on a period of broad expansion, with a corresponding increase in its output.

REPORT ON PULPWOOD SUPPLY

Reports of the Commission of Conservation as to the available supply of pulpwood are particularly pertinent at the present time when the stocks of paper and pulp are soaring. So far as the future for several years is concerned, the wood supply is large, but much o fit is commercially inaccessible, while a big factor is the enormous destruction wroguht by the bud worm.

A rough calculation by the Commissioner, Chief Forester Clyde Leavitt, gives what is regarded as a liberal estimate of provincial supplies of pulpwood as follows: Quebec, 300 million cords; Ontario, 200 million; New Brunswick, 33 millions; Nova Scotia, 30 millions; British Columbia, 255 millions. There is not much information available as to the pulpwood supply in the prairie provinces.

By way of illustrating the damage done by the bud worm, it is estimated that 25 per cent of the balsam fir in Quebec is dead or dying and 75 per cent in New Brunswick. The Ontario situation, however, is much better. Recent reports of growth in some sections of Quebec show only 30 board feet per acre, or one six-inch tree per acre per year. An authority writing on this subject says: "The figures are so appalling that I dare not commit the result of my findings to print, but the losses are so enormous that no one will deny that they far over-balance the annual growth in Canada and the United States."

It is pointed out that in arriving at estimates of supply some of the companies have simply taken a map and arbitrarily figured out the number of cords per acre. The more important rivers of Canada, this authority points out, have been logged from the earliest days and while the supply of some mills is fairly adjacent, that of others will take two years to float down to the plant. It takes from 100 to 150 years to grow a four-inch tree. The pulp supply of the eastern states is practically exhausted but the annual consumption there is 5,500,000 cords.

Considering the way the pulp lands are being cut or destroyed by fungi, fire or bud worms, the Conservation Commission is emphasizing the need of greater preventive methods. More care in cutting and particularly reforestation are urged. It is estimated that at the present rate it will be only a few years until the commercially accessible supply of many mills is exhausted.

PAPER SITUATION "PEACE WITH THE MINOR DISTURBANCES"

Announcement by the Paper Controller R. A. Pringle K. C., that the export embargo in force against the shipments of newsprint paper to the United States by the Price Bros. mills only covered fifteen per cent of their output, together with a meeting of the newspaper publishers with the Controller on Saturday, were the features of the newsprint situation at Ottawa, up to early this week.

Prior to his departure on Sunday for Toronto, the Controller expressed the view to the correspondent of the Pulp and Paper Magazine, that he expected a satisfactory termination of the difficulties now existing as regards the Price Bros. and the Fort Frances Companies. Taken all around with the exception of these two companies everything appeared to be set between the manufacturers and the publishers for "clear sailing." George F. Henderson, K.C., characterized the general situation as being "Peace with minor disturbances".

On Saturday last in view of the impending situation in the west, a deputation of newspaper owners waited on the Paper Controller. They outlined briefly the western situation pointing out that if supplies were not soon forthcoming that thirteen of the western papers would have to cease publication. Of these there are four in Winnipeg, one in Brandon, one in Moose Jaw, two in Regina, two in Edmonton, one in Port Arthur, and two others in Saskatchewan. These papers nominally require about fifty two tons per day, while the Canadian quota of Fort Frances is about twenty two tons per day. Spanish River, however, has made available to Fort Frances some 8,950 tons per year available to Fort Frances at Sault St. Marie for shipment to Fort Frances customers in the United States.

The seizure of newsprint at the Fort Frances mill as ordered on Monday afternoon was not effected, the sheriff having been refused admittance when he attempted to serve his seizure warrant. The officials of the company threatened to use force to prevent seizure, and the sheriff withdrew. Even the serving of the warrant would not have resulted in providing newsprint for western Canadian newspapers as the company, knowing the seizure was to be attempted, had shipped practically all its stocks of paper to the United States earlier in the day.

The mill was in operation again today, but although it maintained its attitude of refusal to obey the controller's order of Saturday last, no further attempt on his part to enforce that order by the seizure of paper was apparently made.

The Government Tuesday morning directed that information should be laid under the provisions of the criminal code against those officials of the Fort Frances Company who obstructed the sheriff in the discharge of his duty on Monday, and the Crown Attorney at Fort Frances was instructed by wire to commence proceedings.

The Board of Railway Commissioners, it is said, has called upon the company to show cause for the removal on Monday of the switch by which cars are removed from the mill to the tracks of the Canadian National Railway.

Meanwhile no paper has been shipped to the company's Canadian customers. The Winnipeg newspapers appeared yesterday and today in reduced size, much advertising being omitted. They are suspending today their weekly farm editions, thus relieving sufficient paper to permit of the publication of bulletin editions for a couple of days longer.

Urgent representations are reaching Ottawa from other newspapers in Manitoba and Saskatchewan that their supplies are almost exhausted, and that they will also have to suspend in a few days.

METAL STRAPPING ON WOODEN BOXES

One of the quickest and cheapest methods of adding to the strength of a wooden box is to wrap is with thin, flat metal straps. The ability of a box to withstand the hazards of transportation may thus be increased several hundred per cent.

Tests made at the Forest Products Laboratory for the War Department have provided some information as to how a box should be strapped to add most to its durability.

The best place to apply the strap is apparently about ¼ of the length of the box from the end. The strapping is preferably nailed at each edge of the box to hold it in place, having, of course, been drawn snug by special tools for that purpose.

Nailing the strap in place works well on boxes made of lumber ½ inch or more in thickness, but cannot be successfully used on thinner material because the nail splits the board. On thin boxes it is necessary to join the two ends of the strap (for which purpose there are several devices), thus making a metal band around the box held in place by tension.

Depending on tension alone to keep the strap in place is, however, open to one serious objection. Unless the box is constructed of dry lumber, shrinkage reduces its circumference to such an extent that the metal strap is no longer tight. This action not only reduces the effectiveness of the strap, but commonly permits it to slip over the end of the box. A shrinkage in moisture content of 10 per cent will permit the straps to fall off when the boxes are subjected to the ordinary hazards of transportation. A shrinkage of 5 per cent will loosen the straps considerably, but rarely enough to permit them to fall off.

The effect of shrinkage of the box is also serious when the straps are nailed at any point, since it causes them to buckle or "festoon." The reinforcing effect of the straps is thus diminished and the box becomes dangerous to handle. It is important, therefore, that metal strapped boxes which are to be in transit or storage for any length of time should be built of dry lumber.—Technical Notes.

OFFICERS OF THE CANADIAN PULP AND PAPER ASSOCIATION.

Following are the officers of the Canadian Pulp and Paper Association who will retire or be re-elected at the annual meeting in Montreal, Jan. 30.

J. A. Bothwell, Pres.; Geo. Chahoon, Jr., Vice-President; Geo McKee, Chairman, News Section; Angus McLean, Chairmn, Chemical Pulp Section; D. A. Clarke, Chairman, Mechanical Pulp Section; J. H. A. Acer, Vice-Chairman, Mechanical Pulp Section; S. J. B. Rolland, Chairman, Book and Writing Section; H F. E. Kent, Vice-Chairman, Book and Writing Section; J. F. Taylor, Chairman, Board Section; J. B. McGibbon. Vice-Chairman, Board Section; Geo. Pauline, Chairman, Codated Section; W. R. McNeil, Chairman, Felt Section: F. H. Wilson, Chairman, Wrapping Section; John Stadler, Chairman, Technical Section; F. A. Sabbaton, Vice-Chairman, Technical Section; Robt. Kernan, Chairman, Woodlands Section.

CLARKE BROS'. MILL NEARING COMPLETION

John Stark & Co., Brokers and Investment Agents, Royal Bank Building, Toronto, are in receipt of a late construction report on the new pulp plant being installed by Clarke Bros., Limited, at the Victoria Bridge crossing near the mouth of the Bear River in Nova Scotia. The new plant, which was started in the summer with John B. Roberts of New York as contractor, has made excellent progress. The pulp mill has been partly roofed in and some machinery has been installed. The saw mill has been completed and the machinery installed and the carpenter shop and warehouse have received their finishing touches. The water system, also, is ready and the spring should see the whole plant in operation. The plant is excellently situated with respect to raw material which can be delivered cheaply and the product, sulphate pulp, will be manufactured for export.

Special correspondence from Nova Scotia states that the digester room will be 22 x 45 feet, and 55 feet high; it will contain a number of digesters, each 39 feet long, 8 feet in diameter and weighing about 30 tons; the diffuser room will be 65 x 52 feet and will have two large concrete tanks as well as eight diffusers, each 18.6 feet high and 9.4 feet diameter; the tank room next will be fitted with two large circular steel tanks with pumping equipment and will measure 39 x 52 feet; next will be the wet machine and screen room, approximately 80 x 60 feet, and the largest building will be the recovery plant, where all the spent liquors find their way to be again separated into their component parts and used again. This room will measure 170 x 90 feet and will contain one large tank measuring 121 by 24 by 12 feet.

The power plant will be of 1000 boiler horse power, oil fired, a thoroughly modern equipment, which will provide steam for all the digesting and other processes as well as for a 600 horse-power electrical equipment.

A dam has been built on the Cosby Brook, 1550 feet from the plant, which provides a twenty foot head at the boiler room floor.

INADEQUATE SALARIES CRIPPLES IMPORTANT WORK.

The migration of technical experts from the employ of the Dominion Government to other lines of commencial industry, on account of the new civil service reclassification, formed the topic of much interesting discussion in technical and professional circles at Ottawa early this week.

One of the experts who has left, C. S. V. Hawkins, has joined the staff of Price Bros., and another, L. E. Westman, has become editor and owner of the Canadin Chemical Journal, which is published in Toronto. The majority of the migrations which have recently occurred were from pure food and drugs branch, which according to its head, Dr. A. McGill, will be in a bad way if relief is not speedily forthcoming.

The crux of the whole situation is that mostly since the reclassification of civil servants came out, several technical experts have left the employ of the government and have taken service with private commercial firms or corporations. It is reputed that whereas some of the experts by the reclassification schedule were to had entered and now occupy commercial positions that hd entered and now occupy commercial positions that pay them $2.500 to start with.

Dr. A. McGill says:—"We simply cannot keep them. It is quite within the mark to say the men have left because they were not satisfied with their classification. I have appealed to the Civil Service Commission, but have been met by the statement that its members' hands are tied, and they could not increase salaries beyond the limit set. The limit is now too low to retain the services of competent men, and the work here is of such a peculiar character, that accuracy is absolutely necessary.

Dr. McGill pointed out that complaints laid by the branch were often followed by court actions, which had the possibility of appeals or damage actions arising.

"Our activities and findings have to be absolutely correct and accurate, for if we lay charges against a man and it is found that action was taken on incorrect data, we at onee lay ourselves open to damage actions. I have been here for more than thirty years in charge of this branch, and I pride myself on the fact that we have never had a damage action against us."

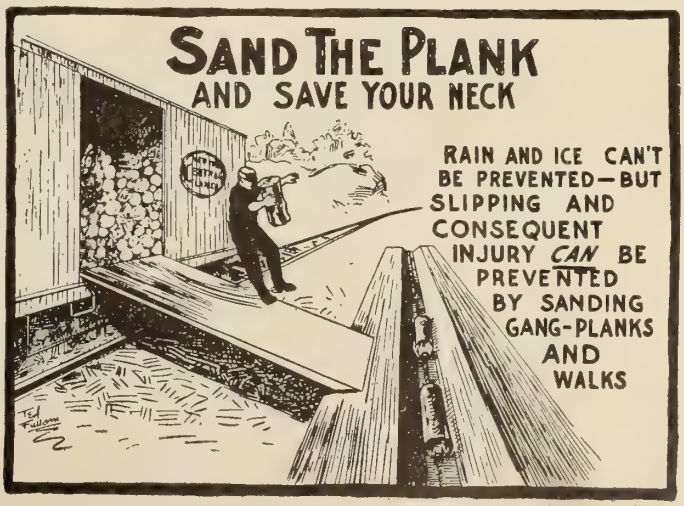
"Losing our good men as we are, I do not know what the end will be. We cannot compete against commercial firms who will pay large salaries for good men. When you consider that all the important industries in Canada are realizing now the necessity of eliminating waste, you will readily see tht the salary of an expert chemist is a small factor in comparison with the saving such a chemist is able to effect" said Dr. McGill.

NATIONAL PAPER COLORS SHOWN IN SAMPLES

The National Aniline & Chemical Company, Inc., 21 Burling Slip, New York, has recently issued an attractive color card showing samples of paper dyed with those of their products which are especially applicable to paper. Forty-two shades are shown, comprising acid colors, of good fastness to light, generally used for coloring sized paper; basic colors, possessing great tinctorial power for pure vegetable fibers and for the production of mottled effects with mixed stock, and direct colors for use with unsized pulp, in the manufacture of blotting and copying paper.

General information as to the use of these colors is given and the card provides a valuable addition to the resources in the use of American colors available for paper manufacturers.

Carefulness costs you nothing, its value cannot be measured.



Courtesy of the National Safety Council.

Technical Section

TO DISCUSS WIDTH OF MACHINES AND EFFECT OF FUNGUS

The program of annual meeting of the Technical Section of Canadian Pulp & Paper Association which will be held Thursday and Friday, January 29th and 30th, at the Ritz-Carlton Hotel, Montreal.

Thursday, 29th January, 1920:—9.30 a.m.—Business meeting, ball room; address of Chairman; minutes of previous meeting; secretary-treasurer's report.

Reports of Committees:—Committee on program, Mr. O. Rolland; committee on education, Mr. T. L. Crossley; committee on testing moisture, Mr. E. B. Slack; committee on abstracts and publications, Mr. J. N. Stephenson; committee on mechanical standards, Mr. John Stadler; committee on chemical standards, Mr. A. G. Durgin; committee on statistics, Mr. S. L. Burns; committee on samples, Mr. A. L. Dawe; report of advisory committee to Forest Products Laboratory of Canada, Mr. J. Stadler; new business; election of officers.

Thursday, 29th January, 1920:—Paper by F. J. Hoxie, "Fungus and its Relation to the Quality of Pulp." Mr. Hoxie has made a special study of Fungi, and in his paper will discuss some new phases of diseased pulp-wood. No manufacturer of pulp should miss this talk, which will be liberally illustrated.

Mr. R. J. Blair, Pathologist of the Forest Products Laboratory, will support Mr. Hoxie with a few personal observations of pulp-wood conditions in Canadian mills.

1.00 p.m.—Luncheon in grill room.

2.30 p.m.—Meeting in ball room. Address by Mr. Geo. H. Mead, President of Spanish River Pulp and Paper Mills, Limited. Open discussion on the width of newsprint machines from an operating standpoint; discussion led by Mr. R. A. McInnis, Manager of Abitibi Limited and Mr. J. Ball, Manager of Price Bros. & Co. Limited.

6.00 p.m.—Adjournment.

8.30 p.m.—Informal smoker. Grill room.

Friday, 30th, January, 1920:—

1.30 p.m.—Luncheon of C. P. & P. A.

7.30 p.m.—Seventh annual dinner of C. P. & P. Association

(See also page 47.)

REVIEW OF RECENT LITERATURE

G-6, K-11. Old and new forms of pulp screens. E. Blau, Papierfabrikant, July 25, 1919; Paper, **25**, 355, (1919). Comparison of old and new forms of screens, showing improvements whereby greater efficiency and capacity has been gained.—A.P.-C.

K-5. Cutter for fibrous substances. Fr. patent No. 493,554. A. Samuel, France. Papeterie, **41**, 448, (Oct. 25, 1919).—A.P.-C.

K-6, K-21. Pulp for the manufacture of roofing felts. Fr. patent No. 493,387. Rodolphe Kron, Switzerland. Papeterie, **41**, 447-8, (Oct. 25, 1919). The stock is obtained by boiling the material in water, followed by crushing.—A. P.-C.

K-6. Wastefulness of the present method of the manufacture of esparto pulp. E. Arnould. Papier, **22**, 292-3, (Oct. 1919). The so-called English process of treating esparto yields about 38% of pulp (for Algerian esparto) while the plant contains about 50-58% cellulose. This is due to the fact that the treatment is very severe, is followed by prolonged washing and strong bleaching, each of which contributes to lowering the yield. The inherent fault of the process lies in the lack of preparation of the material before cooking.—A.P.-C.

K-10. Sizing with metallic aluminates. D. R. P. 312,594. H. Wandrowsky, Berlin. Successive additions of potassium aluminate and $MgSO_4$ are made in the beaters, resulting in the production of K_2SO_4 and the precipitation of Mg aluminate on the fibers.—A. P.-C.

K-12. Characteristics of wire cloth. Alvin Allen Campbell. Paper, **25**, 351-3, (1919). A brief sketch of the development of the manufacture of wire cloth in U. S. A., followed by a description of the new uses to which they have recently been put (notably as a filter), and of the reasons why such cloths should be of practically perfect manufacture.—A.P.-C.

K-12. The manufacture of crushed straw paper at high speed. H. Porphyre. Papeterie, **41**, 443-4, (Oct. 25, 1919). To work at a high speed it is necessary to use a flat wire with a so-called American system of dryers. In the case of a mill having more than one machine it is advisable to have also a cylinder machine for certain kinds of paper. There follows a brief discussion on drying and calendering. (C'l'd.) —A.P.-C.

K-12. Notes on breaks at the dryers. (Les cassés dans la sècherie.) Léon. La Papeterie, **41**, 319, (Sept. 10, 1919). 1st. Keep the dryers clean. If one of them should become soiled with the loading material, allow it to cool, and increase the heat in the others. The doctor will clean the dirty one. 2nd. Keep the felts well stretched. Do not leave broke around the felt dryers or the return rolls, as this would slacken the drying-felt and would cause moist spots in the sheet. 3rd. When the dryers are not all on the same drive, the tension must be kept regular to avoid creases. The sheet should be neither moist nor too dry. When there is a break the tension should be decreased. 4th. If the weight of the paper is too high, owing to excess moisture, this may be detected without weighing by noting the appearance of the vapor rising from the felt of the last set of dryers.—A.P.-C.

K-14. Tentative rational classification of paper. (Essai d'une classification rationelle des papiers). Papyrophile. La Papeterie, **41**, 306-10, (Sept. 10, 1919). The author proposes a classification of papers according to composition and strength. This would greatly simplify the drawing up of specifications for papers, and would be a great help to the laboratory in placing a given sample in a definite class of paper. Several examples are given to show the benefit of the classification, both as regards conciseness and preciseness.—A.P.-C.

L-7. Paper-spinning machine. Fr. patent No. 491,043. Geo. Seaton Milde and Textile Engineering Co., Ltd., England. Papier, **22**, 298-301, (Oct. 1919).—A. P.-C.

M-4. Cast iron pulleys with leather lagging. Beltman. Paper, **25, 353**, (1919). A method is given for lagging a cast iron pulley with leather. The advan-

tage of a lagged pulley is decreased belt slip, resulting in increased power, less wear and longer life for the belt.—A.P.-C.

M-4. Cement for leather belting. Paper, **25,** 245, (1919). Two formulas are given. 1.—Soak 50 parts of gelatine in water, pour off the excess water, add 5 parts by weight of glycerin, then 10 parts of linseed oil varnish, stirring all the time. Thin with water as needed. 2.—To 12 lb. of gelatine add 3 lb. of fish glue and a piece of pitch about the size of an egg. Heat with 16 lb. of water and stir in a gill of diluted carbolic acid. Add 4 teaspoonfuls of oil of terebene, stir thoroughly, and allow to cool. Waterproof belts should always be sent to a belt-shop or factory.—A. P.-C.

N-4. Saving coal in the boiler room. N. P. Winchell, Jr. Paper, **25,** 243-5 (1919). Coal burned under a boiler gives heat which goes into the boiler, up the stack, into the ash-pit, or into the air around the boilers. Many pointers are given showing how to reduce as much as possible the amount of heat going to the last three mentioned places.—A.P.-C.

N-4. Hand firing for economy. N. P. Winchell, Jr. Paper, **25,** 349-51, (1919). Precautions to be observed to obtain best results in hand firing, as regards coking, spreading, thickness of fuel bed, admission of air, drafts, dampers, gages, working and cleaning the fires, wetting the coal, and firing anthracite and mixed coal.—A.P.-C.

N-4. Pulverized coal. (Le charbon pulvérisé). Fernand Poitte. Le Papier, **22,** 176-9, (Sept., 1919). A detailed discussion of the many advantages of the use of powdered coal and a description of a burner for low pressure feeding which has given entirely satisfactory results.—A.P.-C.

N-4. Pulverized coal. Fernand Poitte. Papier, **22,** 296-7, (Oct., 1919). There are three ways in which the coal crisis can be met: 1st, by increasing the output and hastening the transportation of coal; 2nd, by developing a process for utilizing low-grade fuels which have heretofore been almost unused; 3rd, by burning with coal so as to get the maximum amount of efficient heat. With a properly constructed furnace and sufficient draft, three factors come into play to ensure perfect combustion: 1st, complete utilization of the combustible part of the fuel; 2nd, control of the combustion; 3rd, control of the flame. There follows a discussion showing that these factors cannot be satisfactorily controlled either by hand firing or by automatic stokers. (Cont'd.)—A.P.-C.

P-2. Practical training of the paper-maker. How to become a machine tender. (L'education pratique du papetier. Comment on devient conducteur de machine. E. Arnould. Le Papier, **22,** 266-8, (Sept. 1919). A further description of the work which a young paper-maker is called upon to do and pointers on the proper way of doing it. (Cont'd.)—A.P.-C.

R-2. Contribution to the history of paper-making in France. H. H. F. Papeterie, **41,** 439-40, (Oct. 25, 1919). Continuation of the description of the manufacture of paper by hand followed by notes on the paper trade. (Cont'd.)—A.P.-C.

R-5. The paper industry in Canada. (L'industrie papetière au Canada.) Gustave C. Piche. Bois et Resineux, through Le Papier, **22,** 273-4, Sept. 1919). A brief survey of the development of the pulp and paper industry in Canada, and more particularly in the Province of Quebec, during the last 20 years.—A.P.-C.

R-5. The French paper trade during 1917, 1918, 1919. (Le commerce du papier en 1919 (5 premiers mois). Années 1919, 1918, 1917.) Rev. Univ. Papeterie, **2,** No. 8, 6-8, (Aug. 15, 1919). A detailed statement of the paper trade of France during the first five months of 1917, 1918, 1919.—A.P.-C.

R-5. The French paper trade during 1917, 1918, 1919. (Le commerce du papier en 1919 (6 premiers mois). Années 1919, 1918, 1917.) Rev. Univ. Papeterie, **2,** No. 9, 6-8, (Sept. 15, 1919). A detailed statement of the paper trade of France during the first six months of 1917, 1918, 1919.—A.P.-C.

R-7. Scientific organization of work. (L'organisation scientifique du travail). R. Michel Jaffard. Chimie & Industrie. La Papeterie, **41,** 324-6, (Sept. 10, 1919). A discussion of the various points to be considered in obtaining the maximum and most efficient work from a workman in the chemical industries.—A.P.-C.

R-13. Fall meeting of T. A. P. P. I. Paper, **25,** 246-9, (1919). An account of the discussion on the use of liquefied SO_2 in sulphite mills. There would be no great difficulty in recovering it in smelters, nor in using it at the pulp mills. The great factor which will determine its use or non-use is the question of freight rates. Account of the discussion of the report of the Vocational Education Committee. (Cont'd.)—A.P.-C.

R-13. Fall meeting of the T. A. P. P. I. Paper, **25,** 354 (1919). Continuation of the discussion on Vocational Education, and discussion on the subject of establishing a T. A. P. P. I. research lab. (Cl'd.)—A.P.-C.

R-0. The search for new paper-pulps. (Les nouvelles pâtes pour la fabrication du papier.) Porphyre. La Papeterie, **41,** 311-5, (Sept. 10, 1919). The possibility of obtaining large supplies of pulp from the French colonies (particularly the North African colonies) should be systematically investigated along the following lines: 1st, choice and classification of plants; 2nd, areas most favorable to their growth; 3rd, treatment and transportation; 4th, relative advantages and disadvantages of transformation in France and in the colonies; 5th, comparison of colonial and European labor, and the training of the former; 6th, comparison of the modern colonial mill and the modern European mill, as they should be.—A. P.-C.

TECHNICAL SCHOOL FOR HULL.

The first meeting of the Hull Technical School Commission recently appointed by the Quebec Government, was held on Saturday night, when Mr. R. Lafond was chosen president and other officials were elected. Dr. R. Belanger was appointed Secretary. Dr. T. B. Davis will represent the English speaking section and Mr. A. Berthiume and Notary Labelle the French speaking faction.

On Wednesday the Commission will confer with Mr. J. Macheras, director-general of technical education for the province of Quebec. Plans for commencing building and the policy to be followed in connection with technical education will be discussed.

Mr. Macheras has urged that plans be completed this winter, and is prepared to give the Commission the benefit of his experience in educational matters.

UNITED STATES NOTES

The organization of a combine taking in a number of the largest boxboard manufacturers in the East has just been effected by the Robert Gair Company of Brooklyn. The new combination will include the Haverhill Boxboard Company of Haverhill, Mass., the Pierpont Paper Company of Pierpont, N. Y., and the Thames River Specialty Company of New London, Conn. The companies will operate under the name of the Robert Gair Company, but each plant will retain its present name as a branch organization. Stockholders of the Robert Gair Company have authorized an issue of $3,000,000 first preferred stock and $4,000,000 Class A preferred stock, without voting power, and 400,000 shares of common stock of no par value. The present outstanding issue of $3,000,000 preferred stock is to be exchanged for 243,500 shares of the new common. This, it is believed, will provide a working capital of $9,000,000. The acquisition of the three companies by the Robert Gair Company will be arranged through an exchange of their shares for the new Class A preferred and the remaining new common shares not already exchanged for Robert Gair common stock. In furtherance of the transfer, the Gair Realty Corporation has been formed, the stock of which will be held in escrow for the protection of the preferred stockholders of the Robert Gair Company.

In a report reviewing general business conditions, the Federal Reserve Bank of Philadelphia has the following to say regarding the present situation in the paper industry: "The present demand for paper is very unusual, due largely to the great increase in consumption for magazines and newspapers and the larger output of commercial printing. This demand is coming not only from domestic, but also from foreign sources, and is said to be centered chiefly on cheap printing paper and building and wrapping papers. There is a distinct shortage for immediate delivery, due partly to strikes, but lately more to lack of coal. Raw materials show large fluctuations and are now high in price. Prices in the last thirty days have been well maintained and in some lines show noticeable advances. A continuation of the strong demand may force prices up to extraordinary levels. Profits for the year, however, are not expected to be large, due to the losses incurred by curtailed operations in earlier months. The coal strike forced the closing of many of the paper mills, but the resumption of work by the strikers will probably relieve the situation within a reasonable time. The labor situation is marked by a lack of efficient workers. Collections are prompt and in every way satisfactory to the trade."

Tentative statistics prepared by the Federal Trade Commission covering the past three years show that newsprint production in 1919 exceeded that of 1918 by a little more than 8 per cent and that of 1917 less than 1 per cent. According to production and shipment figures, 15,656 tons were on hand at the mills at the start of 1919, as compared with 26,477 tons on January 1, 1918, and 26,477 tons on January 1, 1917. Production for the year, with December's amount estimated at 101,000 tons, approximated 1,352,736 tons, with shipments, estimating December's total at 110,500 tons, of about 1,356,308 tons.

The recent movements in Barret Company stock and that of the National Analine Company are believed to have been due to rumors of a closer consolidation of these two concerns. The Barret Company already holds a large part of the stock of the National Analine Company, in conjunction with the two other big chemical companies in the United States, the General Chemical Company and the Semet Solvay Company. The year 1919 was a period of readjustment and transition for the Barret Company. In 1916, 1917 and 1918, the concern had three years of very strong earnings. In these years it earned over $73 a share on the common, of which $52 remained in the business. The 1919 net has been in sharp contrast to the previous years, according to those in a position to know. It is said that the balance for the common will do well to equal 50 per cent of the $21 a share earned in 1918. The slump which caused this came in the first six months of the year, which are said to have been the worst the company has experienced in a decade. Business bounded back to normal levels during the last half of 1919. The Barret Company has essentially a peace business and it can now be said to have readjusted itself and that the year 1920 will equal if not better the best year so far.

A resolution which would prevent the exportation of print paper from the United States for one year was introduced in Congress last week by Representative Scott Ferris, of Oklahoma. Passage of such a resolution, Mr. Ferris declared, would relieve the print paper shortage. Coincident with the introduction of the Ferris resolution, Representative Christopherson of South Dakota, presented a bill under the provisions of which the Federal Trade Commission would be authorized to direct and control the available supply of print paper and supervise its distribution and allocation. Present contracts between newspapers and manufacturers would be abrogated and suspended for one year or during the life of the act.

Assistant Superintendent Carl Magnus of the Crocker Division of the American Writing Paper Company, has been promoted to the superintendency of the George C. Gill Division, succeeding Charles Robinson, who has gone with a New Jersey concern. Ernest Bush, associated with Mr. Magnus on a trip to Argentina, South America, several years ago, when a paper mill was established for the government, has been appointed night foreman at the Crocker mill.

A new paper mill rosin size and heavy chemical supply house has been formed, with headquarters in Albany, N. Y., under the name Empire Size and Chemical Corporation. The president of the corporation is William Robertson, of Albany, who was formerly connected with the National Rosin, Oil & Size Co., of Savannah and New York, and also was at one time with the American Naval Stores Company.

PULP AND PAPER NEWS

Preliminary work has already been commenced on the big paper mill at Port Arthur for the Great Lakes Paper Company, Limited, which will involve the expenditure of between five and six million dollars. Mechanical pulp will be produced to the amount of 30.000 tons annually: the sulphite mill will have a capacity of 7500 tons year and the newsprint mill will have a capacity output of between 33.000 and 35.000 tons a year. The first unit of the plant, it is said, will be ready to operate by December of next year and June 1921 is likely to see the pulp and paper mill in operation.

B. Baxter, a well-known Toronto newspaperman, left this week for London, Eng., where he will take a position as editorial writer on Lord Beaverbrooke's paper The Daily Express. Mr. Baxter returned to Toronto a few months ago after service in the war. He did considerable literary work while at the front. Chamber's Journal having featured a number of his excellent short stories. These will shortly be published in book form under the title "The Blower of Bubbles". His first novel "The Parts Men Play" has been completed in Chamber's Journal and will be published in book form. Mr. Baxter expects to return to Canada next winter to work on a second nove.

D. C. Coutts, manager of the Winnipeg offices of McConnell & Fergusson's advertising agency, ws in Toronto this week attending a conference of the firm's representatives. Mr. Coutts, who is a brother-in-law of John F. MacKay, formerly manager of the Toronto Globe, has been in Winnipeg about fifteen years, going there from Woodstock, Ont., where he was secretary for a well-known commercial firm. Walter E. Gunn has been appointed Toronto manager of McConnell & Fergusson.

K. W. Harvey, head of the Harvey Knitting Company and Hosiers, Limited, of Woodstock, Ont., has been elected as a member of the Water and Light Commission of that city.

H. Sheriff, of the Hodge-Sheriff Paper Company, Limited, Toronto, who has been in England on business connected with his company, has sailed for home and is expected in Toronto next week.

The Farmer's Sun has announceed that commencing with its issue of Jan. 20th the paper will appear semi-weekly on Tuesdays and Fridays. J. C. Ross, earstwhile editor of the Pulp and Paper Magazine and for some time Montreal representative of the Toronto Globe, assumes the editorship of the Farmer's Sun this week.

The enquiry into the cost of book paper was resumed by Paper Controller R. A. Pringle, K. C. in Toronto on January 5th but owing to the fact that the Toronto Paper Company had gone out of the manufacture of that line of stock and satisfactory reports had been received from the investigation of the Riordon mills, the Paper Controller said that with the information at hand he did not think it worth while continuing the probe. Most prices, he said, were now being regulated according to supply and demand. There was no book-print shortage and there was a competitive market, so the prices should be held down by that means.

A number of Hamilton, Ont., newspapermen were successful in the recent municipal election in that city. Cal Davis, editor of the Times, after one year's experience as alderman, was elected controller and Mr. Aitchinson, circulation manager of the Herald, is also a controller. M. M. Robinson, city editor of the Spectator, and formerly sporting editor, was elected to the Board of Education and Robert Allen, foreman of the newsroom, was re-elected to the same board.

Arrangements are already under way for the Imperial Press Conference to be held in Canada next summer. C. F. Crandall, Honorary Secretary of the Canadian Press Executive, in charge of the Conference has left Montreal for Ontario and the western provinces to arrange for the preliminary organization of committees upon which will fall the local responsibilities in connection with the proposed transcontinental trip of the delegates of the conference. The delegates from overseas will arrivve at Halifax the latter part of July. Mr. Crandall was in Toronto this week in connection with the matter.

Mr. Arthur Sande, consulting engineer, specializing on pulp and paper and industrial plants, has opened offices at 313-315 Lester Building, Hamilton. Mr. Sande was resident engineer for the construction of the Porritts & Spencer plant at Hamilton and prior to that was assitant to the chief engineer, Mr. W. L. Ketchen, on the Kipawa pulp mill.

Premier Drury has announced that a grant of $10.000 would be given to assist in defraying the cost of the Imperial Press Conference to be held in Canada next summer.

The printing pressmen at Hamilton, Ont., who were on strike, have returned to work. It has been agreed to hold a conference between employees and employers, and the new wage scale will be retroactive to the first of the year.

The many friends of W. J. Bell, the well-known paper jobber Richmond Street, Toronto, will regret to hear that he is in the hospital suffering from a serious illness.

Joseph Gibson, secretary of the Spanish River Pulp and Paper Mills, Limited, and Lieut. Col Thomas Gibson,, general counsel for the Lake Superior Corporation, with offices in the Bank of Hamilton Building, Toronto, left this week for Sault Ste Marie to attend the annual dinner of the former company tendered to the executive and department heads by the president of the Spanish River Company.

The Canadian Paper Trade Association held its monthly meeting in Toronto this week under the chairmanship of the president, John Martin, head of the John Martin Paper Company, Limited, of Winnipeg. Various matters pertaining to the trade were discussed. It is proposed to issue a monthly circular to the jobbing trade commencing this month, on matters pertaining to the paper industry which will be in charge of N. L. Martin of Toronto, the secretary of the organization.

Mr. Frank J. D. Barnjum, who recently acquired a ground wood mill of the McLeod Pulp Co., was in Montreal Monday on his way from New England to Annapolis Royal, N. S.

Montreal Typographical Union, No. 176, did honor to its soldier members last Saturday night with a complimentary banquet. The guests of honor were Lt.-Col. Clark-Kennedy, V.C., and Mr. E. F. Slack, managing director of The Gazette. Mr. Thomas Black, president of M.T.U. No. 176, presided. About seventy returned men, in whose honor the banquet was given, were present. A total of ninety-one members of the organization enlisted for active service, and of this number, eighty-one went overseas. Seven journeymen and four apprentices lost their lives in battle and their memory was observed with a silent toast.

The Winnipeg River Power Co. denies the rumor that the erection of a pulp and paper mill is included in its plans. The new power plant, however, will be one of the largest in the world.

WHALENS' TO BUILD PAPER MILL IN WASHINGTON.

A four million dollar paper mill is to be erected at Port Angeles, Washington, to use British Columbia pulp, and will be in operation by next Fall, according to Mr. George F. Whalen, who has just returned to Vancouver from the East after organizing capital for the new industry. The money is largely from United States capitalists.

Operation of this plant opens up another channel for better marketing of British Columbia pulp, according to Mr. Whalen. It enables U. S. paper manufacturers to avoid the high duty on Canadian paper. Mr. Whalen states that the demand for pulp from British Columbia is very strong and increasing rapidly. The Canadian directors of the company are Mr. James Whalen and Mr. George F. Whalen.

RAILWAY TARIFF IS SUSPENDED ON WOOD PULP.

On the application of the Riordon Sales Company, Limited, the Railway Board suspended tariff No. 9-B, covering rates to become effective January 15 on wood pulp to Tacoma and Seattle for export. The effect is to restore the old rates. Much evidence of a very technical kind was heard in this case. It appears that the Canadian Freight Association asked for a withdrawl of these rates because the United States Railway Administration declined to publish rates over which they have no control in the United States. Representatives of New York shipping houses, who were present to ask that the rates to Seattle and Tacoma via the Canadian railways be maintained, learned that terest charges and writing off stumpage allowance, States Railway Administration.

ORDERS PAPER SUPPLY FROM FORT FRANCES.

Winnipeg, January 11.—Owing to the serious newsprint shortage strong representations have been made by the western newspapers to R. A. Pringle, Paper Controller, and that official took action on Saturday designed to restore normal conditions to the western publishing situation. Mr. Pringle on Saturday wired the Fort Frances mill instruction to supply the western newspapers with their required supplies.

"I order and direct you," Mr. Pringle said, "to supply western Canadian daily newspaper customers at the rate of 1,306 tons per month, beginning December 24. Shipments must be resumed today on this basis, otherwise I will instruct Minister of Customs to place embargo on paper and will have to commandeer."

A representative of the Paper Controller is stationed for the time being at Fort Francis and he was authorized by wire from Ottawa on Saturday to prohibit exports from the Fort Frances mill and commandeer paper, if these drastic steps are necessary to secure supplies of paper for Manitoba and Saskatchewan papers.

Meanwhile a condition of acute newsprint shortage exists in Winnipeg. The supply in hand, with the strictest economy in its use, will suffice to print only two more issues of the Winnipeg papers and unles in the interval Mr. Pringle's orders succeed in inducing a resumption of shipments from Fort Francis there will be no alternative to the temporary suspension of the Winnipeg newspapers. The Winnipeg newspapers have pooled their supplies in order that they may each continue publication for the longest period possible.

WAYAGAMACK CO. HAD GOOD YEAR.

Wayagamack Pulp and Paper Company's profits for the year ended November 30 last amounted to $1,103,687, an increase of $45,945 over the results in the previous twelve-monthly period, and $137,338 in excess of earnings in 1917.

After provision was made for depreciation, bond interest charges and writng off stumpage allowance, there remained a balance of $551,587, equal to 11.03 per cent. on the company's outstanding stock issue of $5,000,000. This compares with 10.88 per cent. a year ago and 10.3 per cent. in 1917.

With the previous year's surplus, amounting to $908,060, was added to the net result of the 1919 operations there was $1,459,648 to be disposed of and from this sum there was deducted $500,000, which was transferred to general reserve, leaving the amount to be carried forward into the current year's profit and loss account $959,648, against $908,060 last year and $864,023 in 1917 With the addition of the amount transferred to reserve in the 1919 statement, the fund now stands at $1,000,000.

C. R. Whitehead, the president of the company, in his annual report to the shareholders, says in part:

"With the satisfactory development of our export trade, your directors decided that the time had arrived to acquire additional machinery for paper-making. Four new machines accordingly were ordered, and are being built. It is expected that delivery of the first machine will be made in the spring of 1920. Meanwhile, the necessary additional buildings are being constructed.

"Looking to the future, your directors acquired additional timber limits—the Breakey Gaspe limits, comprisng 451 square miles, and the Portneuf limits, near the Saguenay River, comprising 484 square miles.

"In view of the above commitments, your directors to set aside a further sum of $500,000.00 to general reserve."

RICHMOND PAPER COMPANY FIRE.

Halifax, N. S., January 11—The warehouse of the Richmond Paper Company, owned by Orr Brothers, on Ecllis street, was burned this afternoon with an approximate loss of $175,000, about three quarters of which is covered by insurance. Defective wiring is said to be the cause of the fire.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, Jan. 10.—Shortage and soaring prices in most lines are the features in the paper trade, and, according to both the jobbers and the manufacturers, there is no immediate relief in sight. The newsprint mills continue to encounter the greatest difficulty in meeting the demands and the situation has not been improved any by the decision of the E. B. Eddy Company to cease the manufacture of newsprint rolls. The Hull company has gone out of the business largely because they got tired of nursing their customers along and supplying them with newsprint at a loss and they have carried their announced intention to drop out of that end of their business into effect. This will create a further shortage which will be made up in time of course but it will be some considerable period before the several prospective pulp and paper enterprises are thoroughly under way and in the meantime the shortage seems destined to continue. The situation in regard to wrapping papers, also, is causing both the jobbers and the paper makers a good deal of worry. The continued scarcity has caused an advance in prices practically all along the line. Kraft has undergone an advance of from $8 to $10 a ton, while Manila and rag papers have been subjected to a corresponding increase and Manila tissues have advanced approximately 10 per cent since the first of the year. Poster papers, also, have taken a jump. Ordinary colors are now 10¾c, dark blue and golden rod 10¾c and cardinal 11¼c. Gray rag, fibre and No. 1 Manila are up half a cent and B. Manila has undergone an advance of 40c per hundred.

It will thus be seen that the increase in prices in the paper trade has become pretty fairly general. Shortage of raw material is ascribed as the chief cause of the advance and according to some of the dealers there is no immediate prospect of a down-grade in the price-list. Neither the mills nor the jobbers are looking for business for there are enough orders on hand to keep practically every handler of paper stocks busy for three or four months ahead. Prosperity is apparent in every department of the trade and the only worries prevalent are in respect to shipments. The mills and jobbers are doling out their product and despite the fact that the manufacturers are crowding their plant capacity as far as the receipt of raw materials will warrant, some of the publishers of daily and weekly papers and magizenes are compelled to sail very closely to the wind as far as their supplies of paper are concerned. Of course the mills are doing all they can to keep the presses fed but they are up against an ever increasing demand as well as a shortage in raw material and consequently they are at their wits' end very frequently in their efforts to keep peace in the great family of Canadian paper consumers. Shipments have been hampered, too, by difficulties occasioned by the coal embargo and handlers of paper, in many cases, continue to look for certain grades of paper that are urgently required but which the mills are not running.

In considering the question of the raw material shortage it must be borne in mind that, so far, the weather conditions this winter have not been conducive to a free supply of wood for the pulp mills. There has not been sufficient snow to enable the gangs to get the wood out in the requisite quantities and for this reason there has been a big falling off in the supply, although the wood is beginning to come through more freely now as better sleighing improves the hauling conditions. Two of the pulp mills at Thorold have been shut down at different times owing to shortage of wood and one of the sulphite plants is still closed although it expects to be running again very shortly. In the meantime quotations on ground wood pulp are soaring, the newsprint market is strained and with the publishers clamoring for newsprint the consumers of other lines of paper have had to suffer a curtailment of their supplies to some extent.

Despite the adverse conditions as to inverse ratio between supply and demand under which the envelop. papeterie and writing paper manufacturers operated during most of the year, most of the makers of these lines, together with the blank book manufacturers, were able to look back on a prosperous year when they took stock at the end of 1919. The demand kept up, with firm prices, during most of the year and at the present time most of the factories are booked up to capacity for three or four months ahead. In all lines

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, NEW YORK

Write us when you have any surplus of Ground Wood Bleached or Unbleached. We are always in the market.

of the stationery trade there is an increasing demand for the output of the factories and business is brisk in every department.

In the rags and paper stock department of the trade the dealers report that there is a very good demand for all grades of new cuttings and the mills are buying everything offered. This applies to roofing mills as well as paper mills.

Rags and Paper Stock

No. 1 white shirt cuttings	$17.00
No. 2 white shirt cuttings	$12.50
No. 1 unbleached cotton cuttings	$14.00
No. 1 fancy shirt cuttings	$12.50
No. 1 blue overall cuttings	$12.50
Bleached shoe clip	$14.00
Unbleached shoe clip	$13.50
White cotton hosiery cuttings	$15.00
Light colored hosiery cuttings	$12.00
New light flannellette cuttings	$12.00
No. 2 white shirt cuttings	$12.50
City thirds and blues (repacked)	$5.00
Flock and satinettes	$3.50
Tailor rags	$3.50
White linceys	$11.00
Mixed linceys	$5.00

Pulp

Groundwood pulp	$45.00 up
Sulphite, news grade	$72.00-$80.00
Sulphite, easy bleaching	$90.00-$95.00
Sulphite, bleached	$125.00
Sulphate	$85.00
No. 1 white envelope cuttings	$2.25
No. 1 soft white shavings	$4.70
White blanks	$2.50
Heavy ledger stock	$2.80
No. 1 magazine	$2.30
No. 1 book stock	$2.00
No. 1 new manilas	$3.00
No. 1 print manila	$1.35
Folded news	$1.10
Over issue	$1.35
Kraft	$3.50
No. 1 clean mixed papers	$1.00

U. S. WOOD PULP PRODUCTION

The following review by the Federal Trade Commission of wood pulp manufacture in the United States will be of general interest. The table shows the kind of pulp, the stocks, production, pulp used and shipments for November. The pulp shipped during each month represents only pulp shipped to a concern different from the one producing it. Loss of production is shown by giving the idle machine time reported by each company for each kind of pulp.

The following is a tabulation of the production, pulp used by the company producing it, shipments to outside concerns, and stocks of finished pulp, in tons of 2,000 pounds on an air-dry basis, for November, 1919, compared with November, 1918, for the operating mills. The average production and stocks based upon the 12-months' period ended September 30, 1919 are also shown for comparison purposes.

	Number of Mills	Production for month	Used during month	Shipped during month
Ground wood pulp				
Nov., 1919	170	147,672	119,103	14,833
Nov., 1918	161	106,520	108,952	
Av. for 12 months		107,640		
Sulphite, news grade				
Nov. 1919	65	68,699	56,494	10,569
Nov., 1918	53	62,237	62,499	
Av. for 12 months		54,528		
Sulphite, bleached				
Nov., 1919	31	46,139	23,601	23,409
Nov., 1918	26	44,174	44,237	
Av. for 12 months		37,680		
Sulphite, E. B.				
Nov., 1919	8	5,984	3,791	2,402
Nov., 1918	6	6,452	6,572	
Av. for 12 months		5,808		
Sulphite, Mitsch.				
Nov., 1919	7	6,283	3,310	2,358
Nov., 1918	8	7,031	6,725	
Av. for 12 months		6,048		
Sulphate Pulp				
Nov., 1919	22	17,144	10,375	6,070
Nov., 1918	21	15,629	15,475	
Av. for 12 months		11,880		
Soda Pulp				
Nov., 1919	27	31,709	18,288	13,511
Nov., 1918	25	27,929	27,964	
Av. for 12 months		28,632		
Other than wood pulp				
Nov., 1919	6	858	725	81
Nov., 1918	5	877	872	
Av. for 12 months		840		
Total for all Grades				
Nov., 1919		324,488	235,687	73,233
Nov., 1918		270,849	273,296	
Av. for 12 months		253,128		

Total stocks of all grades of pulp in the mills on November 30 amounted to 188,887 tons. Stocks of Bleached Sulphite, Easy Bleaching Sulphite and Soda Pulp decreased slightly during the month. There was an increase during the month in the stocks of all other grades.

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the 12-months period ended September 30, 1919, the figures show that:

Ground wood mill stocks equal slightly more than 31 days' average output. News Grade Sulphite mill stocks equal slightly more than 9 days' average output. Bleached Sulphite mill stocks equal slightly more than 5 days' average output. Easy Bleaching sulphite mill stocks equal slightly more than 6 days' average output.

Mitscherlich Sulphite mill stocks equal slightly less than 8 days' average output. Sulphate mill stocks equal slightly less than 16 days' average output. Soda Pulp mill stocks equal slightly more than 6 days' average output. Mill stocks of "other than wood pulp" equal about 8 days 'average output. Total mill stocks of all grades equal slightly less than 18 days' aver age output.

Loss of Production

The number of grinders and digesters showing lost time during the month of November in operating mills was 1,066. These figures do not include the machines in two mills that were not in operation during November chiefly on account of repairs, lack of labor, lack of power, etc. The number of hours lost for various reasons was 107,965 in November while the total time lost in October was 213,947 hours.

U. S. Imports Grow

The value of the total imports to the U. S. A. of all grades of paper in October was more than 32 per

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Quotations on Sulphite and Kraft Pulp Solicited.

cent greater than for September 1919 and exceeded October, 1918, more than 57 per cent. The value of the total exports for October, 1919, was $530,233 greater than the value of the exports for October, 1918, but was $891,535 less than the value of the imports for October, 1919.

The exports of newsprint from the U. S. in October amounted in value to only 15 per cent of the imports. In Canada all but 15 per cent of the production is exported.

The stocks of hanging paper in the paper mills decreased 1619 tons during November, 1919. The stocks of hanging and special papers held by the wall paper concerns decreased 975 tons. Stocks of finished wall paper held by wall paper concerns increased 1,438 tons. The total stocks of hanging paper, special papers, and finished wall paper reported by the paper mills and the wall paper concerns on November 30 amounted to 26,566 tons. In addition to these stocks, 1,607 tons of hanging and special paper were reported in transit.

PULP AND PAPER ISSUES MADE RECORD PRICES

There was not a single exception to the fact that every pulp and paper issue listed in the Canadian market made its best price on record during the year, says the Journal of Commerce. The reason for this is not far to seek. As a result of the war, stocks of pulp and paper the world over became greatly depreciated and owing to lack of facilities in other producing countries, especially in the matter of shipping, this condition went from bad to worse. Thus it was that Canada was given the greatest opportunity in a century, and thanks to the business acumen and ability displayed by Canadian manufacturers the opportunity was seized in its entirety, the result being of incalculable benefit to the Dominion.

Another development of the greatest benefit to this Canadian industry is the constantly diminishing of raw material in the United States with the result that pulp and paper consumers in the latter country are obliged to depend on Canada in very large measure for their products. The consequence is that between 80 and 90 per cent of the Canadian newsprint output of this country is being exported across the border.

For the first seven months of the Canadian fiscal year, pulp and paper exports reached the record total of $55,609,650, an increase of $8,810,416 over the corresponding period in 1918, and of $18,821,645 over a similar period in 1917.

Such a development naturally called for extensive enlargements and additions to the various pulp and paper plants throughout the country, which naturally resulted in largely increased earnings, a condition which was reflected by the advance in the securities of these industries to record price levels, on a volume of buying that indicated the keenest interest in such issues, not only on the part of the Canadian public, but as well on the part of the American investor.

The most pronounced price gain of the year was that registered in Abitibi, which advanced from 48 to 290 and closed at 275, a net gain of 227 points. This record advance is explained by the recent announcement, contained in these columns, of the splitting up Abitibi shares. Price Brothers showed a gain of 105 points, Laurentide a gain of 71 points, Riordon 72¾ points, Spanish River 69½ points, and the preferred 63½ points, Howard Smith 80 points, Wayagamack 29¾, Brompton 15 ponits, and Provincial Paper Mills 28 points.

1919	Opening	High	Low	Close
Abitibi	48	290	48	275
Abitibi pfd.	90¾	116	90¾	99
Brompton	71	87	55¼	86
Howard Smith	65	147	65	145
Howard Smith pfd.	79	99½	79	99
Laurentide	196	276	192	267
Price Bros.	155	260	155	260
Prov. Paper Mills	53	85	51	81
Prov. Paper Mills pfd.	87½	91½	87½	91
Riordon	117¼	191	117¼	190
Riordon pfd.	94	100	95	100
Spanish River	17⅞	90½	17	87½
Spanish River pfd.	65	131	64	128½
Wayagamack	54⅞	90	46	85

TAGGARTS' PAPER CO. ADOPTS INDUSTRIAL DEMOCRACY.

The Taggarts Paper Company of Watertown, N. Y., of which George C. Sherman is the president and controlling factor, and J. V. Baron, the general manager, is the first industrial corporation of any kind in this part of New York State to adopt the industrial democracy system, which it has put into effect at its mills at Great Bend and Felts mills among about 175 employees, says the correspondent to "Paper".

At the same time the wages of the employees were raised eight cents an hour, an amount which is roughly estimated will increase the payroll about $30,000 a year.

Through the installation of industrial democracy it is figured that the production of the mills will be greatly increased with a smaller force and there will be a distinct elimination of waste materials. The plan is for every employee who has any ideas whereby the production of the mills can be increased without increasing the cost materially or who can see a way to stop the wasting of materials, which are now a dead loss to the company, to advance them. The saving results will be distributed among the employees on a fifty-fifty basis, and in plants where the system has been in operation, the returns to the men finncially have been exceptionally large—so much so that in one or two instances they have felt that they were receiving more than they should and have asked to have their wages cut.

The things which it is hoped to accomplish are in creased production, decreased cost of production, the creation of greater interest among the men in their work and the elimination of strikes and labor troubles through the financial return and through the personal interest the men take in operating the plant economicelly, efficiently and advantageously.

Then it is figured by getting the men interested they will see to it themselves that there are no employees held on the payroll, who are not doing their bit for the interest of themselves and of the company. In that way there will be built up an efficient force that will remain year after year eliminating frequent labor turnover. If there is content among the men at their work in the mill, it is claimed that there will be content in the community and that the place in which they live will be made better and more desirable.

Already the men at the Taggarts plants have taken hold of the plan with great enthusiasm and there is little doubt that it will be a success.



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Finnish Cellulose Union, Helsingfors, Finland

and in the United States, Canada and Cuba for

Finnish Wood Pulp Union, Helsingfors, Finland

comprising all and every Sulphite, Sulphate, Kraft and Ground Wood Pulp and Board Mill in independent Finland, whether ready or under erection, manufacturers of superior grades of Bleached and Unbleached Sulphites, Easy Bleaching Sulphates and Kraft Pulps, also dry and wet brown and white Mechanical Wood Pulp and Wood Pulp Boards, reknown the world over.

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CORRESPONDENCE SOLICITED

STANDARD SIZES OF CATALOGS

The National Association of Purchasing Agents has a Standardization Committee which has been working on the problem of getting a satisfactory uniform size of catalogs adopted. At the recent National Catalog Conference the resolution adopting a single size 7½ x 10⅝ failed by one vote being carried. In place of this the Conference unanimously adopted a resolution that catalogs should be confined to one of three sizes, 6 x 9, 7½ x 10⅝, or 8 x 11, leaving to the future the determination o fthe single size which might prove most popular.

Following the conference which was held under the auspices of the Standardization Committee of the National Association of Purchasing Agents, the committee decided to show its preference at once. It was felt that there was only one of the three sizes which could hope to endure as a single standard. The committee recommended that all catalogs intended for purchasings agents should be made 7½ x 10⅝, or half this size, 5¼ x 7½, when saddle stitched for convenience in filing.

The decision of the committee doubtless is the result of many years of the trying experience that most people have had in endeavoring to take proper care of a lot of miscellaneous pamphlets of almost as many sizes as there are subjects covered. The development of the classified index filing system which is in almost universal use would naturally discourage the adoption of a catalog size corresponding to the sizes of a book because of the superiority of the letter filing method of standing them in book cases. The sizes approved by the Standardization Committee enables filing of catalogs in the ordinary letter filing but the convenience of doing so that applies to the large majority of catalogs in pamphlet form may not apply to the comparatively few that frequently amount to very sizeable books and which might be more conveniently taken care of on a book shelf. Even this objection may be over-balanced by the advisability of keeping all the catalogs, even the larger ones, filed in a single place. The size of the page approved will make it possible to use illustrations with very good effect.

The action of the Association and its committee will certainly be welcomed by papermakers and jobbers because it will now be possible for the jobber to anticipate more closely the size of paper required, in fact he need sctock but one or two standard sizes in a proper assortment of weights and colors instead of the great variety of miscellaneous and odd sizes that are used at present, and which he has been obliged to carry in order to satisfy the whim of some catalog writer who feels that he must do something odd in order to get the attention of the reader. Such writers apparently do not appreciate the nuisance that these odd sizes are. Besides being a very big help to the jobber, the standardization of catalog sizes will likewise be of great assistance to the papermaker who will thus now be enabled to standardize his product with the full approval and co-operation of the ultimate consumer. The movement toward standardization has been going on for some time among the paper manufacturers and a number of standards have been satisfactorily adopted but it is pleasing to know that the movement is being met by a similar endeavor from the consumers of paper so that it will not be a case of forcing the ideas of the papermaker on his customers.

The action of the committee deserves the widest approval and active support of everyone who has to do with this phase of paper making and paper using.

WHALEN COMPANY SECURES LARGE ORDERS FROM THE ORIENT

Sir George Bury, who recently returned from a trip to the Orient, is very enthusiastic over the outlook for the marketing of Canadian products in this wonderful field. Incidentally Sir George secured orders for all the pulp which the Whalen Company desired to sell to this particular market. The Pulp and Paper Magazine expects to have an article from Sir George covering the Oriental market for pulp and paper on his return from Toronto, where he has gone to preside at a meeting of the Whalen Pulp and Paper Company.

During the past year, under the direction of Sir George Bury, the Whalen Pulp and Paper Company has carried out some very important improvements at their different plants and the Company today is on a business basis that places it in the forefront of the large firms in Canadian pulp manufacture.

FIVE STAGES OF GOOD INSPECTION WORK.

1—Determine what to do.
2—Provide means for doing it.
3—Direct that it be done.
4—Teach how to do it.
5—Follow up to see that it is done.

—The White Gatherer.

The Empire Size and Chemical Corporation will start operations in Albany about February 1, 1920, and manufacture rosin size and heavy chemicals. A general line of clays, fillers and loading materials will be handled, including satin white and talc.

Get System in your Acid Plant

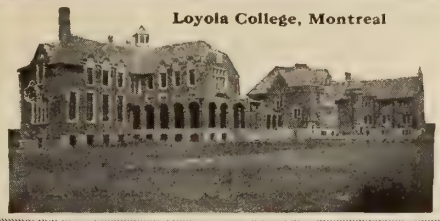
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Pulp & Paper Mill Accessories Limited, Montreal

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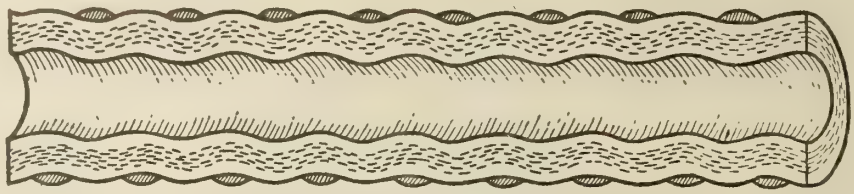


American Can Coy., Montreal

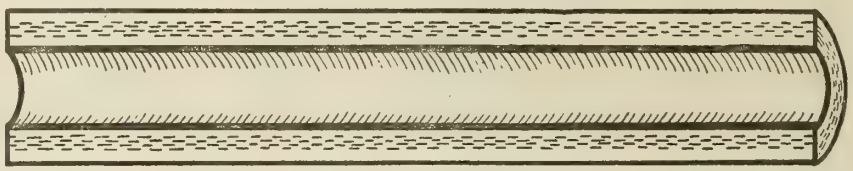


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Montreal





SECTION OF STEAM HOSE SHOWING THE EFFECTS OF WIRE-WINDING UNDER PRESSURE.



SECTION OF GOODYEAR STEAM HOSE UNDER THE SAME PRESSURE.

Goodyear has made Wire-Winding on Steam Hose Unnecessary

THAT the expansion of steam in steam hose had to be controlled by wire-winding has been long taken for granted by industry. Of course, the wire became bent and the hose choked up; it became too hot to handle; it was inconvenient to cut into shorter lengths; the wire cut through the cover. But it had always been so. And wire-winding seemed essential to protect hose from rough usage and from pressure bursts.

The illustration shows what wire-winding does to steam hose. Under the heat and pressure of use, the hose expands faster than the wire. Bulges and blisters form. The tube cracks and the fabric is weakened.

Goodyear has made wire-winding on steam hose unnecessary. Goodyear has developed a hose fabric strong enough to control steam under high pressure—tough enough to insure long service *without special winding or covering.* Add an inner tube of special compound to resist heat and a tough cover—there you have the story of very long service and very low final cost.

The high quality of Goodyear Steam Hose—the unusual construction, developed solely to meet the severe conditions under which steam hose is used—are but samples of what you will find in all Goodyear Industrial Hose.

Goodyear has scientifically developed a hose for every industrial use. Samples of this hose, and the advice of a trained technical man, are yours for the asking—without obligation. Phone, wire or write the nearest branch.

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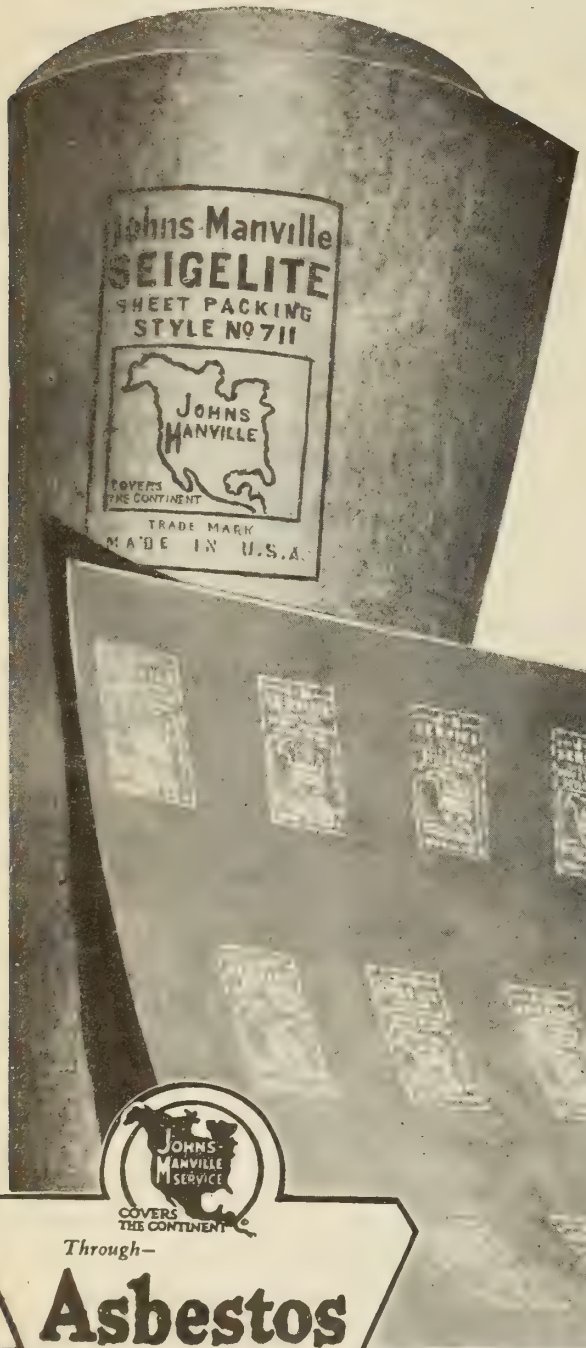
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Mills at Merritton

Written for the man who needs more than two sheet packings in his plant



SHEET packing runs into a lot of money each year. Particularly so when you carry a special sheet for oil, another for water, a third for steam, another for ammonia, etc.

Even under the most careful eye your store room is bound to carry a lot of packing remnants which are all either too small, too old or unsuited to your particular need. Remnants which eventually become waste are directly chargeable to cost of packing USED.

It was the realization of this that led Johns-Manville into the study of sheet packing standardization—which today has clearly established two packings that, taken together, practically blanket every sheet requirement in the average plant.

Read about both of these packings—their properties are rather remarkable.

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is Johns-Manville Asbestos felted under enormous pressure with special, resistant binders into dense, resilient sheet packing. It is sold in sheets 54″ x 63″ and recommended for packing against steam (superheated or saturated), water, air, oil, ammonia, and acid or alkali, and practically any service encountered.

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was primarily designed and is recommended for packing against oils, gasoline, benzine, and hot and cold water. And, as it is unexcelled for these conditions and less expensive than rubber and asbestos sheets, we advise its use where the requirements for such a sheet are large—a saving for our customers is a part of Johns-Manville Service.

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Glassine	No. 1, 2 and 3 Rope
Drawing Papers	Rope Bristols

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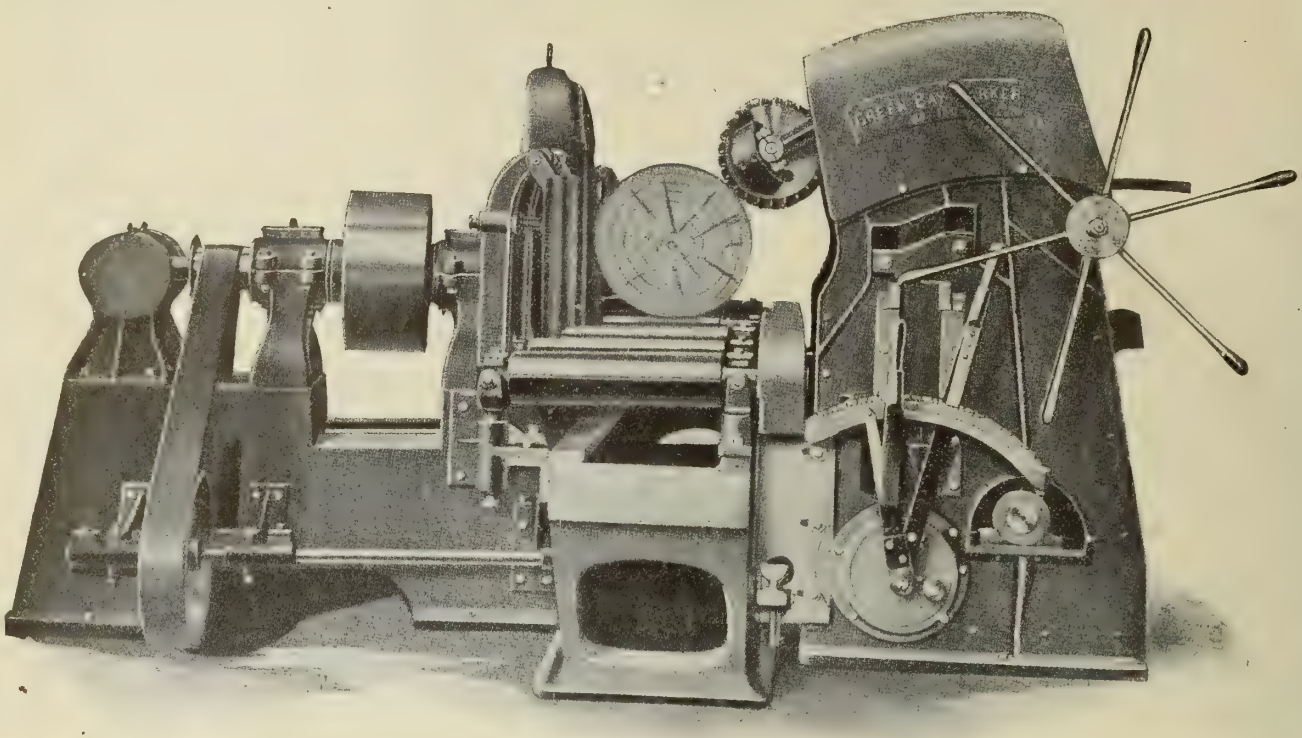
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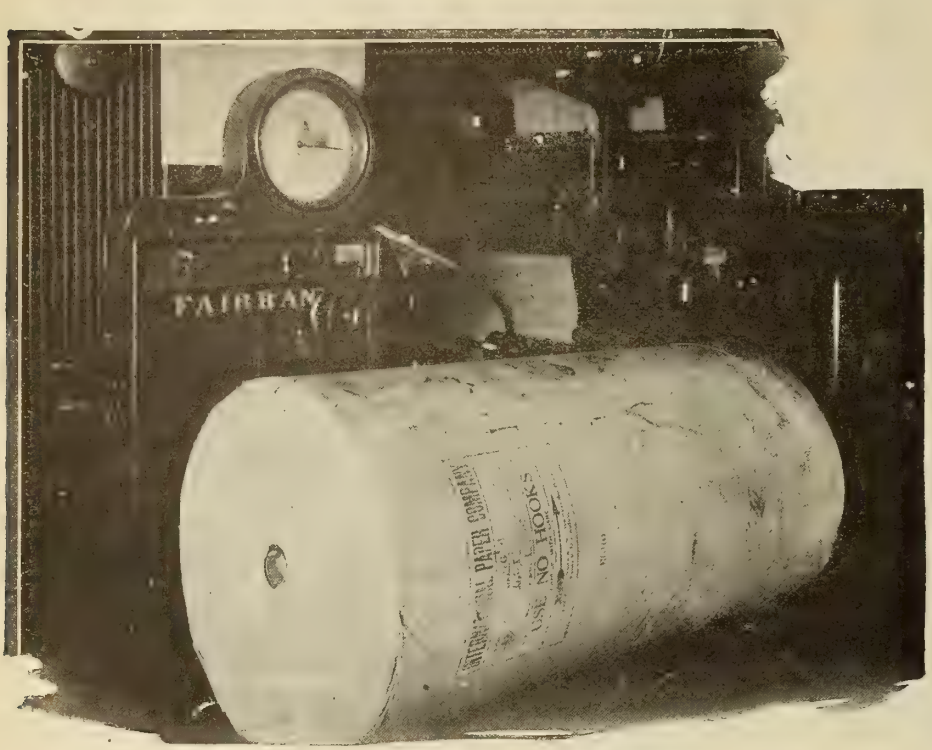
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EDITORIAL

THE PAPER CONTROLLER RESIGNS.

At the conference with paper manufacturers and representatives of the publishers in Montreal last month Mr. Pringle intimated that his tenure of office might not be very long. Those who have followed the increasing difficulties of the situation, inherently great enough because of the circumstances governing the appointment of the controller in the first place and much more severe because of the recent great shortage in newsprint paper, will recognize that if there ever was a chance for the controller's position to be a bed of roses the petals have long since disappeared, leaving little but thorns. Mr. Robt. A. Pringle, K. C. has given a great deal of thought and energy to the office which he relinquished last week and one who had not seen him for nearly two years could not fail to recognize a considerable change in the controller, doubtless due to the aging effect of being continually worried with other people's affairs. These troubles have increased enormously in the last few months so that there is but little surprise felt that Fort Frances situation should prove the crisis which must at least have had much to do with precipitating the resignation of Mr. Pringle.

Just what Mr. Pringle's personal feelings in the matter may have been has not been made public but from dispatches one can properly assume that the interference of an outside department in a matter which a government official had apparently pretty well in hand, would at least cause that official to feel a bit peeved at the situation. Mr. Pringle had succeeded in keeping every publisher in Canada sufficiently supplied with newsprint so that no suspensions took place up till last week and the chances are if allowed to work the problem out himself he would have succeeded in preventing the present situation in Winnipeg and elsewhere in the west.

It is unfortunate for the people of our largest prairie city that they should have to be without a daily paper and it is to be regretted that an honorable and businesslike arrangement can not have been reached whereby the publishers of every paper in Canada could be assured of a source of supply which would be permanent except for unforeseen contingencies. outside the control of either party. Some publishers are already connected with mills on such a basis and it is to be hoped that all of them will do so before the present arrangement between mills and publishers and the extended order in council end and leave them gasping like fish on a beach when the tide has gone out. That is the situation which will be facing many Canadian publishers in a few months and unless they take immediate steps to arrange for sources of supply someone else will have contracted for the paper and there will again be a call for government action and another period of general dissatisfaction Neither Mr. Pringle nor an equally able successor will be able to act as a substitute for ordinary business negotiations. It is up to the publishers to make their arrangements for necessary supplies of paper and if there is a suspicion that unfair methods are employed against them they have recourse to the Commerce Board and the Courts.

On several occasions through his term of office Mr. Pringle intimated if left entirely free he would have made rulings more generous to the paper manufacturers. There seems to be a general feeling that he did the best he could under difficult circumstances and he will retire with the respect of those with whom he has come in such close contact during the past three years.

A FORESTER FOR THE A. P. & P. A.

An event which probably marks a new era in the pulp and paper industry of the United States, and which will have its effect on Canada, is the appointment of one of the most competent foresters in the United States as secretary of the American Paper and Pulp Association. The resignation of Secretary Steward was received with genuine regret by the Executive of the Association and everyone who came in contact with him and his office recognized the efficient service that he has rendered while holding that important position.

Hugh P. Baker, Dean of the College of Forestry of the State of New York has been appointed Secretary of the Association and Prof. Baker has resigned as head of the Forestry College in order to accept the invitation. Some of the correspondence relating to the matter appears on another page. Dean Baker is so eminently fitted for the position that a rehearsal of his qualifications is quite unnecessary but it may be appropriate to point out the possible effect just at this time of appointing such a man to this position. There are two important directions in which the influence of Dean Baker will be felt in the future and it is the possibility of exercising his powers in these directions which doubtless has been the principal inducement for him to accept the new position. We have in mind the attention that will be paid to educational effort and the absolutely necessary action which must immediately be taken in regard to the conservation of

the forest resources of the United States if certain branches of the pulp and paper industry are to survive the present generation. Many of the American mills have already been in use as long as the average active life of a man and many of them are much older. There are very few mills dependent upon wood as a raw material which own or control even an approximately adequate supply. Most of them are totally dependent upon outside sources and many of them must derive this necessary material in large part from Canada. With the continued depletion of the American forests and with the recognition in Canada that unless adequate measures be immediately adopted the Dominion will be as badly off in a few years as the United States is now, it is important that the Pulp and Paper Association should at this psychological moment appoint as secretary a man who is particularly well qualified to advise and to inaugurate action which will have the greatest effect as a life extension policy on the existence of the pulp and paper industry in the United States. The Canadian industry will rejoice in the appointment of Dean Baker because the more wood that the American mills can obtain at home the less likelihood is there for such an immediate drain on the Canadian forest as is now iminent.

Along the line of education, Dean Baker's experience and ability will likewise find an excellent field for exercise. Dean Baker is an enthusiastic member of the Education Committee of the Technical Association and as secretary of the Paper and Pulp Association he will be in a position to render the greatest assistance to the rapidly growing movement for providing better educational facilities to the men who are investing their lives in the manufacture of pulp and paper. As an associate with Dean Baker in the production of a text book which is being prepared under the auspices of the American and Canadian pulp and paper industry we look forward confidently to a great deal of assistance from the new secretary in the development and extension of the work for which the text book will be but the basis.

Needless to say the new secretary will have the full confidence and co-operation of the Canadian as well as the American papermakers and we wish to extend a hearty wish for the complete success of all his efforts.

COBWEBS.

From away across the Pacific comes a message of good will and good wishes, sent by our friend Mr. Y. Fukukita, of the Oji Paper Manufacturing Company and secretary of the Japanese Pulp and Paper Association.

Is it a coincidence that R. S. Kellogg, secretary of the Newsprint Service Bureau and H. P. Baker, secretary-elect of the American Paper and Pulp Association are both trained foresters? It looks like a good sign for the future.

There are said to be twelve bills in the U. S. Congress relating to the pulp and paper industry. Will they make the Federal Trade Commission the bill board?

A national conference on concrete house construction will be held in Chicago next month. Pulp and paper men will be glad to welcome any movement which will decrease the demand for lumber and consequently tend to reduce the cost of wood.

The editor had a very enjoyable visit, though all too brief, with Mr. John Wolstenholme, director of Charles Walmsley & Co., Ltd., just before he left for England. Mr. Wolstenholme had a taste of real Canadian weather that day. It was bright and still with the mercury at 24 below zero, and plenty of snow. We hope to see him again in many months

---

The "Safety First" calendar gotten up by the Ontario Pulp and Paper Makers' Safety Association is a flank attack on carelessness. Pulp and Paper companies in other provinces as well as Ontario have bought more than 5000 for distribution among their workmen. The gospel of safety and health is thus carried directly into the home, which is the point where the effects of carelessness usually concentrate.

The work of Mr. Costigane and his association is also appreciated in other industries, as shown by the sale of some 9000 calenders outside of the paper mills. The effectiveness of the calendar in French speaking communities has been increased by the translation of the slogans into French through the co-operation of the Belgo-Canadian Pulp and Paper Company. Perhaps the calendar will prove the tie that will bind the Safety First efforts of all Canadian mills into a powerful unified movement.

That idea they have in England for the graduated increase of wages on promotion of an employe is all right. When an employe is promoted, his immediate increase in wages is one third the difference between his old wage and the rate applying to his new position After six months he receives two thirds the difference and at the end of the year he gets the full pay. The balance between the full wage and the amount the employe gets is divided equally between the company and the men who help train or "break in" the new man. This educational work is often a considerable effort and it is only fair that it should be compensated. The instructor usually has to take on quite a bit of added responsibility and do part of the new man's work. On the other hand the employe is being trained to earn a better wage while the company stands to lose temporarily during the training process. This system should also be an incentive for a man to stick out his period of apprenticeship and become a permanent member of the organization.

Successful Pulp and Paper Mill Trials on Cotton Hull Fibre

By OTTO KRESS, in charge Section of Pulp & Paper,
U. S. Forest Products Laboratory, Madison,
Wisconsin.

In a recent paper by Otto Kress and S. D. Wells * were described the results of an investigation made on a semi-commercial laboratory scale covering the pulping and paper making qualities of second cut cotton linters, cotton shavings and hull fibre. The writer was invited by the East St. Louis Cotton Oil Company, National Stock Yards, Illinois, to attend some pulp and paper mill trials to be conducted under their direction, and to report the finding to the paper industry. This report covers the data obtained in these trials, as well as in previous pulping trials conducted by representatives of the East St. Louis Cotton Oil Company, and in a pulping trial conducted by the Forest Products Laboratory at another plant.

The fibre, as supplied by the East St. Louis Cotton Oil Company, was obtained in the following manner. The cotton seed as received at the oil mill has approximately 200 pounds of fibre adhering per ton of seed. The seed was first cleaned to remove dirt, after which a 75 lb. linter cut was made. The partially delinted seed was cut and a separation made of the hulls and kernels, the kernels after a suitable steaming treatment being pressed for removal of the cotton seed oil, and th press cake used for cattle feed. The hulls were treated in a steel attrition mill for removal of the fibre, and by proper screening the fibre and hill bran were separated.

Practical Try-Out in Soda Pulp Digester.

The East St. Louis Cotton Oil Company had secured permission from the Penobscot Chemical Fiber Company. Great Works, Maine, whereby they were permitted to carry on pulping trials in their digesters. Previous to the arrival of the writer at the latter plant, three cooks had been made.

These cooks were made in a welded upright stationary digester 8 ft. x 30 ft. fitted with a false botton perforated with 3/8 inch holes. Steam admitted through a 3-inch line under the false bottom into an injector or circulator circulates the cooking liquor to the top of the digester, where by means of a special spray the liquor is spread uniformly over the top of the digester charge. When the digester is at pressure, circulation by means of the injector practically stops. In the cotton-fibre cooks further circulation was obtained by means of a direct acting duplex steam pump. The digester was operated in the usual manner, being frequently relieved of air and gas. The digester was equipped with a recording temperature gauge, and temperature rather than pressure was used to control the cook.

The cooks made previous to the arrival of the writer were made under the following conditions:

Cook No. 1.

Weight of air dry fibre—7800 lbs. (26 bales).
Caustic soda—1680 lbs. or 21.6 per cent of weight of air dry fibre.
Volume of liquor—6800 gals. of 3 per cent NaOH.
Liquor ratio—7 to 1.
Average temperature—311 deg. F.
Average pressure—80 lbs.
Time coming up to temperature—4½ hrs.
Time at pressure—3 hrs.

The digester was charged by putting in first fibre, then liquor. Practically no circulation was obtained during the preliminary part of the cook, a fact which was noted by the lag in temperature. At the end of 4 hours the full line pressure of 110 lbs. was turned into the digester, circulation was secured, and the temperature started to rise. At 300 deg. F. the plunger pump was used to secure circulation, as only sufficient steam is used at that period of the cook to counteract heat losses by radiation. This cook, like the other three made at this plant was blown a separator and then dropped to a wash pan, where is was drained. Afterwards it was washed three hours with weak black liquor, and three hours with hot water. The cook did not blow clean; approximately one-eight of the pulp remained on the digester and requiring a reblow.

Treatment of the Pulp.

An attempt was made to handle this pulp through the mill in the following manner: The washed pulp was hosed into a chest and pumped to an inclined knotter screen with a drag conveyor. The screen was perforated with ½-inch holes, and by increasing the water above the amount used in handling soda pulp, no difficulty was experienced in screening. The stock was then pumped to a rotary Quiller screen provided with .065-inch circular perforations. The stock plugged the screen so that it was finally by-passed to a pulp thickener where again, because of the freeness and tendency of the stock to collect in a bunch or wad form, it was found impossible to form a continuous sheet. The stock was next put over a thickener, where similar difficulties were encountered, and finally dropped into a bleach-tub, where it was treated at approximately 120 deg. F. with 5 per cent of bleach, producing a pulp of very high color. From the bleach tank the stock went to the drainer, and after twenty-four hours it was flushed to a chest, put over a pulp thickener, and pumped to a 10-cut diaphragm screen which had to be by-passed on account of difficulty in screening. The stock was finally put over a pulp drying machine and taken off in the form of crepe. The stock which originally was clean had by this treatment become so dirty that it was rejected.

The foreging description of the handling of the stock is given to illustrate the difficulties incident to handling this free, long-fibred, bunchy stock in the usual soda pulp mill manner. By changing the procedure as described in the latter part of this report, the writer believes that all these difficulties may be overcome.

Cook No. 2.

So much difficulty was experienced in cook No. 1 in obtaining good circulation that it was decided to introduce steam directly at the bottom of the digester instead of through the injector inside the digester. The injector pipe was, therefore, plugged at the top with a wooden plug, which was bolted and braced in

* The Suitability of Second Cut Cotton Linters, Cotton Shavings, and Hull Fibre for Paper Manufacture," by Otto Kress and Sidney D. Wells., Pulp and Paper Magazine, Aug. 21, 1919, p. 697.

place. While the digester was being filled with fibre, cooking liquor was run in.

Weight of air dry fibre—9900 lbs. (33 bales.)

Caustic soda—1900 lbs. or 19.2 per cent of weight of air dry fibre.

Volume of liquor—6500 gals. of 3½ per cent MaOH

Liquor ratio—4.5 to 1.

Average temperature—324 deg. F.

Aeverage pressure—85 lbs.

Time coming up to pressure—1½ hrs

Time at pressure—4½ hrs.

The temperature rose immediately from the start of the cook, and no auxiliary circulation was used. The pulp when blown was very raw; many of the hull particles were not even softened. The digester did not blow clean, about 20 per cent remaining, on which a reblow was made. In this reblow black liquor was introduced in the usual manner, and on examining the digester after the reblow it was found that the plug had blown out of the circulating line, consequently, for part of the time on the reblow there must have been active circulation. The re-blown stock from cook No. 2 was clean and well cooked and was subsequently made into paper, the pulp requiring 7 per cent of 35 per cent available bleaching powder to bring it to a good color.

The raw cook, representing approximately 80 per cent of the digester content and estimated at 2000 lbs. bone-dry pulp, was recooked with 400 lbs. of caustic soda, using sufficient black liquor (liquor ratio approximately 7 to 1) to cover, for three hours at 320 deg. F., 105 lbs. pressure, without circulation. The digester blew clean, but apparently no further pulping had occurred.

Cook. No. 3.

In this cook the general conditions of cook No. 1 were repeated. The digester was first filled with liquor; then the fibre was added, and by means of the pump the liquor was circulated for 4 hours thoroughly to soak the fibre In this respect cook No. 3 differed from cook No. 1, where there was no circulation during the filling period or at any time prior to the actual turning of steam into the digester.

Weight of air dry fibre—7800 lbs. (26 bales).

Caustic soda—1900 lbs. or 24.3 per cent of weight of air dry fibre.

Volume of liquor—6800 gallons of 3¼ per cent NaOH.

Liquor ratio—7 to 1.

Average temperature—311.5 deg. F.

Average pressure—80 lbs.

Time coming up to pressure—4½ hrs.

Time at pressure—3¾ hrs.

When the digester reached temperature, the auxiliary circulating pump was used to secure circulation. One reblow of 10 per cent digester content had to be made. The pulp from cook No. 3 was completely cooked and after washing was dug out of the wash pan, placed in barrels, and shipped to the Eastern Manufacturing Company, Bangor, Maine, for conversion into paper.

Cook No. 4.

Cooks Nos. 1, 2, and 3 were made at a previous time by representatives of the East St. Louis Cotton Oil Company, the data being supplied to the writer (who, however, was present while the fourth and last cook was made).

Weight of air dry fibre—7800 lbs. (26 bales) fibre, 89.1 per cent bone dry.

Weight of bone dry fibre—6950 lbs.

Caustic soda—1500 lbs. or 21.6 per cent of weight of bone dry fibre.

Concentration—.25 lbs. per gal. or 29.4 grams per liter.

Liquor ratio—7.35 to 1.

Average temperature—318 deg. F.

Average pressure—87 lbs.

Time coming up to temperature—4 hrs.

Time at maximum temperature—4½ hrs.

The necessary volume of cooking liquor was run into the digester and the fibre which had been shipped in burlap-wrapped bales was added; during this operation the liquor was circulated by means of the pump. When the digester was filled with the fibre, no liquor was visible. Steam was turned on at 2 P. M. and the pressure relieved at frequent intervals until the gas and air were removed. At 5 P.M. a temperature of 294 deg. F. was reached, and circulation was started by means of the duplex-plunger steam pump. At 10 P.M. the packing on the pump had become badly attacked by the hot alkali, and leaked so much that it was necessary to stop the pump. At 10.25 P.M. the digester pressure of 100 lbs. was relieved to 80 lbs., and the cook was then blown. The cook did not blow clean; about 20 per cent of the digester content remained, requiring two reblows. The reblown stock was dropped into a separate tank and held over, without draining or washing, from Sunday morning till late Sunday night, a period of 14 hours. The main cook obtained from the first blow was well pulped, showing no uncooked hull particles, and was drained and washed at once. This pulp, as well as the reblown pulp was dug out of the wash pan packed into wooden boxes, and shipped to the American Writing Paper Company, Holyoke, Mass., where it was bleached and made into paper.

A sample of the black liquor obtained from the discharge spout of the blow pit had a specific gravity of 125 deg. Tw., a concentration of 9.76 grams per liter of caustic soda, and an efficiency of chemical consumption of 74.2 per cent.

Cooks Nos. 5 and 6.

These cooks were made by the representatives of the East St. Louis Cotton Oil Company in a rag boiler of the Eastern Manufacturing Company, Bangor, Me., and the data were given to the writer by the representative who witnessed these trials. The cooks were made in a 25 ft. x 7 ft. rotary rag boiler, ordinarily rated as a 10,000 lb. rag boiler.

Cook No. 5.

Weight of air dry fibre—3900 lbs. (13 bales); 5100 lbs. (17 bales).

Caustic soda—640 lbs. or 16.4 per cent of weight of air dry fibre; 1050 lbs. or 20.6 per cent of weight of air dry fibre.

Strength of caustic soda solution—4 per cent; 3 per cent.

Volume of cooking liquor—2000 gals.; 4300 gals.

Liquor ratio—4 to 1; 7 to 1.

Total time of cook—12 hrs.; 14 hrs.

Maximum pressure—45 lbs.; 45 lbs.

Bleaching powder, (35 per cent available chlorine)—10 per cent; 10 per cent.

The cooked stock contained a considerable proportion of hulls, indicating clearly that even with the excess of caustic soda employed that the pressure, and pulp the stock. The stock bleached to a fair color, but contained a considerable amount of yellowish hull particles which appeared in the sheet when the pulp was converted into paper at the plant of the

Eastern Manufacturing Company. Inasmuch as 50 lbs. pressure was the maximum allowable pressure, no further trials were made in the rag boilers of the Eastern Manufacturing Company.

Cook No. 7.

This cook was made by Mr. Wells and the writer previous to the six cooks described, on bottom hull fibre supplied by Mr. T. L. Smith, Birmingham, Ala., at the plant of the B. D. Rising Paper Company, Housatonic, Mass.

In this trial a rotary rag boiler with a maximum allowance steam pressure of 45 lbs. was used.

Weight of air dry fibre—7899 lbs. (90 per cent bone dry).

Weight of bone dry fibre—7100 lbs.

Weight of caustic soda—1350 lbs. or 19 per cent of weight of bone dry fibre.

Concentration of caustic soda—34 lbs. per gallon, or 40.8 grams per liter.

Volume of cooking liquor—39500 gals. or 55.7 gals. per 100 lbs. bone dry fibre.

Total time of cook—14 hrs.

Maximum pressure—45 lbs.

No relief was available to relieve the air from the rotary; consequently, the pressure noted was probably fictitious (and not representattive of temperature) furthermore, the recording pressure gauge indicated only 35 lbs. pressure, but the experimenters were informed that the reading of the instrument was uniformly 10 pounds low.

At the end of 14 hours the pressure was blown down, and the digester dumped. The fibre was incompletely pulped, showing practically all of the original hull particles. These, however, were softened to such a degree that they could be bleached to a high white, and would no doubt have been entirely pulped out of a higher steam pressure could have been used.

A sample of the black liquor on analysis showed 58 per cent free caustic soda and a chemical efficiency of 42 per cent.

The pulp was allowed to lie for two days in black liquor on the digester floor, and was then washed for six hours and bleached cold. The method of bleaching was to use about ¾ of the total bleach required in the first bleaching treatment for a period of one hour. with a little acid to accelerate the action. The stock was then washed and rebleached, for one hour, and dropped into a drainer. The writer was not present at the mill during this treatment but was informed that some 4300 lbs. of pulp was produced, equivalent of 60.6 per cent of the weight of the original bone dry fibre, requiring 10.9 per cent of bleach to bring it to a high degree of white. A final yield of 3800 lbs. of bleached hull fibre was obtained.

(To be Continued.)

The experimental paper mill of Arthur D. Little, Inc., Cambridge, Mass., has been busy for some months on demonstrations of the paper making quality of linters and cotton hull fibre which, during the war, were the chief source of cellulose for the nitrocellulose used in smokeless powder. The mill is now engaged on the commercial production of the acid-washed filter paper for quantitative chemical analysis formerly imported. Its capacity for this purpose is more than sufficient to meet the entire American demand and to ensure the highest possible quality of product, the mill is operating on distilled water.

LOCKWOOD'S DIRECTORY OF THE PAPER TRADES.

The 45th annual edition of Lockwood's Directory of the paper, stationary and allied trades is now ready for distribution. The price is $5.00 express prepaid and orders may be sent in through the Pulp & Paper Magazine or direct to Lockwood Trade Journal Co. Inc., 10 E. 39th St., New York. With the continued record of 45 years satisfactory service the Directory scarcely needs any description or explanation but the Pulp & Paper Magazine wishes to commend the enterprise of our American contemporary and takes pleasure in advising our readers of this opportunity to obtain the most comprehensive directory of the industry in North America. Comment on the excellence of the work would be superfluous but the following list of contents will be of interest:

Paper and Pulp Mills.

All the Paper, Wood Pulp and Chemical Fibre Mills in the United States, Canada, Mexico and South America, geographically arranged, with the names of officers; a complete statement of mill equipment; kind of power used, product of mills, and total production per 24 hours.

Mills Classified According to Products.

All the mills making the same kinds of paper, boards or pulp are brought together under headings descriptive of their products.

Makers of Paper Specialties.

Giving the names of concerns that convert paper to special purposes. Where to find "Paper Specialties" is answered in this list.

Paper Dealers.

Wholesale paper houses with indicating marks telling whether the business is done through stores or from warehouse or mill direct; large concerns selling paper as a side line are also included.

Pulp, Rag and Paper Stock Dealers.

Names of houses dealing in rags, old papers, sulphite, sulphate, etc., including importers.

Converters of Paper.

Included under this heading are those concerns that turn out the following products: Glazed papers, Coated papers and boards, Waxed and Parchment papers, Toilet papers, Saturators of Roofing stock, paper bags, paper boxes, envelopes, pads and tablets, tags, wall papers, etc.; also a list of Twine Manufacturers.

Stationers' and Office Appliances.

Leading Stationers and others handling stationery and Office Appliances in the United States, Canada, Mexico, Cuba, Porto Rico and the Philippine Islands. The list printed is considered the most complete and most accurate published.

Watermarks and Brands.

All the leading titles used in the American Paper Trade are included.

Who's Who in the Paper Industry.

This includes an alphabetical list of all the prominent mill officials, together with their connections.

Trade Associations; Statistical Information and the Advertisements;

the latter comprising the most complete guide to the sources of supply of machinery and Raw Materials used in the industry.

The art of using moderate abilities to advantage wins praise and often acquires more reputation than actual brilliancy—use them.

Influence of the Hollander's Construction on the Sizing Fastness of Papers

Translated from Der Papier-Fabdikant, for the Paper Trade Journal

In one of our paper mills the hope was entertained that by means of a modern construction of the Hollander with a very high roll and a forced circulation of the stock, a technical superiority could be achieved. But to the general astonishment constant complaints were made of the paper produced. Since the construction of the new paper machines employed did not differ from that of the others previously in operation, it was inferred that the fault could only lie in Hollander. To come to the bottom of the matter, the pulp from the old beater was transferred to the new paper machine, and it yielded the same good quality of sizing fastness in paper as before. The cause of the defect was now clear. With the rapid circulation of the New Hollander, it was not possible, even in the case of a dense stock to obtain well sized papers, for as soon as the new beater furnished the whole stuff, the same defetive sizing showed itself again. Obviously, something must have occured; either suitable beaters must be installed, or different sorts of paper produced. Thus we finally arrived at the production of printing and blotting papers.

Importance of Choosing Machines

From this experience it may be seen how cautious the paper maker must be in his choice of machines in that one mill has to expand more size and power than another in spite of the fact that both produce the same sorts of paper. Particularly in new installations noteworthy cases occur, in which, however, the preliminary testing of parallel samples is not possible, as in the present instance. Such accidents are not uncommon, but they have the advantage that if the right man is called on for instance at the right time, the detriment to the paper can be quickly obviated.

Today when only with a most economic operation is a prosperous business possible, it should excite no skepticism, that in order to determine a defect and remedy it the labor and costs of testing do not seem convenient or profitable.

Functions of the Hollander

In a critical examination of a paper mill it is usually the Hollander which strikes most forcibly the examining eye of the paper maker. What falling off in its output does the latter show? When I obtain a bright greasy pulp with an old Hollander in three hours, I must with an new Hollander and a colossal roll and rapid revolution, often consume twice or even three times the time used in beating this pulp in the old engine. And this is only the fruit of the unsuccessful striving to reach the ideal of peripheral speed in the Hollander It is chiefly the manufacture of imitation parchment, kraft, and spun papers which has shown that the Hollander structure is joined to a sadly defective driving gear, and that it has gone so far that when we attempt to run one of these modern "gallop" Hollanders, as they are called in one of the kraft paper mills we can accomplish no more than with a Cooke-Hibert mill, or any other pulp mill, that is to say, we obtain a wholly unsatisfactory pulp as regards bright greasy quality.

The makers of the modern high speed Hollanders have forgotten that cellulose fibers during the operation of a Hollander of high capacity and output, are not disintegrated into fibrils by the action of the knife alone, but by friction between their blunt surfaces, hence by a kind of superficial kneading and rubbing, which is necessary if we are to produce a greasy whole-stuff pulp. By means of the new pulp-grade testers, such as the Schopper-Riegler, etc., together with the results of practical experience, it is not difficult to make comparative control tests of the efficiency and output of the different Hollander constructions. But great care in forming a judgement is requisite, because it is not the province of every man to bellow forth the disasters of others, while flattering himself with the sense of his own good fortune.

Saving Raw Materials

To restrict the immoderate consumption of coal wood, chemicals, etc. the paper maker must have the foresight to perceive that above all a good Holandre is necessary. T continually increasing portion of the costs of production falls upon the item of raw materials, and yet these alone are not the determining factors in the quality and value of the product; it is the method of their employment and the superiority of the machinery, and these things are specially true of the Hollander, the real maker of the paper.

FILING TRADE LITERATURE.

Trade literature in a business concern is often a very valuable source of information, not only to the purchasing department, but also to the plant manager or safety man who desires to obtain the most approved types of machinery or equipment.

Most firms issue circulars, bulletins, elaborate catalogs, and often photographs and blue prints of their products. Many of these pamphlets and books are extensively illustrated and contain valuable diagrams, tables, charts, price lists, and descriptive text.

The mass of this material can be filed in manila folders in legal size vertical cabinets,—alphabetically by the name of firm, in a centralized place in the office, accessible to all. The catalogs in book form, too large and bulky to go into the file, may be placed in the same arrangement on a nearby shelf. A subject card index analizes the contents of the file, and makes the material available for quick reference. This is the approved method for filing trade literature. It does away with the necessity of filing a trade catalog dealing with many subjects under any one subject, and so eliminates many cross references in the card index.

In the library of the National Safety Council is kept a complete file of safety device manufacturers' catalogs. When any inquiry comes to the Library from a member asking for specific information on a given subject, a file is prepared of all the available information or references including circulars of all the manufacturers of the specific device desired, and the entire file sent to the members. The N. S. C. Library has built up perhaps the most complete centralized file on safety trade literature in the country. All this information is carefully indexed by manufacturers' name, by subject, and by trade name, so that the library catalog is the key which unlocks the resources of our files.

—W. B. D.

How to Throw On a Belt

Hundreds of men have been injured when throwing belts on revolving pulleys. Although the practice is dangerous, some good suggestions are given in this article from The Amphibian.

The practice of throwing off and on running pulleys is bad but probably as long as belts are used, the practice will be continued. Therefore, as long as we will do something bad, why not used the best means of doing the work with the least possible risks? Belts over 8 in. wide should never be thrown or "run" upon their pulleys. Such wide belts should be put together in belt clamps. By following this method a wide belt will never be damaged during the putting-on process, something

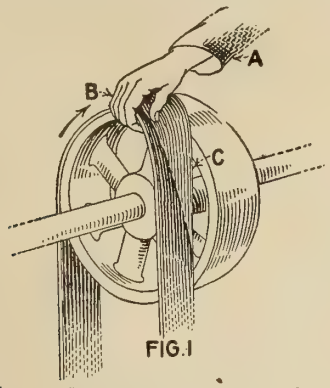


FIG.1

which is likely to happen when a wide belt is run upon its pulleys after having been laced or otherwise fastened. To be sure, belts as wide as 24 inches have been run on with no apparent damage to them, but one side of the belt will be stretched during the process.

When a belt is to be run on, the pulley speed should be reduced to a very slow rotation if possible. The slower the better. Some workmen become so expert that there is scarcely any limit to the high pulley speed at which they can throw on a belt, but there is a greater risk to both man and machine as the speed at which the belt is thrown on is increased.

Aside to risk to the man—that he may slip or make miscalculation and get caught in the belt or the pulley—there is also the danger of injury to the belt when the speed is high. When a high speed belt is thrown on without slackening the speed, it is evident that, as one pulley is at rest, the belt must slip upon either one or the other of the pulleys for the length of time required to get the shaft up to speed from a state of rest. The slower the speed of the moving shaft the less slip and the less belt wear there will be in getting the other pulley up to speed.

There is a right as well as several wrong ways of handling a belt, Figure I shows the way that should be always followed, save when the location of the pulley forbids. As shown, the workmen should always stand on the far side of the pulley so as to pull the belt towards him. There are several reasons for this. First, a man can pull more than he can push. Also, should he slip, he would move away from the belt and from danger, whereas were he to push the belt into place and slip, he might fall against the belt or pulley.

As shown at A, figure 1, the workman should post himself behind the pulley, then gather up the belt on the "on" side of the pulley and guide it over as shown at B. Here is where the knack comes in. The workman must balance the belt upon the pulley so accurately that it will not slip off the "on" side of the pulley, in which case it would simple flop over to the side where the workman was stationed. At the same time, while balancing the belt on the face and edge of the pulley, the man must exert strength enough, at just the right time, to make the belt climb up the rest of the way towards the top.

Sometimes this can be accomplished by a quick snap and pull on the belt, but where the load to be started is heavy, it is sometimes necessary for the workman to let the belt slip under his hand for a considerable distance, he keeping the belt balanced during the time that the belt and pulleys which were at rest are getting velocity enough to allow the belt to climb to the top of the pulley without slipping off one side or the other. Here, again, is where the great advantage of running slowly is seen.

A method of handling a belt which is wrong in every way is shown in figure 2. To begin with, the workman at D. pushing on the belt at E. is at a great disadvantage as regards the strength he can exert. He is in danger should he slip or should the belt get away from him, in which case he might become entangled in it and perhaps be caught and carried around the shaft.

Another thing that is not right is shown at F. where one edge of the belt is folded underneath. This makes it almost impossible to run the belt upon its pulley, especially where the belt is quite tight and there may be considerable load on it. The correct way of placing a belt is shown at C., figure 1, where it is placed smoothly against the edge of the pulley rim. The belt should never be allowed to get into the position shown at F., figure 2. If it does the workman should straighten it out before trying to throw it on.

Tying on a belt is sometimes resorted to when a very wide or particularly heavy belt is to be handled. The writer does not recommend this method, nor does he believe in it, and he never practices it except in case of emergency when there is no time to apply the belt clamps.

This method, like the other, may be made worse or better as the workman goes about it. When tying on must be done procure a small cord, one which will

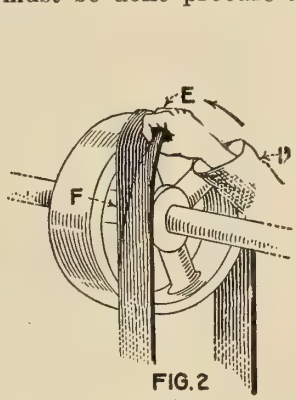


FIG.2

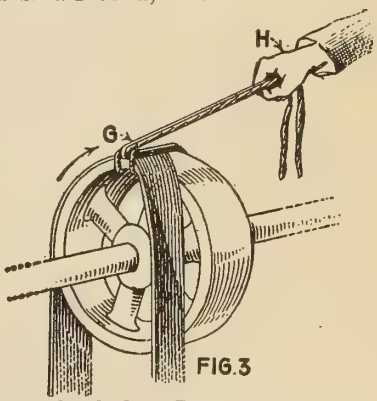


FIG.3

break before it will injure the belt. But, as shown in figure 3 do not tie the belt. Just slip the bight of the cord through under the rim of the pulley, as at G. Pass the free ends of the cord through the bight and pull the ends tight, as at H. at the same time working the belt as far as possible upon the pulley and holding it there by means of the cord.

When ready have the pulley started very slowly, and as the belt runs upon the face of the pulley, slacken the hold on the cord at H, and as the belt runs on, let go and the cord usually falls upon the floor. In case the cord catches and winds up on the shaft, it should be removed at the first opportunity, lest it catch on something.

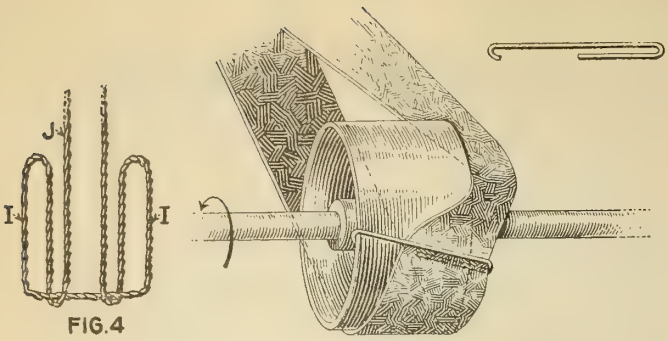


FIG.4

An enlarged view of the manner in which the cord should be placed around both belt and pulley rim is shown in figure 4. The loops 1 pass around the parts mentioned, and the ends J are passed through the bight or loop and then drawn as tight as possible. Do not make the mistake of tying a knot on the cord. If it is impossible to hold it as the belt comes on, then try again and give the cord a turn around both belt and rim and hold the ends in the hand as before. The added friction of the cord will then enable a man to hold the heaviest belt that should ever be treated in this manner, and the danger of being caught is practically eliminated.

A correspondent to "The Amphibian" thus describes a method employed for putting on heavy belts in this plant. This device is used when it is necessary to shut down and where a rope would generally be used.

The clip consists of a piece of ¼ in. round iron bent as shown in diagram. The long end is hooked under the belt and the short end is hooked over the edge of the pulley as shown. The engine is then started slowly and thus the belt is drawn into place. It is unnecessary to stop when the belt moves into place as the short end of the hook will straighten out and the hook will then drop away. I make it a practice to use the lightest weight rod that will take the strain.

WINNIPEG MILL TO USE WASTE PAPER

Waste paper is to be re-milled locally by a new company, the Red River Paper Mills company, Ltd., according to an announcement made by directors. They expect to begin operations early this year and machinery is being installed in quarters secured on the Red River near Main street bridge. Winnipeg is estimated to have 10,000 tons of waste paper annually, of which about half is collected.

Fred T. Gilroy, treasurer and general manager of the company stated that the site comprised 350 feet frontage on the Red River. The main building has 3 stories and 12,000 feet of floor space. Installation of the machinery is in charge of J. S. Hughes, formerly of Nova Scotia. The equipment includes 3 heating or pulping engines, one refiner and the paper machine proper. Electricity will be used for power.

Mr. Gilroy expects that 25 to 30 workers will be employed at first. He estimates that the price paid for waste paper in Winnipeg and the cost of collecting it is about $25,000 each year. New paper, which his company intends to re-mill from the old, would be worth $150 per ton on the average in his opinion. Profits on paper manufacture in Canada for the last fiscal year were $13,230,950, he stated.

J. J. Kilgour is president of the company; Douglas A. Clarke, vice-president; A. K. Ferguson, secretary. The directors are: Geo. Wilson, Mayor Chas. F. Gray, Fletcher Sparling and J. A. Banfield.

TAGGARTS TO BUILD PULPWOOD TERMINAL.

One hundred acres of land, with a long water front and adjoining the New York Central tracks at Clayton, N.Y., opposite Gananoque, have been bought by the Taggarts Paper Company, of Watertown, for use as a pulpwood terminal.

In a statement made public George C. Sherman, president of the company, says navigation opens in the summer of 1921, it is expected.

"Lower Quebec along the St. Lawrence has become the necessary source of supply of pulpwood for northern New York, and the increased and increasing cost of railroad operation compels us to utilize the cheaper water transportation.

"We have purchased what appears to be a suitable pulpwood terminal at Clayton. It has a long water front and adjoins the New York Central tracks. The property is much larger in extent than needed for our own requirements, and we shall offer what we do not ourselves desire to other local manufacturers at attractive prices. We predict that the entire 100 acres will eventually be entirely utilized and that the all the year labor required will be of permanent benefit to Clayton.

"It is our present plan to build our own terminal, wood preparing plant, storage and loading conveyors during the coming year and to commence delivering pulpwood when navigation opens in the summer of 1921."

The property lies between the state road and the St. Lawrence river. There are three or four houses on the property and the railroad abuts the property and it would be a comparatively easy matter to build a spur to it.

BUFFALO TIMES BURNED OUT.

Buffalo, January, 18.—The buildings of the Buffalo Evening Times were burned today. The fire broke out at 7.30 a.m., and burned throughout the day. The damage to the Evening Times and adjoining buildings will reach $500.000. The firemen were handicapped in their fight by the below zero weather.

WHERE IS THAT 300 000 000 CORDS OF PULP WOOD.

Unreserved statements of gross amounts of raw material may be reasonably accurate, but may be misleading. Estimates made on insufficient observation are likely to be inaccurate. The following correspondence intimates the latter.

Annapolis Royal, Nova Scotia, Jan. 8, 1920.

Editor, Pulp and Paper Magazine,

Dear Sir,—I note it is claimed in the Report of the Conservation Commission that there is a grand total of 300,000,000 cords of pulpwood in the Province of Quebec.

For the information of your readers and the public in general, it would be interesting to know where this wood is located—that is, the amount on each of the different rivers. I am particularly interested in this as I have been looking for a location for a 200-ton paper mill in Quebec for the past year without success, where I could be assured of a sufficient supply of wood, and I may possibly have overlooked some river.

Very truly yours,

FRANK J. D. BARNJUM.

McGRAW HILL BOOK CO. TO PUBLISH PULP AND PAPER TEXT BOOK

Fourth Progress Report of Committee

The Third Progress Report of the Joint Executive Educational Committee, issued October 1st, gave a detailed statement of the stage preparation reached at that time upon each section of the text books and the estimated number of printed pages that would result. Progress since that date in the preparation of these manuscripts is reported by Editor Stephenson as follows:

In Volume 1, Preliminary Instruction, the section on Elementary Electricity has been arranged for publication and the drawings are well under way for the illustrations. Drawings are complete for the Elementary Arithmetic and the Mathematical Applications. Editorial work is in progress on the Physics and Mechanics and the editor has received also the manuscript for the Hydraulics and part of the Chemistry. As the section on Reading Working Drawings is ready for the printer, considerably more than half the first volume is finished, as far as the manuscript is concerned. The efforts of the editorial staff have been concentrated on this volume, so as to get the work done in logical order as nearly as possible.

Volume 2 will treat of The Manufacture of Pulps. The introductory remarks on Logging Operations are being revised by the author and the information on the Principal Properties of Pulpwoods will soon be in hand. After some unavoidable delay, the preparation of the section on Ground Wood Pulp is in the capable hands of H. J. Buncke of the Abitibi Power and Paper Company and work is proceeding. With the exception of a few drawings the manuscript for the section on Soda Pulp is going forward nicely and a few pages of the work on Sulphate Pulp have been received. If a few people would supply a little data asked for, the section on the Treatment of Pulp would be finished. The Bleaching of Pulp is in hand and has been gone over by the editor.

A section on the Testing of Materials Used in Pulp and Paper Manufacture has been prepared for printing. It was intended to have this form the last portion of Volume 2. Since some of the materials are used in part or wholly in paper making it has been suggested that a better place would be in an appendix at the end of the last volume. The opinion of the industry on this point is desired immediately. If the section as a whole is to be moved back, the editor believes the parts relating to the testing of pulp should be included in Volume 2. The editor is inclined to leave the whole section in this volume, where it might be considered as a sort of appendix.

The Manufacture of Paper is taken up in Volumes 3 and 4. A brief introduction will be written by the editor. An account of the Collection and Grading of Rags has been prepared and given a preliminary "airing" in the official organs of the Technical Association and the Technical Section, whose committees on Education are primarily responsible for the work on the textbooks. Other portions will receive similar publicity and it is hoped that no one will hesitate about offering any information that will improve the material in hand.

The section on the Preparation of Rags and Other Fibres is under way The section on Beating is still in the editor's hands and should have been passed on before this. It will have his immediate attention. There is nothing further to report regarding Engine Sizing and Loading, though progress is being made. It is gratifying to report that the sections on Coloring, on the Paper Machine and on the Making of Handmade Papers have been received.

For Volume 4, which continues the Manufacture of Paper, the only manuscripts received are for the sections on Finishing Operations and Making Coated Papers. Part of the manuscript on Pumps is in hand. Arrangements are going on for a glossary of papers and their uses, sizes weights, etc.

The Joint Executive Commitee spent several months carefully investigating the best means of publishing the texts and after authorization given at the Committee Meeting on October 30, 1919, the Chairman and Secretary signed a contract with the McGraw-Hill Book Co. of New York City on December 23, 1919 for the publication of the texts. The contract is in much detail and fully protects the interests of all parties concerned. The copyright will be held by the industry. The contract may be cancelled after ten years if desired upon recompense to the publishers for plates and printed matter on hand. The industry is to receive the usual royalties and liberal discounts from the retail price, which will be approximately 1 cent per printed page for the bound volumes and slightly higher prices for other forms. The material will be available in three forms.

First, the large bound volumes as outlined in the previous reports.

Second, paper bound seceions upon particular subjects of not less than 32 pages each, for sale in complete sets corresponding to the bound volumes.

Third, units of not less than 100 pages especially designed for the instruction of men who wish to study only one phase of manufacturing and its related problems such as grinding, beating, etc., etc.

The Committee is constantly receiving requests for these books and inquiries as to when they will be available. Many, who make such inquiries, fail to realize the tremendous amount of detailed work required for the preparation and illustration of more than 2,000 printed pages of new technical matter. There must be exceedingly careful examination and revision of all the written matter and very careful study and preparation of blue prints, pictures and sketches. Then there must be type-setting, proofreading, final revision, printing and binding and the whole must be done in a way that will reflect credit upon the industry and make the work a satisfactory source of accurate and reliable information. Moreover in order to get the kind of practical information desired it has been necessary to call upon men who are busy on their own work to write upon their particular specialities and often it has been difficult for these men to find time in which to prepare their contributions.

Notwithstanding inherent difficulties of this sort steady progress is being made in the accomplishment of a splendid undertaking. More than half of the manuscript is now written. Several hundred pages will be submitted to the publishers before the end of the month, or within a year from the time that the Canadian Pulp and Paper Association and the American branches of the industry voted financial support to the plans of the Vocational Education Committee.

A steady pull during 1920 should see the entire set of textbooks finished and give the Pulp and Paper Industry the distinction of being the first great industry, whose principal raw material is wood, that has provided adequate means for instruction in its essential processes.—R. S. KELLOGG, Secretary.

BRITISH MILLS IN POSSIBLE EXPORT COMBINE.

The following statement has been received from Mr. F. W. Field, British Trade Commissioner in Ontario, being based on information forwarded to him by the British Government's Department of Overseas Trade.

Paper

The general position in the paper-making industry continues to improve, but slowly. The difficulties which face the manufacturer with regard to supplies of raw materials are steadily diminishing with the gradual return of imports to a more normal level, and in that respect the outlook warrants considerable optimism for the near future.

With the easing of these troubles, new difficulties have, however, arisen which promise to retard what might otherwise have been a speedy return to healthy conditions an ability to export more freely. During the war, the paper industry was comparatively free from labor troubles, but since the cessation of hostilities the labor question has gradually come into prominence, and has culminated, not only in a revised and increased scale of wages, but, still more seriously affecting the industry, a three-shift system has been adopted in place of the two-shift formerly in operation. This increase in shifts naturally entails an increase in the number of operatives employed and the chief difficulty lies in the scarcity of skilled workers, many mills being unable to obtain a sufficient number of operatives to make up the necessary three shifts. Production is thus restricted and full advantage cannot be taken of the improved supplies of raw materials. At the same time it should be said that this is considered to be only a temporary embarrassment and the paper manufacturers generally are very hopeful of the future.

Export Combination

A possible development which may affect advantageously the future of the paper export trade is now under consideration. A number of the principal United Kingdom paper-makers have been considering the formation of an Export Federation of Paper-Makers for the purpose of promoting sales in export markets. No definite steps have yet been notified, but the proposal has so far obtained a considerable amount of support. The scheme had its origin in a recent tour abroad of one of the directors of an important firm of United Kingdom makers, who carried samples of a number of other producers, and the scheme will possibly apply particularly to markets in the Near East, but prior to this a representative of the Department of Overseas Trade had met the manufacturers and suggested a movement along the lines indicated.

New United Kingdom Products.

During the war, United Kingdom manufacturers undertook the production of several varieties of paper which were not formerly manufactured in this country, and in some cases met with such a measure of success that the manufacture is being carried on with every prospect of continued development. The chief of these is, possibly, vegetable parchment. The chief formerly marketed this type of paper so successfully that British manufacturers saw no inducement to compete, but the experience gained during the war period has been such that the British product now compares very favorably with German parchment. Production, is, however, confined to only one mill, and the output is not, at present, of large volume although it is hoped that it will materially increase in the future. Much the same may be said of grease-proof and stereo papers; the manufacture of both of these is the result of war-time scarcity, and both give promise of further expansion. Reference has previously been made to the production of photographic base paper.

A new industry recently established in the south of Ireland is that of strawboard manufacture. The Irish Paper Mill Company (Limited), of Clondalkin, County Dublin, have completed extensions to their mills and are now engaged in producing strawboards, which are said to be fully equal to Dutch products.

FIFTY YEARS OF FAITHFUL SERVICE.

A pleasing function took place at the Windsor Mill of the Canada Paper Co., last week, when Mr. A. DeBelois was presented with a purse on the completion of his fifteenth year of service in the company's employ. The presentation was made by Mr. F. J. Campbell, who referred to the faithful work of Mr. DeBelois and to the fact that he is still doing good work which for the Company, sa were also his son, a machine tender, and his grandson also working in the machine room. Mr. DeBelois, although taken by surprise, replied in a neat manner, and was given a very hearty reception by the large number of his friends and fellow employees who were present.

TECHNICAL SUPERVISION OF PULPWOOD OPERATIONS

The members of the firm of James D. Lacey and Co. and their sssociates, met at the Chicago office during the week of January first for a five day conference on inter-office plans and activities. James D. Lacey and E. A. Sterling were on from New York and C. A. Lyford and F W. Thrane from Seattle. Victor Thrane who for the past year has divided his time between the Pacific Coast and the eastern offices was in Chicago, together with Wood Beal and J. W. McCurdy, who are permanently at the home office.

Mr. Lacey just prior to his return to New York on Tuesday, expressed himself as very well satisfied with the business outlook, reports of the offices in indicating not only a very marked revival of activity during the latter half of 1919, but more business booked for under development for 1920 than at any time during the past five years. In all regions stumpage values are reflecting the high lumber prices; while the demand for high class operating properties is in keeping with the period of prosperity which the lumber industry is entering. In the East, the shortage of newsprint and other classes of paper is leading to unparallelled activity in remaining supplies of raw material.

According to Mr. Lacey the plans of the firm for 1920 involve no radical change in the general policy which has been followed for many years, although there will be a broadening in general lines and more intensive work in special fields. The New York office is undertaking the management or supervision of several timber operations in connection with pulpwood production. There are no changes in the personnel, except that F. W. Thrane now returns to the Seattle office, after completing his government work as Chief Accountant for the U. S. Spruce Production Corporation, and George R. Birkelund, who has worked in the East most of the time since his discharge from the Aviation Service, is now permanently assigned to the New York office.

DEAN BAKER CHOSEN SECRETARY A. P. & P. A.

Syracuse, N.Y., Jan. 12.—The American paper industry has taken over Dean Hugh P. Baker, head of America's biggest Forestry College, The New York State College of Forestry at Syracuse under conditions whoch indicate both that America's timber industry appreciates the need for a study of future raw materials, and for men with a technical knowledge of forestry in industry, and also that American education does not offer sufficient financial inducements to hold as college presidents men who are wanted in business.

Dr. Baker resigned January 10 to accept twice the salary which he is now rated as receiving, to become secretary-treasurer of the American Paper and Pulp Association, with headquarters at New York. He takes up his new work probably about March 1. The trustees will select a succesor to Dr. Baker at the July meeting, unless a special meeting is held earlier.

The selection of Dean Baker for the executive officer of the parent association of America's great paper industry according means to Dr. Baker, a greater opportunity for the advancement of the principles of the forestry profession than is possible in any college. His letter of resignation outlines important phases of American forestry development of the past eight years, and also discloses that in the spring of 1919 he refused an offer of $7,500 from the outside to remain as Dean of the Colege at $6,000 salary. Even this sum he was not to receive at once, for under the rigid New York State budget the raise would not become operative until July 1, 1920, and then only after action by the legislature.

The plan of the American Paper and Pulp Association in offering this position to Dean Baker is disclosed in the following letter from President George W. Sisson, Jr.:

"The American Paper and Pulp Association finds itself in need of a man of ability, education and breadth of view, to act as its secretary, and carry out the policies of the association, and generally direct its activities in co-operation with its president and executive committee.

"The members of this association have come to realize the importance and necessity of broadening the work of the Association by studying the problems that affect the industry nationally, including of course, among others, the vital question of the future raw material supply for this great industry on which the business and social life of the nation depend for an indispensable article. I believe there is a great work to do through the association, and a fine opportunity for genuine public service in making it effective in its own field.

"In casting about for a man who could take up the work with every prospect of successful service to the industry and the country, we have come to feel that you present in many ways the type of man needed, and our committee having the matter in charge has authorized me to offer the position to you."

Dean Baker's letter of resignation, which is a striking outline of American forestry development, is in part as follows:

"After giving this matter as careful consideration as I have ever given any matter which has come up in my life, I am convinced that the acceptance of the new place will make me a stronger man in every way by the end of the next ten years. I am convinced, also, that my acceptance of the place will mean a great deal to the profession of forestry in America and that it will be an opportunity to take forestry to one of the greatest industries in the country dependent upon our forests. In view of the opportunities which this new place offers in the way of development— and that is the entire appeal, as the salary offered will probably not mean much more in New York than the salary which is paid me here—I ask you to accept my resignation.

"I think I appreciate very fully the opportunities there are in educational work in this country. I appreciate also the obligations which a man in such a work has to his profession and to the future. The public is apathetic, to say the least, as to the needs of education with the result that our public schools and colleges and universities throughout the country are suffering for the lack of the right kind of men and women in the teaching profession. Possibly I may have served the profession a bit by helping to emphasize to the public the necessity for giving more effective support of every kind to the development of education. The public must be made to realize that the man who is willing to sacrifice things considered of large importance in life to remain in college work does so not because he is a theorist or impractical or afraid of the stress of business life, but because he believes in his work and because the opportunities for service which that work presents appear larger to him than the opportunities which may come from other lines of work.

"Will it be out of place for me to say that the College of Forestry at Syracuse, during the time I have been there, has been developed from a chair and a desk and two instructors to a permanent institution with an excellent faculty and with as fine a body of students as can be found in any other college in the land? The College is permanent in the State. It has a splendid future because it has a real piece of work to do."

BOOKPRINT ENQUIRY.

Toronto, January, 18.—Commissioner R. H. Pringle, K. C., held a brief sitting at the Parliament Buildings this week when he conducted a further enquiry into the cost of bookprint paper. It was brought out that the prices in Halifax and Winnipeg for bookprint were the same as those prevailing in the United States. It was claimed by the manufacturers that only a reasonable advance of about 25 per cent in a year had been made on the product but the publishers claim that this advance should be reduced because no enquiry had been made into the cost of sulphite pulp. The Commissioner reaffirmed his refusal to grant an enquiry into the operations of the Toronto Paper Company in view of the fact that that company has ceased the manufacture of bookprint. It was stated that prices charged for bookprint ranged from $7.25 per hundred weight, f.oo.b. mill for No. 2, up to $10.50. One witness Mr. Wainwright, said prices were higher in the United States, reaching $11 for No. 2 than in Canada, and that there was a shortage.

A GOOD BEGINNING

"Anyhow," said the optimist, "we have made the Fourth of July safe and sane."

"Yes," replied the pessimist, "but there are three hundred and sixty-four other days in the year still to be looked after."

The Americn Writing Paper Company announced last Friday an increase in the price of paper to 20 per cent, effective January 19. The reason given is "the advancing costs of raw materials and labor, and the operating exigencies with which the fine paper industry is faced."

Technical Section

A-1. American pulpwoods. Otto Kress, Sidney D. Wells, and Vance P. Edwardes. Paper, **24,** 914-22, (1919). The various American woods are listed, together with the yields obtained in semi-commercial cooks (under exceptionally favorable conditions) by different methods of treatment (sulphite, sulphate, soda, groundwood), and the possible uses to which they may be put.—A.P.—C.

A-2. The suitability of second cotton linters, cotton shavings, and hull fibre for paper manufacture. Otto Kress and Sidney D. Wells. Paper, **24,** 569-82, (1919). Discussion of above paper. Paper, **24,** 632-8, (1919). The paper presents the results of tests made on a semi-commercial scale at the F.P.L. Madison, Wis. These materials can be used for the very highest grades of book paper and require a smaller consumption of chemicals than wood. The consumption could doubtless be still further reduced by means of a duster to remove the dirt. The sulphate process is more advantageous than the soda process, both as regards consumption of chemicals, yield and quality of pulp. The pulp bleaches very easily with from 2-8% of 35% bleaching powder. —A.P.-C.

A-3. Seaweed as papermaking material. C. Flauent. Papier, **22,** (May 1919). Paper, **24,** 882, (1919). Suggests the use of sea-wrack as a source of pulp.—A. P.-C.

A-3. Paper material. J. Ind. & Eng. Chem., **11,** 927, (1919). Experiments carried out at the Imperial Institute London, show that the husks of Burma rice are not, as was at first hoped, suitable for making paper. The fibres from the husks had an average length of from 0.5-0.7 mm. and the pulp contained a large proportion of gelatinous material which could not be satisfactorily removed by heating and washing; the pulp might be used as a filler in admixture with longer fibered pulps for the manufacture of low-grade paper or straw-board.—A.P.-C.

A-4. Determining lignin in fibre. Waentig and Gierish. Zeit. f. angew. Chemie, **32,** (1919). J. Soc. Chem. Ind, Aug. 15. 1919. Paper, **25,** 72, (1919). The lignin is determined from the amount of Cl absorbed by the fibre.—A.P.-C.

A-4. The "Wedge" system of testing pulp. Sindall and Bacon. Paper Makers' Monthly J., May 15. 1919. Paper, **24,** 609-12, (1919). The article shows how the wedge method, as used for baled lap pulp, may be adapted to sampling rolls. See Pulp & Paper, **17,** 950-972, (1919).—A.P.-C.

A-4 & 5. Essentials of woodpulp testing. F. M. Williams. Paper, **24,** 586-8, (1919). A description of the essential points of a proper equipment for testing pulp for moisture. These are, a sensitive and accurate balance; an oven sufficiently large to handle samples representing at least 5% of the mill production, provided with a device for regulating and recording the temperature and constructed so as to allow the moisture laden air to escape freely.—A.P.-C.

A-12 Estimating rosin in rosin size milk. Ross Campbell. Paper, **24,** 883. (1919). The amount of size is determined by evaporating the water and weighing the solids left.—A.P.-C.

A-14. The quantitative estimation of starch in papery. V. Voorhees and Oliver Kemm. Paper, **24,** 1091-5, (1919). The method adopted consists in the extraction of starch from the paper by a dilute acetic acid solution, separation of the pulp on a suction filter, hydrolysis of the carbohydrate material in the filtrate with dil. HCl, neutralization of the HCl with Na_2CO_8, and titration of the alkaline solution with Fehling's solution in the usual way. The Fehling's solution should be standardized against one of the ordinary starches used in papermaking. Complete details are given of the experimental data from which the method was evolved.—A.P.-C.

A-12 Control method for rosin size solutions. W. P. Codwise. Paper, **24,** 965-6, (1919). The milk is titrated with 0.1 N H_2SO_4, using methyl orange as indicator. The method is quick and satisfactory for checking the uniformity of rosin size solutions.—A.P. -C.

A-14. Impact tester for fibre board. E. O. Reed and F. P. Vietch. Paper, 24, 923-6, (1919). Description of a tester for determining the resistance to impact of fibre board. There is no direct relation between the resistance to impact and the bursting strength of the fibre board. Since the serviceability of fibre shipping containers is largely dependent on its resistance to impact, the determination of this quality should be useful in prejudging the serviceability of these materials. The tester does not injure the corrugations when clamping for the test, as does the bursting strength machine.—A.P.-C.

A-14. Testing of tar roofing board. Papierfabrikant, Nov. 22, 1918. Papier, **22,** 149-3, (May 1919). Papier, **24,** 926, (1919). See Pulp and Paper, **17,** 582, (1919).—A.P.-C.

A-14 Graphic analytical method for paper. Ignatius L. Gartland. Paper, **25,** 515-9, (1919). A system is proposed whereby it is possible, by mean of physical, chemical, and photomicrographic charts, to present in graphic form all the information afforded by an analytical examination of the paper, and also provide permanent records of the various qualities of any given paper produced by a mill over any desired period of time. By checking the various charts against each other the cause of poor quality can usually be easily traced.—A.P.-C.

A-14. Testing for sizing with iodine. J. Ind. & Eng. Chem., **11,** 972, (1919). If some of the paper is teased out with a needle on a microscope slide and is dabbed with 1 solution (1% KI solution saturated with 1), a brown color is produced whether the size is animal or rosin. If, however, the paper is heated with a little water on the slide and then removed, the residue shows characteristic appearances under the microscope. Animal-sized paper leaves behind a considerable residue extending over the whole surface formerly occupied by the water. The 1 gradually dissolves it with a rusty red color. If the paper be rosin-sized it leaves but little residue which shows a grainy structure with an uneven dented edge around the space formerly taken up on the slide by the watery solution. This residue also gives a brown color with the solution.—A.P.—C.

A-16 Rustless metal for paper mills. Jas. Strachan. World's Paper Trade Rev., June 6, 1919. Paper, **24,** 789-90. (1919). A review of the recent progress in the manufacture of acid and rust-proof iron and steel, and suggestions as to their applications in paper mills.—A. P.-C.

A-0. The development of a mill laboratory. O. E. Bryant. Pulp and Paper, **17,** 619-20, (1919). Paper, **24,** 970-1, (1919). Notes on the requirements of the lab. in connection with paper mill operations.—A.P.-C.

C-2. Paper pulp mill bark as a tanning material. Vance P. Edwardes, Paper, **24,** 1052-5, (1919). The (hemlock) bark should be dried to prevent deterioration and to decrease freight charges. Drying does not injure the bark as regards tannin content. The material should be screened before drying as this results in far more rapid and efficient drying, or leaching if extract is to be made. The wool content should be reduced to a minimum, as the wood is a diluent and uniform quality is important for the tanner. If a suitable barker could be devised, the bark from the hemlock lumber industry. could more than supply the needs of the tanning industry. Work on this problem is being continued.—A.P.-C.

C-7. Machine for washing pulpwood. U.S.A. patent No. 1,309,543. Jas. L. Phillips, Great Bend, N. Y. Paper, **25,** 89, (1919). The sticks of wood are sprayed with water in a cylindrical rotating drum, which is placed in a tank containing water, the level of which may be regulated. The circumferential wall of the drum is formed of flat strips with spaces between them.—A.P.-C.

D-4. Groundwood pulpstones. Paper, **24,** 872-7, (1919). Some of the sandstones from the Maritime Provinces, in so far as could be judged from lab. tests, should furnish pulpstones equal to the best imported ones. The properties of a good stone are described. —A.P.-C.

E-2 Ethyl alcohol from waste sulphite liquor E. C. Sherrard and Galo W. Blanco. Paper, **24,** 746-52, 757, (1919). Experimental fermentations gave yields of 0.70-1.15% and commercial fermentations 0.53-0.-79%. The latter are low on account of low sugar concentration of the liquor, the average yield in practice being about 0.65% in summer and 0.80%in winter. On large scale fermentation yeast tempered to the liquor just prior to fermentation gave somewhat larger yields than yeast permanently acclimated, but its use entails greater cost. Methods are given for the permanent acclimation of yeast and also for the acclimation just before fermentation. The value of a liquor or of a yeast should not be judged from the amount of sugar that disappears or fermentation, as part of it may be transformed into compounds other than alcohol. Investigations are being continued, particularly as regards sugar fluctuations during digestion.—A.P.-C.

E-2. Alcohol from sulfite waste liquor. Ralph H. McKee. Paper, **24,** 584-6, (1919). Pulp & Paper, **17,** 581-2, (1919). The SO_2 need not be removed from the liquor before fermenting, provided air is bubbled through the fermenting liquid, so as to provide sufficient oxygen for the yeast. The estimated cost is about 20 cents per U. S. gall. of 95% alcohol, with a possibility of lowering it to 15 cents.—A.P.-C.

E-0; R-1. Russian chemical pulp industry. Paper, **24,** 859, (1919). A short review of the present status of the industry.—A.P.-C.

F-5. Waste in pulping by the sulphate process. Technical notes of the (U.S.) Forest Products Lab. Paper, **24,** 608, (1919). In pulping 1 t. of wood (bone-dry) consisting of 96% wood and 4% bark, 22.9 lb. of NaOH and 8.5 lb. of Na_2S are needed to reduce the bark. The pulp produced from the bark is useless and produces a variation in color in the pulp which makes it difficult to maintain a uniform shade in the finished paper.—A.P.-C.

F-0. Soda and sulphate mills inventory. Technical Notes, (U.S.) Forest Products Lab., No. C-6. Paper, **24,** 790-1, (1919). By means of weekly inventories of the soda in the systems, leaky tanks and pipe-lines and slopovers from careless operation are soon detected. The calculations are greatly facilitated by means of graphs on which lbs. of Na_2O are plotted against degrees °B for the various liquors.—A.P.-C.

G-11 Centrifugal device as a mill save-all U. S. A. patent No. 1,312,976. Frank Groch, Cobalt, Ont. Paper, **25,** 91-3, (1919). The pulp-bearing water is first passed through a specially constructed impeller where it is thoroughly mixed with a suitable amount of air, which produces a froth to which a large part of the fibres adhere. The water overflows into a box, and the supernatant froth passes into a launder provided with a screen or filter, which effects the final separation of the solids from the liquid. The water passes from the overflow chamber to the discharge chamber, from which it is discharged through a vortex classifier, where the solid particles which were not held by the froth are thrown back into the discharge chamber, whence they find their way back to the overflow chamber, and are returned to the impeller for retreatment. —A.P.-C.

G-0. How pulp flow is regulated. Le Digesteur. Paper, **24,** 1012-3, (1919). A description of the devices used at the Laurentide mill, Grand Mere, P. Q., for automatically regulating the flow of sulphite and groundwood.—A.P.-C.

H-4. Electrolytic bleach. Anson G. Betts. Paper, **24,** 788-9, (1919). A general outline of the superiority of NaOCl over lime bleach. By using a Mg cathode in the preparation of NaOCl there is practically no cathode reduction, owing to the formation of a thin film of Mg $(OH)_2$ on the cathode surface. This increases the current efficiency, the % of NaCl converted into NaOCl, and the strength of available Cl in the solution.—A.P.-C.

L-4. Paper barrels. A. H. Searle. J. Soc. Chem. Ind., **38,** 337-8T, (1919). Paper, **25,** 523, (1919). A machine has been devised by means of which paper barrels of any suitable size are made from paper by winding a slit strip of paper around mandrels to form the ends, which are then joined by winding the full-width strip around the middle as many times as desired. About 20 sec. is required to make a barrel of the size ordinarily used for flour.—A.P.-C.

L-7. Paper thread. J. Ind. & Eng. Chem., **11,** 1160, (1919). A Spanish company at Granada, Spain, has begun the manufacture of thread from paper from Spanish eucalyptus pulp.—A.P.-C.

M-4. Cutting power transmission costs. N. P. Winchell Jr. Paper, **24,** 616-20, (1919). Detailed advice as to the designing and proper care of belting. —A.P.-C.

M-4. Care of leather, rubber and fabric belting. N. P. Winchell Jr., Paper, **24,** 966-9, (1919). Detailed advice as to the proper care and use of belting.-A.P.-C.

BRITISH TRADE NEWS

(From Our London Correspondent)

London, January 1, 1920.—To-day we enter upon another year's work and we hope that the ensuing twelve months will be as successful for the paper and pulp manufacturers as the last three months of 1919. From March to December 1919, manufacturers and their salesmen were working at pressure to recover the trade lost in five years, and the period was also given over to re-organization—the old workers returning to their old jobs, and the new workers seeking new jobs, while the millowners had their representatives examining the conditions of trade far near, and considering their reports on future action. The whole year was practically a transforming period, full of rumors attendant naturally in such a time, and decisions had to be made quickly and firmly. The success of the reorganization was noticeable at the end of 1919 when the exports and imports were presented to the public for examination. In the British mills and British market there are still organizers at work, because the market is bereft of the following imports, the figures being those of 1913:

Paper of all Kinds	Tons
Germany	29,029
France	184
Belgium	20,613

Here we get a total of 49.823 tons of paper of all kinds stopped from the British consumer.

This deficiency had to be made up somehow. Canada and Newfoundland stepped into the breach and supplied part of the deficiency. The British mills were robbed of a good number of their workers by the war, but notwithstanding they made a great effort to deal with deficiencies. As a result prices soared, a Paper Controller was appointed and in 1919 the British market was relieved of a controllership and "thrown open". At one point in the year it looked as if the market was never going to recover itself, but fortunately the Government released labor and then a revival started in trade. As matters stand now there is not much to complain of in the market. We have good stocks of newsprint, thanks to Canada and Newfoundland, additional supplies coming in from Scandinavia, and in the near future no sign of a shortage of paper. In addition, when one considers the many vicissitudes through which the paper market has passed, prices at the moment cannot be said to be on a high level. I have no hesitation in saying that to-day in England it is the only manufactured article that is not complained of in the high price list. Foreign stationery is—but not Canadian or British paper.

It will be another few days before I get the figures relating to pulp. The pulp market in 1919 varied a good deal, but towards the end business was looking very hopeful, particularly in October and November when there was quite a little revival. At the close of the year the demand was good and prices very firm. As 1913 was a good year here I will quote the imports of pulp for the information of Canadian mills:

	Tons	£
Chemical Bleached Dry	20,621	221,565
Chemical Unbleached	374,684	3,031,625
Chemical Wet	16,498	59,171
Groundwood Moist	557,187	1,263,769
Groundwood Dry	8,967	41,557

These figures leave a total of 977,957 tons valued at £4,617,687 and they will be found interesting when compared with my annual report of 1919 figures.

The annual meeting of Wall Paper Manufacturers Ltd., was held here last week and Edgar Smith, the President, said there was a decline in their profits due to reduced turnover arising from the scarcity of raw materials and increased cost of production. As soon as they found is possible to reduce prices they made substantial reductions all round, bringing their prices at August last down to such a level that they will effectively compete with anything that is produced. Their export trade was gratifying. During the period of war, in spite of difficulties they had given great attention to this trade, feeling sure that when the free export of goods was again in operation they would materially augment the company's returns. Their activities had taken the form of advertising, sending out direct representatives, exhibiting goods at international fairs and finally they had produced a film which will be exhibited in 56 large cities of the world showing the manufacture of wall paper in progress. For the year 10 per cent has been paid on the ordinary shares and five per cent on the deferred shares.

The report of the Amalgamated Society of Paper Makers has reached me. It was issued in December and says the paper trade continues to be extremely brisk and there is a good demand for all classes of paper. The Society has very few members unemployed out of its total of 3,115 workers. Since the outbreak of war the Society has suffered owing to losses amongst skilled men, and the question of providing skilled workers out of the unskilled material arose. The payment of unskilled labor has been handled as follows:—One third the difference between the wages the man is receiving and the full wages of the job to which he is being promoted, to be paid on promotion, two-thirds in six months and the full rate in twelve months. The difference between the wages paid to the man and the full rate to be equally divided between those assisting the man promoted and the firm. This, a sensible scheme, should speed up skilled workers and relieve the shortage.

The Senior Trade Commissioner has made his report on India. It does not bring up much in from a scientific point of view, but all the same it tells us that Sabai Grass has been used in increased quantities for pulp production. Special articles have appeared on this Sabai Grass for some years past in the "Pulp and Paper Magazine" (see class A 3 for abstracts.) I gather from the report that in the Indian paper mills preparation are being made to cope with America's competition. That is one reason why Sabai, Baib, or Bhabar grasses are being more handled. Before the war capital was shy of the prospects in the Indian paper trade and the industry was in a precarious condition. However, Britishers have since been engaged and are brightening things up.

This is my new year's advice. If only industrial peace can be secured, 1920 will, in the opinion of trade experts, be the greatest boom year for the Dominions and Colonies. The shipping question must be solved and after the excellent reports on the British paper and pulp market by the Secretary of the Canadian Pulp and Paper Association, there is very little left undone to push trade openings on this side of the Atlantic.

PULP AND PAPER NEWS

The Gerlach-Barklow Company of Joliet, Ill., have purchased the McCloy factory in Stratford and will open a branch there on April 1, for the manufacture of calendars, lithographed advertising specialties etc., moving their headquarters from Toronto to Strathford. About fifty hands will be employed. Stratford says that the Company decided to locate there after seeing the city's park scheme.

Mr. and Mrs. Edward Mundy celebrated their diamond wedding jubilee in Oshawa on Jan. 5. Mr. Mundy is a veteran newspaper man having served his apprenticeship more than sixty years ago on the Toronto Globe and was on The Echo, and Colonist before moving to Prince Albert, Ont., where he edited the Ontario Observer. After that he also published The Ontario Advocate in Uxbridge and The Ontario Observer in Port Perry and in 1878 he purchased the Ontario Reformer at Oshawa and edited it until 1910 when he sold out to the Reformer Printing and Publishing Company of which he is still the president. Mr. Mundy is now eighty-three years of age.

D. F. Robertson, general manager of the Northumberland Paper and Electric Company, of Campbellford, Ont., has been elected a councillor in that town.

St. Thomas Boxes, Limited has ben granted a charter with a capital stock of $20,000 and head office is St. Thomas. The company is empowered to manufacture, sell and deal in paper, cardboard and other boxes and to carry on a general manufacturing business. Among the incorporators of the new company are A. E. Ponsford and Peter H. Kolb.

Printing craftsmen in Toronto held a meeting this week and organized an association to be known as The Toronto Club of Printing Craftsmen. The organization will be affiliated with a similar body on the other side of the line. Perry R. Long of the Curtis Publishing Company of Philadelphia gave a short talk on the aims and objects of such organizations and the following officers were elected pro tem; President, Charles Keates of Southam Press; Secretary Treasurer, C. W. Perry of Grip Engraving; Press Representative, George Smith of Saturday Night.

John Lewis of the editorial department of the Toronto Star has left Toronto for Ottawa where he has been appointed editor of political literature of the National Liberal Organization.

Prices of United States newspapers and magazines have risen ten per cent owing to the exchange rates between this country and the States. In a letter to its agents in Montreal and Ontario the American News Company stated that efforts had been made to have United States publishers make rebates to offset the exchange rate. Some met the request with the desired rebate, but others replied that owing to th high cost of manufacture it was impossible. Higher prices are now being charged for magazines in most centres to make up the deficiency in the selling prices.

The improvement of the news service was the chief topic considered at a conference held in Toronto on Wednesday of this week of representatives of the evening paper section of the Canadian Press, Limited, Ontario and Quebec districts.

Sir George Bury presided at a meeting of the directors of the Whalen Pulp and Paper Company in Toronto this week. No official statement concerning the meeting was given out and as far as could be learned only routine matters were considered. Sir George has just recently returned from a trip to Japan and the Orient. In Japan he closed a number of contracts of his own mills and speaks optimistically of the prospects of Canadian trade in that quarter if advantages is taken of the opportunities that are offering.

Reforestation and conservation of Ontario's timber areas was the subject of an important conference which was held in Premier Drury's office on Wednesday of this week. Plans were also discussed for a survey of the timber wealth of the Province, similar to the one recently completed in British Columbia. In addition to the Prime Minister there were present Hon. Beniah Bowman, Minister of Lands and Forests: James White, of the Commission on Conservation, Ottawa: Clyde Leavitt, chief forester for that commission; R. D. Craig, forester in Ontario for the Commission and Mr. Zavitz, forestry expert of the Ontario Government.

The annual conference and fourth annual President's banquet of the Spanish River Pulp and Paper Mills, Limited, was held at Sault
10th. Those from Toronto who attended the gathering were Vice-President Lieut. Col. T. Gibson, Secretary J. G. Gibson. T. H. Watson, a director and Dr. A. H. Abbott of Toronto University who was one of the speakers. The gathering brought many representatives of the company together and at the banquet, as well as in the various conferences, a fine spirit of business combined with good fellowship, was in evidence. Some excellent addresses were given at the banquet and an interesting and much appreciated feature of the entertainment end of the conference was a moving picture film entitled "From Spruce to Newsprint," showing the entire operations of the Spanish River Company, from the woods to the finished product. The banquet was presided over by President George H. Mead and there was much music, speaking and merry-making at the festive board.

The Continental Paper Products, Limited, has been granted a charter by the Dominion Government. The company has been formed at Ottawa for the purpose of taking over the Continental Bag and Paper Company, Limited and will deal in and manufacture various lines of pulp and paper products.

The last issue of the Canada Gazette contains the announcement of the incorporation of F. B. Common, L. H. Ballantyne, F. G. Bush, H. W. Jackson, G. R. Drennan, A. G. Yeoman, W. P. Creah and M. J. O'Brien, all of Montreal, who are empowered to acquire the business now carried on by the Laurentide Company, Limited and to engage in the manufacture of pulp and paper products.

R. H. Bryan of the Brompton Pulp and Paper Company, Limited, and Mr. Hampshire, of the J. C. Wilson Paper Company, of Montreal, were business visitors in Toronto this week.

The Calder Pulp and Timber Company, Limited, are erecting a rossing a plant at Burt in Northern Ontario and are installing equipment that is estimated to ross from 100 to 110 cords daily. The company reports that there is fair promise of a good cut of pulpwood this winter in their district.

The many friends of F. P. Currie, President of the Dominion Paper Company, one of the oldest paper makers in Canada, will be sorry to hear he has been ill in the Victoria Hospital for the past three months. His condition is very precarious.

J. Pierre Rolland of the Rolland Paper Company who has been Alderman in Outremont for the last 3 years has been reelected by acclamation for the West Ward, January 12. Mr. Rolland has been living in Outremont for the last 7 years and has been Church Warden, School Commissioner and Alderman of his town.

H. Milette well known salesman for the Dominion Paper Co. for the last 25 years, after having been 9 years Chairman of the Catholic School Board of Outremont was elected by acclamation Alderman for the North Ward, on January 12.

Since October, 1918, the Chemieal Plant of the Eastern Manufacturing Co., Bangor, Me., has not had an accident in which any one has been injured so that any time was lost. This is a period of 15 months and shows that the men employed are as anxious as the management to guard against unnecessary accidents, and such a record could not have been obtained if the men had not shown their interest.

Ellwood Wilson, chief forester for the Laurentide Company is in Florida, enjoying a well-earned holiday and rest. He will return in time for the annual meeting of foresters and paper men in Montreal the last of this month.

Dr. Milton Hersey, of Milton Hersey, Ltd., consulting chemical engineers, Montreal, returned last week from a short vacation in Cuba. He is much improved in health.

R. O. Sweezey, who, for the past year or so, has been looking after the pulp and paper activities of Royal Securities Corporation, recently returned from a trip to British Columbia. He reports the Whalen Company in fine shape and prospects for the whole industry on the coast to be very good indeed.

The Mattagami Pulp and Paper Company has transferred its executive office, including the Purchasing Department, to Montreal. The new address is 1001 McGill Building, 211 McGill Street, Montreal.

GREAT LAKES PAPER CO. AGAIN HELD UP

No power contract between the Great Lakes Pulpmill company, the hydro electric power commision, and the Ontario government, has yet been signed, according to Mayor H. Murphy, of Fort William. The conference held in Toronto just before Christmas between delegations from Fort William and Port Arthur, and the Hydro-electric Commission and the representative of the Great Lakes Pulp and Paper company, secured the price of power to the cities of Fort William and Port Arthur at $17.50 per horse power, plus stepping down or reducing charges. The conference broke up, however, when the power commision refused to alter its set contract at the request of the pulpmills company's representative. He reported the commission's stand to his principals in Chicago, and the company is not willing to sign the power contract with the comission on the present terms.

In the course of an interview, Mayor Blaquier,of Port Arthur, said:

"Regarding Nipigon power development for Port Arthur and Fort William my trip to Toronto was primarily for the purpose of urging that none but hydro power should be considered for the grinding of pulp and the manufacturing of paper for the Thunder Bay district; also that some evidence should be shown by this, pulp company that they mean business in the way of a start on the construction of their plant and the installation of machinery.

There is apparently a misconception that the government is making the development at Nipigon, while in reality it is the municipalities of Port Arthur and Fort William. We are the guarantors, and the hydro department of the government are merely the trustees placed there to secure funds at a low rate of interest, and to protect and safeguard the interests of the municipalities.

"In order to get hydro power at a minimum or lowest rate, we must aim to secure users of power as soon as possible that will in the aggregate consume 50,000 horse power. This will materially reduce our overhead rate , possibly to $15,00 a horse power high tension.—Fort William, Ont., "Times."

WILL CONCENTRATE ON PULP AND PAPER MACHINERY

Hydraulic Machinery Co., Ltd., announce that its principal lime will be pulp and paper mill equipment, which the firm has been building with increasing success for a number of years. Tom Melville who has been with the company since his discharge from the army last July, will devote his whole time to the pulp



TOM MELVILLE

and paper industry, and will call regularly on the Ontario mills. Mr. Melville was quite unfortunate with the industry at first, but under the eficient coaching of B. C. Rost, he now fully understands and can argue fluently on valves, wet machines, presses and pumps, and, being a fine fellow, will soon have many friends in the pulp and paper mills.



CANADIAN TRADE CONDITIONS.

Toronto, January, 17.—The average sales manager for the big paper dealers in Cnada these days opens his morning mail in fear and trembling lest some of it will contain orders for paper to add to his existing troubles in catching up with orders already a month or two behind. The paper firms are not looking for orders—what they want is paper—and paper is about the scarcest commodity there is in Canada to-day. Not that the mills are not making it. They are turning it out as fast as their machines running night and day will permit. But the demand is great. In practically every line of paper there is a serious shortage of production, with the possible exception of bookprint, and the publishers are not unanimous in agreeing with the opinion expressed by the Paper Controller that there is no shortage there. Generally speaking, however, the fact remains that at no period in the history of the paper trade in Canada has the scarcity of pper been so acutely felt and no immediate prospect of relief. Indeed paper dealers and manufacturers freely predict that there will be no ease-off in the situation for two or three months at least. Not only is the shortage likely to continue, but, according to one firm in Toronto, which is engaged in supplying pulpwood to the pulp mills, groundwood pulp is going to advance in price. It is reasoned that as lumber is soaring in price there is going to be more lumber taken out of the woods than pulpwood, to the detriment of pulpwood production, which may mean that the present high prices prevailing for paper may correspondingly ascend. It is worthy of note, however, that during the past two or three weeks the deliveries of wood to the pulp mills has increased owing to the better facilities afforded by the snow and consequently better sleighing, for getting the wood out. But it is predicted that with big money being made out of lumber the production of woodpulp is bound to suffer, temporarily, at least.

There is not only a serious shortage of newsprint paper in the West, where there is a row over the failure of the Fort Frances Company to make the required shipments for home consumption in accordance with the order of the Paper Controller, but here in Ontario many of the papers are feeling the pinch. Several daily papers have appeared in reduced size owing to the scarcity of paper and the mills have been put to their wit's ends to keep up the supplies to both daily and weekly papers. The criticism by the manufacturers is frequently heard that the publishers do not show a very great disposition to conserve and economize and one paper man commented on the reluctance of the publishers either to curtail their use of paper or to increase the price of their commodity in keeping with other items on the high-cost-of-living scale. In regard to the latter suggestion, however, it is pointed out on behalf of the publishers, that with the satisfactory revenue coming in from increased advertising they would not be justified in raising their subscription rates. Indeed they would rather give a good deal more for the money in the way of enlarged papers if they could only get the paper stock. In the meantime the volume of advertising keeps up and the comic pages continue to regale the Sunday readers—which is all right for the readers and the publishers—but it is eating up a whole lot of newsprint paper which is a very scarce article these days.

In high grade bonds there is a scarcity and it is predicted that they will take another jump. Rag stock is hard to get and what is obtainable commands a high price. The rag market generally is firm and groundwood pulp is exceedingly tight. In line with the pretty general advance in papers the patent insides supplied the weekly papers have gone up 2 cents per quire owing to the scarcity and high price of paper and the weekly publisher is now paying on an average of 20 cents per quire for his patent pages.

NEW YORK MARKETS.

New York, January 17.—Reports from manufacturing centers and from the jobbing trade all agree that the market for paper is in fully as strong, if not stronger, a condition at present than at any time in recent months. Mills are being rushed to capacity by the demands made upon them from various sources for supplies, and despite their efforts to increase production and provide for the wants of customers, they seem altogether unable to satisfy the requirements of buyers.

Scandinavian American Trading Co.

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Demand has reached that stage now where it is of the healthiest sort of character. Consumers are placing orders mainly for what they actually need for direct use, as would be expected with prices on prevailing levels, and as buyers have learned from experience that it will be of little avail tor them to endeavor to cover requirements as far ahead as they would doubtless choose to do. The chief complaint registered by buyers is regarding the great delay in deliveries. Frequently, they state, they are obliged to wait one and two months to get orders filled, which of course holds them back in completing orders from their own trade. Local printing houses appear to be faring badly on this score. Most of this class of buyers place orders through jobbing firms, who in turn have to wait to get deliveries from mills, with the result that it is a common thing for printers to have paper delivered several months after the time they have ordered it. Then, too, a good portion of printing work locally is of the rush order variety, and when printers are unable to turn out their own product through a lack of paper, they are deluged with complaints from customers and promptly pass it on to the paper dealers who in turn let manufacturers hear from them.

The newsprint market still possesses a very firm undertone. Demand is keen, although having lost a good deal of the excitement that prevailed a short while ago, and there is no such thing as lots of news kicking around the market seeking a buyer. On the contrary, buyers are absorbing every pound of newsprint found available whether for prompt or future delivery, and are meeting the prices asked by manufacturers without stopping to haggle. It is getting to be quite common to hear of sales of newsprint in standard rolls for spot shipment at prices ranging between 8 and 9 cents a pound at the mill. Some transactions have been put through at 10 cents but this price is not really representative of the actual market value of print paper in the open market. Contracts are being arranged by manufacturers with publishers at a price basis of between 4 and 4.50 cents a pound and it should be said in fairness to mills that they are exerting every effort to provide their regular customers with all the paper needed at this basis.

Book papers are steadily working into a stronger market position. Before the turn of the year predictions were made that consumers of this class of paper would witness some troublesome times in 1920, it being pretty generally known that magazine publishers and other consumers did not commence to have their potential requirements covered, and apparently the market is tightening up sooner than was expected. Mills are in a position of being scarcely able to accept further orders, having their output contracted for for the next several months, and buyers are encountering increasing difficulty in getting supplies and are offering fancy prices for such amounts of book papers as are available. Supercalendered book paper is selling at as much as 11 cents per pound, while machine finished book is quotable at 9.50 to 10 cents and coated book at as high as 12 cents.

Wrappings and tissues remain firm in price and are moving in good tonnages. Fine papers meet with a ready sale and quotations seem to be undergoing a hardening process although showing broad changes. The board market is strong. Manufacturers in the majority of cases have their production for the next two or three months sold and are turning back offers of additional business.

GROUND WOOD.—Demand for ground wood shows no abatement. Instead buyers are constantly making some pressing demands on producers, which of course, is creative of a very firm market condition. For spot lots of ground wood freshly ground and of prime quality, $55 per ton at shipping points is now the recognized market quotation, and consumers are finding it a difficult proposition to obtain sizable tonnages at less than these figures. Sales at as high as $60 have been recorded in exceptional cases, but this price is a bit above the average market.

CHEMICAL PULP.—Chemical wood pulp rules firm in price and there is ample demand to take care of all the supply offered. In only one end of the market are there any signs of easiness and that is in kraft pulp. For some reason or other consumers of this kind of pulp are not buying in as relatively large volume as those using other grades of chemical fibre, and this situation is one surprising to manufacturers and dealers who are given to understand that much activity exists in the wrapping paper and board trades, which automatically should result in a brisk call for kraft pulp. Sulphite of all qualities meets with a ready sale and at strong prices. Domestic bleached sulphite has sold in at least some directions during the past few days at 6.25 cents a pound at pulp mills, and several manufacturers on this side of the border making an extra strong bleached pulp are reported to be insistent on this figure for such amounts as they have to dispose of. Newsprint sulphite is selling freely at 3.50 to 3.75 cents, while easy bleaching sulphite and Mitscherlich sulphite are in active demand and quotably strong.

RAGS.—The market for papermaking rags is truly booming. Demand is of such a character that dealers and packers are really having difficulty in covering the wants of mills, and prices are hopping upwards in a manner probably never before witnessed by the market, at any rate not for a long time. Demand covers all grades and all indications point to manufacturers purchasing rags almost solely for direct consumption. New cuttings are in especially active request. No. 1 new white shirt cuttings have sold at $18 per hundred pounds and more at shipping points, while new washables are readily commanding $10, new blue overall cuttings $12, fancy shirt cuttings, $12.50, white lawns $16 and new muslin cuttings $15. Old No. 1 repacked white rags are quotable at from $10.50 upward per hundred pounds f.o.b. shipping points, and are offered sparsely, it being the contention of dealers that packers are securing such high prices for miscellaneous rags of this description that they are not bothering to repack them. Old thirds and blues are fetching between $5 and $5.25 at shipping points and steadily improving in demand. Roofing rags are strong in price and there is a concerted movement of supplies into consuming channels. Dealers say that the severe weather is most parts of the country is seriously hampering the collection of rags and that in consequence they are unable to acquire normal amounts irrespective of the efforts they put forth. They also argue that because of the high cost of all kinds of new piece goods, manufacturers of clothing are insistent on stiff prices for their cuttings, which makes it necessary for them to obtain high prices from mills.

PAPER STOCK.—The waste paper market is equally as firm as those for other kinds of papermaking material. Demand is of relatively as extensive volume and producers of this commodity are just as

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NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

busily engaged in filling the wants of consumers as are dealers in rags, wood pulp and other paper mill supplies. Practically all qualities of old paper are sharing in the current activity. If anything, low grades are in proportionately better demand, yet high-grade stock is meeting with a ready sale and prices on the latter are as high as those ruling on cheaper qualities. Newspaper is selling at levels establishing new records for the past few years. Flat folded news has fetched $1.50 per hundred pounds f.o.b. New York, while No. 1 overissue newspapers have sold at the surprisingly high figure of $2, or just a trifle under what new newsprint paper in standard rolls used to command prior to the war. Shavings are quotably firm and are moving in a steady manner at price ranges of $5.75 to $6. per hundred pounds f.o.b. New York and $4.75 to $5 for soft white shavings of No. 1 quality. Books and magazines are readily fetching $2.65 to $2.75, and No. 1 mixed paper $1. Kraft and Manila papers are in good demand at strong prices.

OLD ROPE AND BAGGING.—Quotations on old rope have inclined to higher levels, sales of No. 1 Manila rope at $6.75 per hundred pounds at shipping points having been recorded. Demand from consuming quarters is of a consistent character and mills evidently are trying to cover their requirements without exciting the market. Old bagging is in better call than for some time and prices are gradually climbing. Current quotations on No. 1 scrap bagging run from $3 to $3.25 per hundred pounds f.o.b. points of shipment.

NOT ALL CLEAR SAILING AT SHERBROOKE.

Replying to a news item which we happened to miss last week is the following information from E.C. Gatien relating to the application of Mr. B. C. Howard to the city of Sherbrooke for power with which to run a pulp mill:—

Mr. B. C. Howard, of Sherbrooke, lumber dealer and manufacturer, on the 5th instant, made an application to the Council to purchase 3,000 to 3,500 H.P. electricity at $15.00 per H.P. for the proposed pulp mill to be erected here by a company to be incorporated and capitalized at $1,500,000. The Council declined to accept the offer, because the price offered for power is below cost.

FORT FRANCES TROUBLE CONTINUES.

The situation at Fort Frances is practically unchanged in most respects since last week. On Thursday the Minister of Finance ordered a complete embargo on the product of the mill. A dispatch from Fort Frances states that two cars were sent via American roads for Regina and Moose Jaw by special permission. No further effort, apparently, has been made to seize paper but it is only a question of time wnen accumulation of paper will choke production.

In the meantime Winnipeg papers have suspended publication, having passed through the bulletin stage, and papers further west are helping each other here as long as possible by dividing their supplies.

No further reports have come in with regard to the situation of the Price Bros. matter.

Mr. P. T. Coolidge of Coolidge & Carlisle, Consulting Foresters, has returned to his office in Bangor, Maine, after nearly a year's absence during which he has been engaged in cruising timber in Newfoundland.

AMERICANS ON THE JOB IN JAPAN.

By. A. E. BRYAN.

(Canadian Trade Commissioner to Japan.)

During the first six months of this year Canada shipped paper pulp into Japan to the value of yen 1,238,457, as compared with yen 2,168,497 during the corresponding period of 1918. Only about half the quantity was received as compared with last year. During the same period, according to the official returns, the United States supplied Japan with pulp to the value of yen 2,557,526 in comparison with yen 480,341 for the first six months of 1918. Evidently American shippers have gained where we have lost, and it is to be hoped that the Canadian figures will pick up during these later six months. Of course there is the possibility that much of the pulp imports credited to United States, originated in Canada.

Americans of the Job

This condition of affairs is not to be wondered at, however. American firms are represented out here usually by American commission houses, who have samples, prices and all information on hand. These large import firms usually have their own paper banto (paper salesman), who keeps in touch with all the paper mills and who builds up a regular clientele. One or two American mills have sent out their own man to work in co-operation with their agents. He supplies the necessary expert advice, attends to claims, and in general sees that his firm (or possibly a group of firms), get good service all round.

Canadian pulp and paper companies should send their representatives out to this country to study the market. So far as the writer is aware, there is only one large Canadian mill, which has its own agents here, who are recognized as one of the leading pulp importers in Japan, and who do a very large business.

Canadians' Big Chance

In talking to one of the big Japanese paper pulp importers, it was said that Canadian makers could have the whole market to themselves if they were a little more careful in packing and grading. The Canadian pulp is stronger in fibre than either the Scandinavian or the American product. The main difficulty found with Canadian pulp is said to be its grading and packing, as sometimes third and second grade pulp is found packed up with what is supposed to be first grade. Another complaint is that pulp supposed to be 90 per cent air dry, when arrived in Japan and tested, sometimes showed only 70 per cent or 80 per cent air dry. It is therefore necessary to make claims on Canadian mills in many cases.

Countries Supplying Pulp

The following figures will be of interest, as showing the countries supplying pulp to Japan during the first six months of 1919:—

	1919 Yen.	1918 Yen.	1917 Yen.
Sweden	95,643	120,837	405,046
Norway	107,386	.....	.....
United States	2,557,526	480,341	58,002
Canada	1,238,457	2,168,497	304,225
Other countries	3	4,109	25,760
Total	3,999,015	2,773,784	793,033

Newsprint Situation

Very little Canadian paper has so far come on the market here, not because there has been no demand



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and

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for it, however, but only because our mills have not catered to it in any way.

The demand for newsprint is very small. Japanese mills in Hokkaido and Karafuto can make practically all that is necessary for the domestic trade. Besides the Canadian product is too good for this market, as Japanese newspapers are printed on a very poor quality of paper. However, Canadian newsprint would no doubt be suitable for cheap grades of Japanese books, and a certain quantity could no doubt be sold for this purpose. The chief demand of this market is for wrapping, writing and art papers. The conditions of sale are the same as those explained above in connection with pulp. If Canadian mills get good representatives here, there is no reason why they should not do a good business. Most of the requirements are now coming from the United States as the subjoined statistics will show:—

Imports of Paper Into Japan

	1919	1918	1917
	Yen.	Yen.	Yen.
Great Britain	1,158,938	544,484	637,686
Sweden	95,741	82,451	304,848
Norway	11,531	48,981	89.988
United States	9,406,834	3,022,262	621,356
Other countries	77,753	37,363	69,634
Total	10,750,797	3,735,541	1,723,512

OLD MOTORS MADE NEW.

The Montreal Armature Works, Ltd., have been established nearly 3 years at 131 St. Alexander St., Montreal. They are equipped for doing all kinds of electrical repairs and construction work.

They make a specialty of recumuting and rewinding motors

Montreal Armature Works have recently reconnected five 1200 horsepower grinder motors into 1600 horsepower so that the grinders turned out 75% more groundwood per week. The cost of this work, including engineering fees was very low and only a fraction of the cost of new motors. They have also made 100 horse-power motors into 200 and 300 h.p. into 300 by putting in new windings at 40% of the cost of the stator windings. Motors and controlling apparatus have also been changed into new styles for severe service.

Some old form internal motors, which always gave trouble, have been made into external resistances with increased capacity without any ensuing troubles. The increased capacity motors have better efficiencies, power factors and heating than at the old ratings. Apparatus which has been through severs fires have been put in a condition as good as new in a few weeks.

Changing from one cycle to another or rewinding for a new speed in voltage has been done many times.

A motor can be completely rewound in about 10 days after receipt of the wire.

Rise 7.00 a. m.

Stand in the middle of room, raise arms slowly overhead, take deep breath and say, "Damn the government," lowering arms in attitude of despair, ten times.

Extend body flat doward on floor, cover eyes with hands, kick heels, think of railroads and weep till dry.

Kneel, wring hands, meditate upon the labor unions and groan one hundred and fifty times.

Assume sitting position, hands on hips, sway gently to and fro and concentrate on somebody or something until a generous frothing at the mouth sets in, till exhausted.

Collapse on floor, growl vigorously, think of the income tax and gnash your teeth as in anger, ad lib.

While cooling off try to get a number on the telephone.

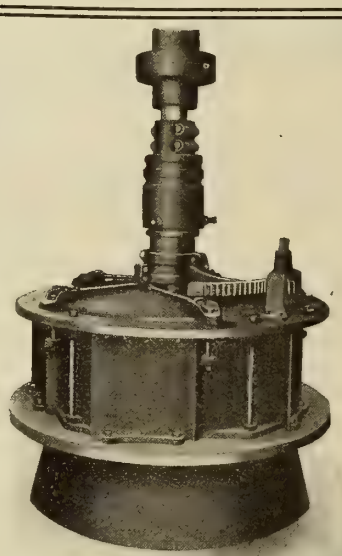
Note.—Observe these simple rules every morning before breakfast and you will reach the office with most of the cares and troubles of the day already out of your system.

P.-S.—Pass this along to a friend who is grouchy because the machinery of civilization does not function perfectly after the greatest war in history.

MARX'S CHIEF ENGINEER IN CANADA.

Mr Harry Kay, the ctief engineer of R. J. Marx and Co., London, England, is visiting a number of Canadian mills in the interest of his company. Mr Kay's headquarters while he is in Canada will be the office of his firm's Canadian agents, Process Engineers, Limited, McGill Building, Montreal. Readers interested in stone press rolls will be glad to know that R. J. Marx & Co. have under construction wet press rolls of 200" face, and are in a position to supply them up to 236" face. This is made possible by the large blocks of flawless stone available, and the experience and equipment of the company.

An Eskimo dictionary containing over 1500 words is being printed in England for Rev. H. Girling, an Anglican missionary to the people in the Canadian Arctic.



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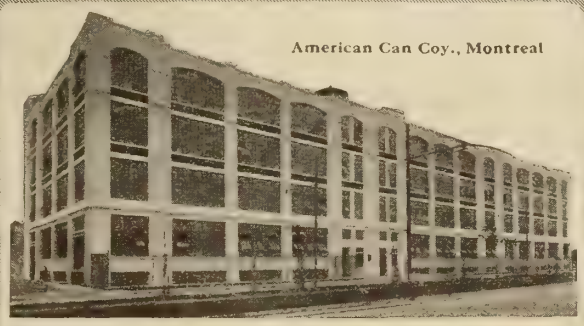
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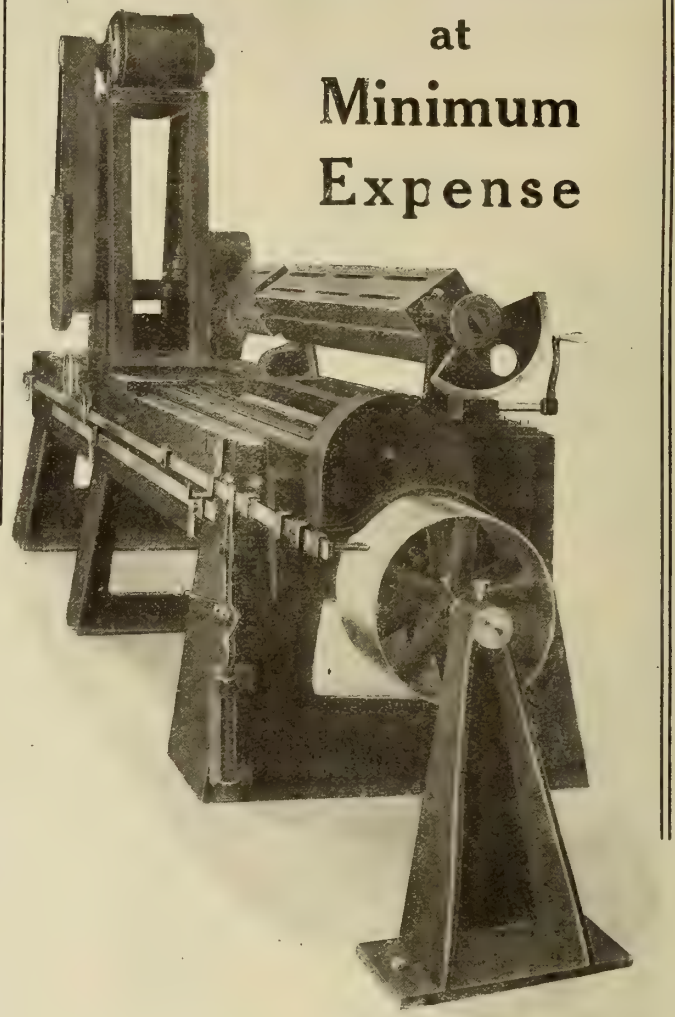
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The E. B. Eddy Company
LIMITED.

Incorp'd by Act of Parliament

B. Hull, Canada, October 30th., 1912

Telegraph Address, Eddy, Hull, Canada. Please address all communications to the company, not to any officer thereof. ABC and Liebers Code used.

Mr. W. M. Arnold,
Manager, The Ottawa Car Manufacturing Co.,
Ottawa, Ont.

Dear Mr. Arnold,

We have pleasure in enclosing herewith a copy of the letter which we sent to The Spanish River Pulp & Paper Mills Ltd. of Sault Ste Marie, Ont., several weeks ago

Yours truly,

The E. B. Eddy Co. Limited
J. T. Sherriff
Vice-President and Manager

PURCHASING DEPARTMENT

ESTABLISHED 1851

Geo. H. Miller, President and Manager
J. T. Sherriff, Vice-President
David Tilley, Treasurer
John F. Taylor, Secretary

The E. B. Eddy Company
LIMITED.

Incorp'd by Act of Parliament 1886

B. Hull, Canada, October 11th., 1912

Telegraph Address, Eddy, Hull, Canada. Please address all communications to the company, not to any officer thereof. ABC and Liebers Code used.

COPY

The Spanish River Pulp & Paper Mills Limited,
Sault Ste Marie, Ont.
Canada.

Gentlemen,

We have your letter of the 7th.inst in reference to Acid Resisting Bronze Castings made by the Ottawa Car Mfg. Co.

Our experience with their Castings has been extremely satisfactory. We have used their Castings for a number of years now and so far we have still to find any which have not stood up to what is expected of them. We do not hesitate in recommending them for your use.

Yours truly,

PURCHASING DEPARTMENT

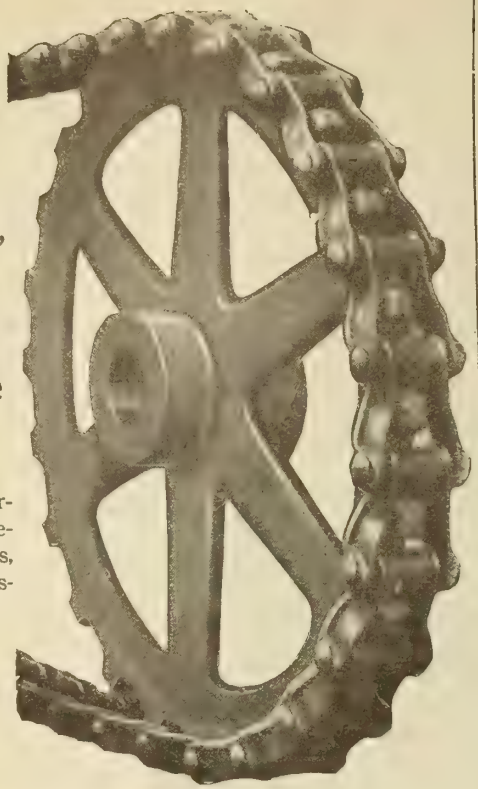
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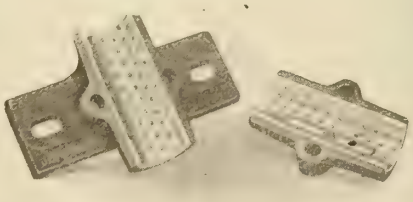
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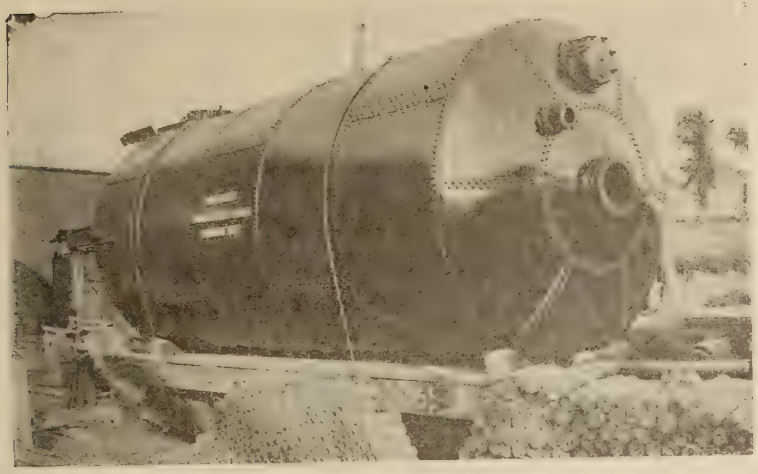
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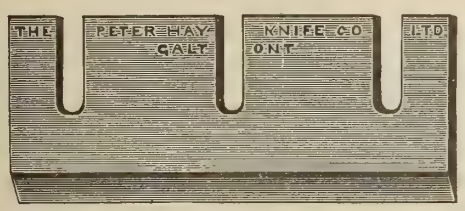
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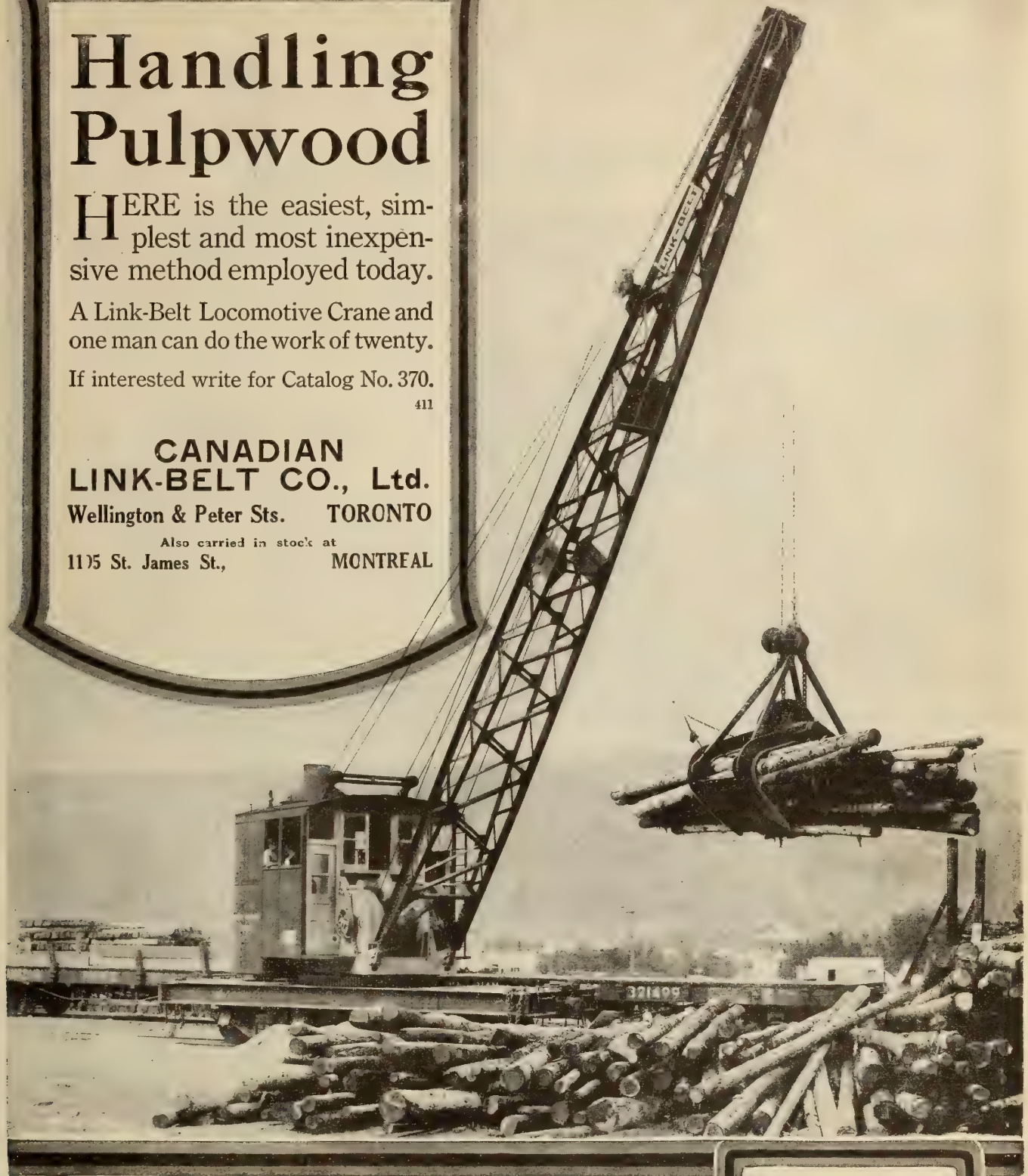
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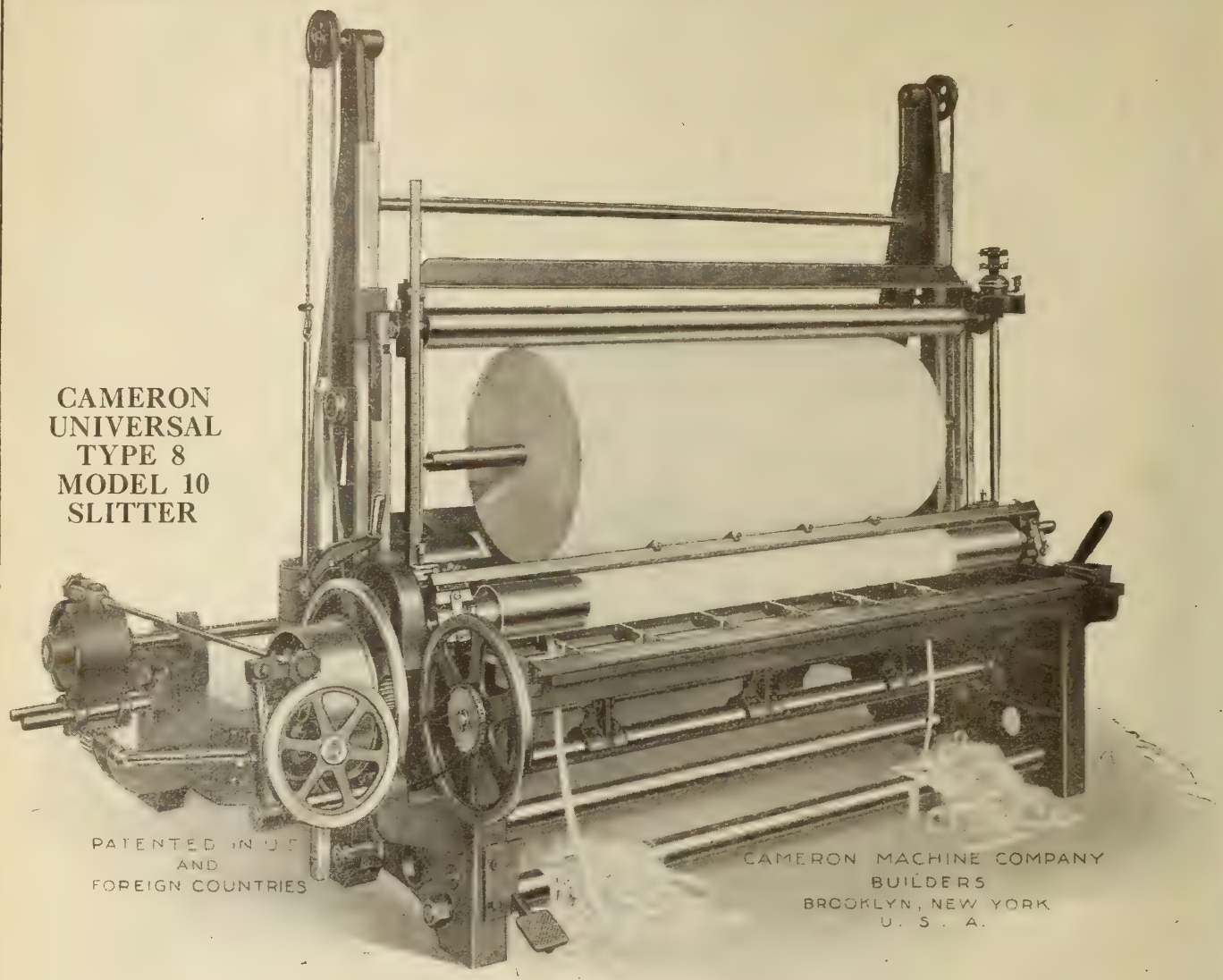


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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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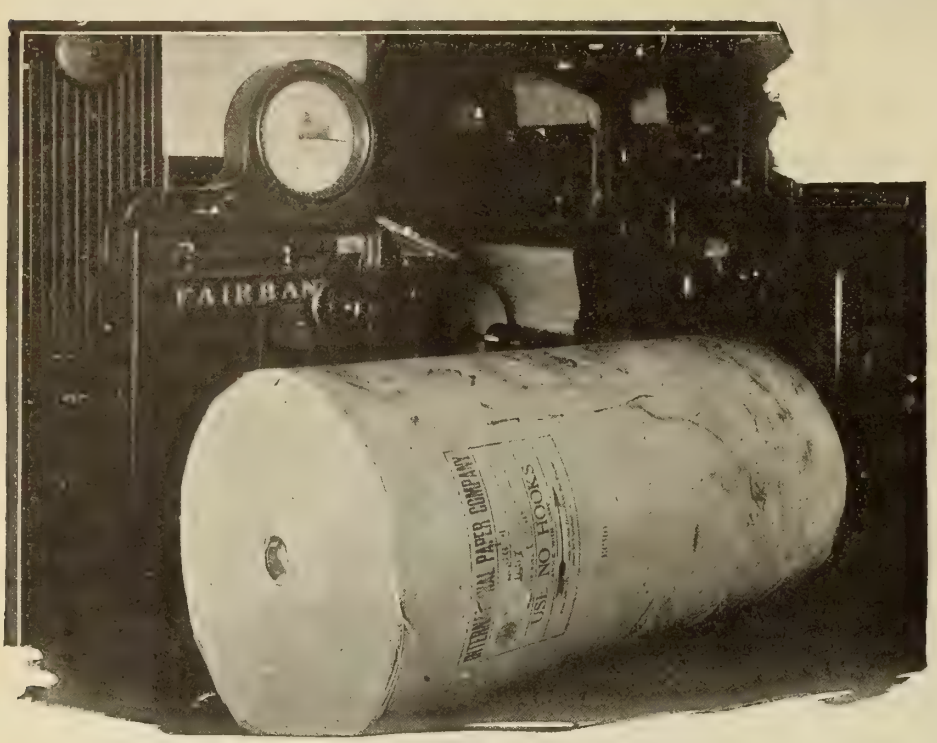
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EDITORIAL

IN GERMANY.

A representative of a British chemical manufacturing concern recently visited Germany and paid particular attention to conditions in chemical manufacturing centres. His report is that every effort is being made to develop mechanical appliances to a point where human labor is made almost unnecessary. He also states that waste products are practically unknown. The Germans, at least in this industry, are evidently long-headed enough to realize that while at the present time their industries are under the severest kind of handicap because of the general attitude of the world toward everything German and because of the very serious lack of raw materials for manufacturing there will surely come a time when it will be possible for them to obtain the necessary raw materials and with the passing of time and its quieting effect on the feeling of people to resume shipping their products to many of the world's markets. In looking forward to the time when their factories will once again be called upon to furnish products that can be exported they further realize that it will no longer be possible to depend as before, upon inadequate wages to industrial workers in order to undersell similar products manufactured in other countries. The only solution of such a situation is the organization of plant and process and the introduction of mechanical means for doing mechanical work. This is accomplished by making a man's head the valuable part of his contribution to industry rather than his hands as is so often the case.

The Englishman who has visited Germany reports that the greatest attention has been paid to this phase of the reestablishment of the chemical industry in Germany on a peace basis. No manual work is done where a machine operated at the will of an attendant who runs it with his brain, can serve the purpose. The whole layout of chemical plants is said to have been planned with the idea of eliminating waste effort as well as waste products. No doubt other industries have been doing the same thing so that once Germany's internal requirements are filled there will again be an outward flow of commercial product of all kinds, including, of course, pulp and paper.

The pulp and paper industry in Canada may well heed the hint of the future which this report conveys, especially as to the designing of the new plants that soon will be under way and in the extension of present concerns. There will be more attention paid to the elimination of labor and a scientific organization of processes than has been done in the past. We know of one mill in particular that was built wrong end first and almost upside down and another on which construction was started before complete plans of the plant had been made. By a happy accident the latter plant has been continuously in successful operation and has turned out to be normally efficient. The other one has been passed around from hand to hand without anyone having operated it with any marked degree of success. In addition to the inconvenience of operation of a number of Canadian mills there is also the astonishing waste of raw material as well as some finished products. The large variation in the consumption of wood, coal, sulphur, salt, cake, lubricating oil and other pulp and paper materials as shown by the reports of the different mills indicates the presence of large sources of income merely in the saving of wastes. As far as we are aware but one mill at the present time is making use of any of the valuable constituents of waste sulphite liquor and we know of but one mill which is making commercial use of the by-products which can be recovered from the manufacture of pulp by the alkaline processes.

Our problem in some instances is different from that in Germany but the need for care is the more important because it is so well recognized. In the last few years we have become so prosperous that the saving of a few cents or even dollars here and there is looked upon as not only unnecessary but as even being a waste of time to consider. On the other hand the Germans are in a position where it is necessary for them to save every cent and they are setting about to do this in their usual scientific manner. The result is likely to be that in a few years the habit of extravagance in Canada and the habit of saving in Germany will have been so firmly established that it will be next to impossible, without undergoing privations, for Canada to produce some products in competition with the Germans.

At the present time the British market and to some extent the French market, is open to Canadian goods. The pulp and paper industry has had an opportunity of gaining a foothold which to a large extent has been neglected, partly because we were not prepared for the sudden rush of unexpected business and partly because we did not have the courage or foresight to expand in proportion to the increasing opportunities. However much we may regret the loss of a good start it is not too late to establish satisfactory relations with foreign consumers of pulp and paper. Extensions of mills in Canada are now underway and

there may yet be time to increase production sufficiently to take care of home requirements and to extend into the export market before German mills have sufficiently recovered to regain their foothold in markets that are accessible to Canadian products. At the present time sentiment will doubtless play some part in the ease with which relations may be established but this cannot be depended on to hold customers when a very large discrepancy in price becomes a factor unless our Canadian mills take a hint from Germany's experience and see to it that our mills are put on a basis of scientific organization and operation which will make them equal in efficiency with any similar plants in the world.

THE LABRADOR PROPOSITION.

Some time ago considerable publicity was given to the announcement that a very large corporation had been formed to develop a certain forest area in Labrador and to establish there a large pulp and paper industry. According to the "United States Investor" the southern Labrador Pulp and Lumber Company is, to say the least, a dubious proposition. Our contemporary has no confidence in the scheme and criticises the matter severely. The character of the enterprise seems questionable from several points of view. In the first place the stock is being sold where the directors who are said to be lumbermen are quite unknown; three enquiries from Pittsfield, Mass., are printed in connection with the comment of the "United States Investor." Furthermore, prominent lumbermen who have been consulted scoff at the idea that Labrador has any good prospects for lumbering. One of them states that he had been offered 10,000 square miles of timber territory in Labrador for $20,000 while the promotors of the new company intimate that they are buying or have bought 2,434 squares miles for $700,000 cash. This seems enough to sink the proposition at the start. A further comparison shows that the capitalization of $10,500,000 is entirely out of proportion to the size of the property to be developed.

Another point that is made by critics of the company is that the labor supply planned on is not at all encouraging as it is hardly likely that Labrador fishermen will winter in the lumber camps. One company has already tried to establish a lumber business in Labrador and found it impossible to hold labor on the spot. In regard to shipping it is stated that the open season is only about sixty days. Ice was even encountered last summer during August.

We have been told privately of at least one case of a stenographer who received a prospectus of the company and a letter stating that the president would call personally to explain the matter. This type of canvas is too much like certain types of mining propositions which get most of their gold and silver from the pockets of unsuspecting investors. Other features of the proposition from a financial point of view as well as from a consideration of the physical aspects of the case make it look like a very questionable affair.

The Pulp and Paper Magazine has always stood for an honest, legitimate, and businesslike development of the pulp and paper industry and would not think of throwing cold water on a proposition that would be likely to benefit the country. There have been in the past a few attempts to milk the public on the strength of the reputation and prospects of the industry and we believe that every effort should be made to prevent any wildcat speculation or ill considered investment in impossible enterprises. The Southern Labrador proposition may have some merit but the comment of a reputable financial paper after making investigation should at least be taken as an urgent warning to those who have any idea of investing in it. This is particularly true of those who cannot afford to lose their savings.

ADJUSTED AT LAST.

Western newspapers have resumed publication and a brief report states that the difficulty at Fort Frances is adjusted. Both matters are sources of satisfaction. In these days of dependence on the newspapers for guidance in private and business affairs, as well as for keeping in touch with the events of the day, it is a serious misfortune and handicap for a community to be without these publications. Winnipeg's experience is proof of the important part the newspaper plays in the life of the people.

It is gratifying to learn that the relations between the mill at Fort Frances and the government as to the observance of orders and other things have been adjusted. Mr. R. W. Breadner, who has been appointed temporary controller of newsprint, has been at the mill but has not made public any of the details of the arrangement arrived at. The whole affair came very near being a serious business and it is to be hoped that the newspapers will get necessary supplies from now on without any conflicts between manufacturers and the government.

COBWEBS.

Last week, a linotype man misunderstood the editor's writing (a simple matter) and called B. C. Root of the Hydraulic Machinery Co. "Rost." "Too bad he didn't make it "Roast!"

Some of the Western papers seemed to be taking a rather philosophical view of the paper situation early in the month, even with the possibility of suspension facing them. It is to be hoped they can avoid a repetition of present difficulties. From the reference in one of them to the government as "the moribund affair at Ottawa," it is probable that some publishers will not soon again rely on government control.

Extension of Forestry Practice In United States

Henry S. Graves, the Chief Forester, in his annual report makes the following interesting statement in connection with the extension of forestry practice in the United States:

The year covered by this report was signalized by a new movement for extending the practice of forestry. More than twenty years ago the Division of Forestry offered to give advice and assistance to private timber owners who might wish to consider applying forest management. The offer received a remarkable response and formed a real turning point in the forestry movement. For the first time forestry in the United States became something which a business man could grasp and weigh on its merits as a definite business proposal. This aided powerfully in bringing the whole question of forestry, public as well as private, before the country. But it did not result in any widespread acceptance of the practice of forestry by timberland owners.

Cooperation of Forestry Division.

The failure of this early movement to get private forests extensively under management was, however, not immediate. The Division of Forestry made its offer of cooperation early in the fiscal year 1898. By the close of the fiscal year 1905 requests had been received for the examination of private holdings, large and small, comprising all told more than 10,900,000 acres of land. Many requests were from lumber companies and other owners of extensive timber tracts. On the strength of the showing made by the preliminary examinations, a number of these large owners entered into cooperative agreements for the preparation of working plans. The interest of the lumbermen was much increased by the fact that the young foresters were able to show them that they were losing money by certain wasteful practices. Closer utilization spread rapidly through the industry. Public interest in forestry and an intelligent idea of what it meant became general. In the early years of the present century it really looked as though the management of forests as permanent productive properties might be voluntarily undertaken by private owners on a very large scale. Although many obstacles were presented by the internal conditions of the lumber industry, progressive lumbermen were giving much serious attention to the possibility of engaging in the practice of forestry. The chief stimulus was furnished by the rising value of stumpage.

Change Through Panic.

The panic of 1907 radically changed the situation. The lumber industry entered a period of protracted depression. From that time on private forestry made relatively little progress in the United States, except on farm woodlands. While public forestry has made vast strides, the forests of the country that are in private hands are being depleted with very great rapidity, and almost everywhere without effort to renew them. A grave situation is becoming manifest in various ways. This is why the Forest Service is now putting forth a new and energetic effort to call public attention to the fact and to propose a program that will afford relief.

The problem presented is one that can be solved only by public action. The general practice of forestry on privately owned lands in the United States will not take place through unstimulated private initiative.

A Wrong Impression.

The magnitude of the National Forest enterprise and the prominence given to its accomplishments have given the impression to some that the problem of forestry is under way of solution. In point of fact, this is by no means the case, for the National Forests represent in area only about a quarter of the forest area of the country and less than that proportion of the actual standing timber. Private owners therefore hold more than three-fourths of the present timber supplies of the United States. The amount of material which is actually placed on the market from the National Forests amounts to only about 3 per cent of the entire consumption of the country. The rest comes from private lands. While the proportion will be altered the country must still look to private lands for a large part of its forest supplies.

The rate of depletion of our forest resources is more than twice, probably three times, what is actually being produced by growth in a form which will be serviceable for products other than firewood. High prices of lumber are not wholly due to the increased cost of labor and materials. A part is due to the ever-retreating sources of timber supply. Already the supplies of all our eastern great centres of production are approaching exhaustion with the exception of the South, and even there most of the mills have not over ten to fifteen years' supply left or virgin timber. Already the southern pine is being drawn from many points as a competitive factor and its place taken by western timbers, with consequent freight charges which the consumer must pay. Communities needing to build roads and other public works which involve increased taxation are often having brought sharply to their attention the economic consequences of stripping off the forests and leaving in their stead unproductive wastes of low taxable value now or in the future.

Broad Policy Required.

The situation necessitates a broad policy of forestry for the whole nation which will include both an enlarged program of public acquisition of forests by the Government, the States and municipalities and protection and perpetuation of forest growths on all privately owned lands which may not better be used for agriculture and settlement.

The proposed plan of realizing these objectives contemplates cooperation between the Federal Government and the States. The Government nd the States must join hands in working out a program that will bring into correlation the various public and private efforts for the protection and right handling of forests. The function of the Federal Government, in addition to handling the National Forests, would be to stimulate, guide and coordinate State action and conduct necessary investigations regarding the best methods of forestry, to assist the States in classification of land, and to harmonize action as between the different States. The States would also have a function in handling public property owned by them, and they would have a further direct responsibility in connection with the protection and perpetuation of private forest lands.

Would Work Through State Agencies.

In the matter of private forestry the Government would work primarily through State agencies. To

initiate the proposed policy there should be a Federal law authorizing the Government to cooperate with the States in bringing about the protection and right handling of forest lands within their borders, and providing means for such cooperation.

The net results of the steps already taken to inaugurate and organize the new movement for forestry has been to attract renewed and widespread attention to the fact that a real forest problem must be reckoned with, and is of national concern; to establish a conviction in the minds of many who have first-hand knowledge of the facts that definite action to protect the public interests involved and safeguard a resource essential to economic and industrial stability is now required; and to secure what is believed to be a feasible program, of a character to command general acceptance as it becomes fully understood.

PRICELESS POSSESSIONS THAT COST NOTHING

Justice Walter Lloyd Smith who presides over the third department of the appellate division of the Supreme Court, brought with him to a dinner of the New York University Law School Alumni Association what he said "was the most remarkable document that ever came into his possession," says the New York Times.

Others who read the document, the last will and testament of Charles Lounsbury, who died in the Cook County (Insane) Asylum at Dunning, Illinois, were not disposed to disagree with him. Here it is:

"I, Charles Lounsbury, being of sound mind and disposing memory, do hereby make and publish this, my last will and testament, in order as justly as may be, to distribute my interest in the world among succeeding men.

"That part of my interest which is known in law and recognized in the sheep bound volumes as my property, being inconsiderable and of no account, I make no disposal of in this, my last will.

"My right to live, being but a life estate, is not at my disposal; but, these things excepted, all else in the world I now proceed to devise and bequeath.

(Item) "I give to the good Fathers and Mothers in trust for their children, all good little words of praise and encouragement and all quaint pet names and endearments, and I charge said parents to use them justly and generously as the needs of their children may require.

(Item) "I leave to children exclusively, but only for the term of their childhood, all and every flower of the fields, and the blossoms of the woods, with the right to play among them freely according to the custom of children, warning them at the same time against thistles and thorns. And I devise to children the banks of the brooks and the golden sands beneath the waters thereof, and the odor of the willows that dip therein; and the white clouds that float high over the giant trees. And I leave the children long, long days in which to be merry in a thousand ways; and the night; and the moon; and the train of the Milky Way to wonder at, but subject, nevertheless, to the rights hereinafter given to lovers.

(Item) "I devise to boys jointly the use of the idle fields and commons where ball may be played; all pleasant waters where one may swim; all snow-clad hills where one may coast; and all streams and ponds, where one may fish, or where, when grim winters come, one may skate; to have and to hold the same for the period of their boyhood. And all meadows, with the clover blossoms and the butterflies thereof; the woods and their appurtenances, the squirrels and birds, the echoes, strange noises, and all distant places which may be visited, together with all distant places there found. And I give to said boys each his own place at the fireside at night, with all pictures that may be in the burning wood, to enjoy, without let or hindrance and without incumbrance or care.

(Item) "To lovers, I devise their imaginary world, with whatever they may need as to the stars of the sky, the red roses by the wall, the bloom of the hawthorn, the sweet strains of music, and aught else by which they may desire to figure to each other the lastingness and beauty of their love.

(Itme) "To Young Men, jointly, I devise and bequeath all boisterous, inspiring sports of rivalry, and give to them the disdain of weakness and undaunted confidence in their own strength, though they are rude. I give them the power to make lasting friendships, and of possessing companions; and to them exclusively I give all merry songs and brave choruses to sing with lusty voices.

(Item) "And to those who are no longer children or youths or lovers, I leave memory; and I bequeath to them the volumes of the poems of Burns and Shakespeare, and of other poets,—if there be others—to the end that they may live over the old days again freely and fully, without tithe or diminution.

(Item) "To our loved ones with snowy crowns, I bequeath the happiness of old age, the love and gratitude of their children, until they fall asleep!"

SAFETY INSTRUCTION WITH PLANT NEWS.

Bulletin boards in two sections, with removable backs, have produced good results in the plants of the Eastman Kodak Company, according to information received from Edgar R. Perry, Supervisor, Employment and Safety.

One half of the board is devoted as far as possible to bulletins on safety, health, Americanization, thrift, and similar subjects of an educational nature. These bulletins are changed daily and varied in character so as to be as attractive as possible. In some cases it has been impossible to furnish complete sets of bulletins for all boards at one time, and the plan has been used of rotating the movable cardboard backs fhom board to board.

The other half of the board is devoted to news items relating to the plant or to the company. These may be changed daily but usually are posted during three or four days. The board here illustrated, contains on the right hand side a typical notice of the sort, describing a plan for reducing the H. C. L. by co-operative purchasing committees.

Considerable time and attention were given to placing each board where its messages would reach the maximum number of people when their minds are receptive. There is an average of approximately one bulletin board per hundred employees although in one plant there is one board for every fifty employees. Each board is illuminated by four twenty-five watt lamps.

Mr. Perry says "Little incidents that are reported almost daily indicate that the messages of the bulletins are getting across 100 per cent."

—S. J. W., in National Safety News.

The Buffalo "Commercial," the oldest paper in this city, which has sold for two cents for thirty years is now one cent per copy. Is the paper in its dotage?

L. W. Gill the New Director of Technical Education

Professor Lester W. Gill, lately appointed Director of Technical Education to administer the ten million dollars voted by the Dominion for distribution to the provinces, was born in Prince Edward Island in 1871,—a son of the farm, English on his father's and Scotch on his mother's side. After getting a good elementary education in the public schools of "The Island", he left home at the age of fifteen and spent three years in commercial work in the United States. In 1892 he entered McGill University choosing the course in Mechanical Engineering. He graduated in 1896 with honours and the gold medal. He then took a post graduate year in Electrical Engineering with re-search work in magnetism, and was awarded an 1851 Exhibition Scholarship. This was held for two years one of which was spent in research work at McGill University and the other at Harvard where he took up special studies in physics and mathematics.

After this distinguished course as a student, Mr. Gill took up commercial engineering work with the Westinghouse Electric and Manufacturing Company, where special opportunities were offered for the study of manufacturing methods and shop practice.

In 1900 Mr. Gill was appointed Professor of General Engineering in the School of Mining, Kingston (at that time affiliated with Queen's University.) The rapid expansion of this school into a Faculty of applied science made it necessary to organize and develop courses of study in all the branches of engineering. This gave the opportunity for limiting Professor Gill's work, first to mechanical engineering and later to electrical engineering. About this time he was called upon to design and superintend the installation of a central heating plant at Queen's University, the first large central heating plant installed in Canada. Professor Gill's work as a teacher has been characterized by the same clearness of thought and keenness of perception which enabled him to win honours as a student and to gain and keep the confidence of manufacturing concerns.

In January, 1915 he volunteered for overseas service. At that time he was in command of theUniversity Company of Field Engineers, Captain Macphail having gone overseas with a company in the first Division. Professor Gill's training in the University Company prepared him for the task which he then undertook,—to recruit from the students and graduates a battery of Field Artillery for overseas service. His mechanical ability and training enabled him to become quickly efficient in the handling of the guns. The Militia Department accepted the University's offer on Nov. 1st, 1915, and on February 3rd, 1916, Lieut Gill was promoted to the rank of Major and proceeded overseas in command of the battery (later the 46th) which he had recruited and organized in less than three months. After five months training in England, Major Gill was sent to France in command of the 46th. Battery, which was then a part of the11th Brigade. He remained in command of this unit until March 26th 1917, when the 11th Brigade was disbanded, consequent upon the decision to change the Canadian Field Artillery from 4-gun to 6-gun batteries. Subsequently Major Gill was



PROFESSOR LESTER W. GILL.

given command of the 33rd Battery nd later of the 45th Battery.

After the taking of Vimy Ridge, Major Gill was compelled to retire from combatant service, on account of ill-health, due principally to the effects of gas. After eight weeks in hospital, he was requisitioned by the War Office for special technical duty with the Ministry of Munitions, on which service he spent nine months. In September, 1918, he applied for return to combatant service and the application was granted. He was under orders to return to France when the armistice was signed. At that time application had been made by the Khaki University for his transfer to the Educational Services. As the fighting was over, Major Gill decided that his services could best be utilized in the work of retraining men for civil life as a beginning of reconstruction. Early in December, 1918, he was appointed Assistant Director of Educational Services, in which he was responsible for the administration of all the work of the Khaki University in England. The Khaki University having been disbanded in August. 1919, Major Gill returned to Canada and accepted a temporary appointment to his old position in Queen's University. He was appointed Director of Technical Education in December, a post for which he is peculiarly well qualified by his education, wide experience, tact, and energy. These qualities have had public recognition in other ways. On two occasions Professor Gill represented Canada at International meetings of the International Electro-technical Commission, and he is one of those chosen by his fellow engineers as a member of the Canadian Engineering Standards Association.

BUREAU OF STANDARDS BENEFITS PAPER INDUSTRY

The Director of the Bureau of Standards in his annual report to the Secretary of Commerce has the following to say in connection with the work of the paper laboratory during the past year. It is repeated here, largely to show what a similar institution could do for Canada if properly supported.

Routine Testing.

The amount of paper used by the Government departments is approximately 50,000 tons per year, and, as it is necessary for this material to be tested to see that it conforms to the specifications under which it was bought, standard methods of testing paper have been developed. This class of work is called routine testing and consists of chemical and physical tests and microanalysis. The chemical tests employed determine the amount of rosin sizing that is in the paper, and the amount of filler and loading that has been added to give the paper bulk, opacity, finish or surface. The physical tests used include the determination of weights, thickness and bursting strength, as well as folding endurance and tensile strength for certain classes of paper. By means of selective stains and the aid of the microscope, the properties of fibrous material from which the paper was made can be estimated.

During the year 5 000 samples of paper were examined by these tests of which 4,213 samples were submitted by the Government departments and 789 samples by public and private interests. A total of 19,545 tests were made on these samples of which 5,397 were chemical, 9,655 were physical and 4,495 were microscopical.

Paper-Testing Methods.

In the investigation of the properties of paper it is constantly necessary to study methods of testing this material since the laboratory methods in general use are not suitable to determine certain qualities. It has, therefore, been found desirable to study test methods, and, wherever possible, develop a method that will give a numerical value for the qualities that are being investigated.

The property of paper which makes it possible to write with ink upon it is called "sizing." The sizing quality of paper is generally determined by methods that do give an empirical rating, but which are not very satisfactory for laboratory-research or mill-control work. A method for this purpose which, in its simplest form, is a Wheatstone bridge, used somewhat in recent years, is being further developed. By this method the penetration of water through a sheet of paper is measured by the increasing conductivity to an alternating current, which passes through the paper placed in a cell with an electrolyte. The data so obtained are plotted in the form of a curve, and from this curve the rate of penetration may be determined. It was found necessary to add a balancing cell which would reduce the variation of the test due to changes in temperature. As soon as the new apparatus is complete it is planned to study the curves obtained from test on papers of various sizing quality and, if possible, reduce these data to a unit basis.

The testing of the physical properties of paper has been investigated with a view to establishing any relationship that might exist between devices of the same general type and between devices that give an indication of different properties. The properties of paper studied in this investigation were bursting, tensile and tearing strength. A series of papers were tested for bursting strength by three testing machines and, although the data are not yet complete, it is indicated that the principal form from which each machine was developed is based on experimental data rather than on scientific principles. Similar work was done in connection with tensile strength testing apparatus, and it was found there are no machines of American manufacture especially adapted to testing the tensile strength of paper. Since the quality of paper is so often judged by tearing a sheet in both directions, it was thought that a method for obtaining a numerical value for this property should be available. Three types of testing devices for this purpose are being studied—a recording mechanism, an apparatus for the balance type giving maximum strength, and an adapted tensile-testing machine from which a number of readings can be taken and an average obtained. It is felt that a study of this property in connection with formation of the sheet and the quality of the paper will be of considerable help to the manufacturer.

Paper-Making Fibres.

Paper is, in general, a matted structure of fibrous materials and it is possible to make a sheet of paper out of nearly every kind of fibre. In the development of paper making a great many plants, weeds, grasses, etc., have been studied with a view to using them for the manufacture of paper, and especially the quality of paper resulting from their use. The available data on this subject are scattered, but are of great value. The work of compiling information on paper-making fibres is well started, and its scope is as broad as is consistent with the need of the industry. It includes a bibliography, authentic samples with descriptions, and micro-photographs of the structure of these fibres.

The well-equipped photomicroscopical apparatus has been of great value in the study of fibres and has made it possible to obtain permanent records of the shape and structure of these fibres. As illustrations of the use to which this equipment has been put, samples of paper from Germany have been photographed, making it possible to duplicate them; it has been possible to obtain micro-photoghaphs of unusual specimens loaned to the paper section; and the study of Mexican hardwoods and other similar material has been undertaken.

Felts Used on Paper Machines.

Woolen felts are an essential part of the equipment of a paper machine and play a very important role in the formation and quality of the paper produced. During the war the amount of wool available was greatly reduced, and it was thought possible to substitute a small amount of cotton for a portion of the wool in the felt.

Two felts were tested on the paper machine to determine the effect of the addition of 10 per cent of cotton to one of them. Each felt was run for five days on the paper machine, under as nearly similar conditions as it was possible to maintain. Exhaustive tests were made while paper was being run on the machine equipped with these felts, and it was found that the difference betwen the two felts was not large

enough to affect the quality or the production of the paper. It is planned to investigate this problem further and determine whether felts with a greater percentage of cotton can be used satisfactorily on a paper machine. Since the life of a felt is only from three weeks or three months, depending on the machine, the speed and the grade of paper, and satisfactory felt that can be manufactured more cheaply would lower running expenses.

Utilization of Waste Cotton Linters.

At the conclusion of the war the War Department had on hand approximately 700,000 bales of "munition" linters and available for other uses. "Linters" is a fibrous material which is left on the seed after the staple cotton had been detached. It was thought that this material would be suitable for paper making. At the request of the Waste Reclaimation Service and the Industrial Cotton Seed Crushers' Association a series of runs was made on the paper machine to determine the quality of paper obtained. It was demonstrated that the paper made from this material was of good quality, free from dirt and that such linters were a valuable paper-making material. It is to be noted, however, that the grade of linters used in these runs were "munition" linters and unusually free from dirt and cinders. To demonstrate the possibility of making paper from cotton linters, the programs of the annual convention of the Interstate Cotton Seed Crushers' Association in New Orleans were printed on paper manufactured from this material on the paper machine of the paper section. Since about 700,000 bales per year of linters can be available for paper making, the value of this product as a raw material for the manufacture of paper is great; and if care is taken to keep the linters clean and free from dirt, a greater amount than this can be used for this purpose.

Paper Bags for Lime and Cement.

The increasing use of paper bags as containers for lime and cement has made it desirable to investigate the properties of paper for this purpose. This work was discontinued during the war, but has been resumed. Representative samples have been obtained, and laboratory tests have been made to determine the quality of paper being used for this purpose. A test machine is being used that gives the stress-strain value of the paper, as well as the stretch under load. It is planned to develop a test that will reproduce the strain on the bag when it is dropped.

Due to the fact that reliable information is available as to the relative merits of bags, it is necessary to determine what laboratory tests most nearly reproduce service conditions. This will be obtained by correlating laboratory tests, by developing new test methods, and by making service tests. As a result of this investigation it will be possible to define the qualities of paper necessary for bags for this type of work and to write suitable specifications. Manufacturers of paper, as well as the lime and cement associations, are cooperating in this work.

Use of Lime and Limestone in the Paper Industry.

Lime and limestone play an important part in the manufacture of pulp and paper. The war has emphasized the value of lime as a chemical reagent, and it was felt that standard practice in the uses of chemical lime should be developed. A representative of the paper section has taken part in conferences of members of the Government departments interested in lime.

The use of lime and limestone in the pulp and paper industry is being investigated. It is planned to develop specifications for lime for the different industries, standard samples, and laboratory specimens.

In this work, technical committees of the pulp and paper industry will be consulted, and it is expected that the specifications and methods proposed will be accepted and used by the industry.

Unbleached Pulp for Papers.

Chlorine from which bleach and bleaching powder is made was in great demand during the war for military purposes, and it became necessary to restrict the use of this chemical for the bleaching of pulp. It was, therefore, necessary to determine the effect on the color of paper that the restriction in the use of bleach would cause.

At the request of the War Industries Board, 21 runs were made on the paper machine using different proportions of dyestuffs with various unbleached pulps. As a result of the action of the War Industries Board the amount of chlorine used in sulphate pulp was restricted to 40 per cent of the amount then used; in soda pulp, to 70 per cent; and in old papers, to 35 per cent. The use of chlorine for bleaching rags was restricted to 1 per cent.

Filtering Paper for Gas Masks.

At the request of the Chemical Warfare Service, an investigation was undertaken to determine whether paper could be made in the United States similar to that being made abroad as a protection against "sneeze-gas." Tests were made on a commercial scale at two mills, and it was proved that such a paper could be made on a large scale in this country. Due to changes in the construction of the gas-mask canister, a different type of paper was desired, and 35 runs were made on the paper machine, producing a paper that was suitable for the purpose. It was found desirable to have a convenient method of testing this paper, and for this purpose a gas house was built. This house was so arranged that the gas would be formed in one room, and the paper tested in the next room by means of men wearing masks and breathing through flanges so constructed that the paper would act as a filtering diaphragm. In order to obtain a numerical value for the protection afforded by these papers, an apparatus was installed in the gas house that permitted a record being taken of the concentration of the gas before and after passing through the paper.

Military Uses of Wall and Plaster Board.

During the war the investigation of wall and plaster board was continued from the previous year. Three camps visited at the time of their erection were visited again to determine, if possible, the degree of durability of various makes of wall board. The results of the inspection show conclusively that almost any wall board properly erected will give satisfaction in cantonment construction when the buildings are considered as temporary structures. Many of the buildings were in poor condition, due almost entirely to the poor method of erection. All wall boards will expand and contract under different atmospheric conditions, and this expansion and contraction is injurious if the board is nailed at the edges. Wall board should be nailed along the centre and the edges but lightly nailed, and then well stripped with pieces of wood to cover the joint and to allow for the expansion and contraction of the board underneath the wooden strips.

In order that further information might be obtained as to the behavior of these boards under severe conditions, a questionaire was sent to most of the military cantonments. For temporary structures fibre wall board was preferred, merely because it was considered quicker and cheaper to erect because of its greater salvage possibilities. Plaster board was preferred for permanent construction—that is, over five years—because it was considered less subject to changes in temperature and because it makes a warmer building. For hospital use plaster board was preferred due to its resistivity to fire and moisture.

Miscellaneous Information Furnished.

Specifications have been developed for a small paper mill for the Siamese Government. Drawings were made of the plan for such a mill, and information was obtained as to manufacturers and prices for such equipment.

Plans and necessary equipment for a paper-testing laboratory were outlined for the Australian Government in connection with the investigation of Australian hardwoods for the manufacture of paper.

The development of the manufacture of blue-print paper was assisted by tests on 75 samples of this paper for a manufacturing concern. These data are to be correlated with manufacturing conditions.

Considerable assistance has been given the Forest Service in the work of revising the commodity classification of pulp and papers.

FINE REPORT OF N. B. FOREST WORK

The Forestry Advisory Board met in Fredericton on January 22nd, all members being present with the exception of D. J. Buckley who was detained by sickness.

Many matters of interest and affecting the administration of the New Brunswick Forest Service were considered, and acted upon. The results of the Forest Rangers' examinations held since the preceding meeting were presented and certificates ordered sent to the ten rangers who qualified. The original appointment of seventeen rangers who had been taken on the staff since last meeting were approved. These men will be subject to the usual six months' probation.

The cost of the organization for the past fiscal year was considered and plans made for the amount to be expended in 1920.

Reports were received on the progress of the permanent improvements undertaken in 1919. One look-out was in use the entire season with good satisfaction, about 106 miles of woods telephone constructed, the cost of sixty miles of which was equally divided between the Forest Service and Bathurst Lumber Company. These lines penetrate into the interior of the timber lands and will be of incalculable value in fire protection. This will also make possible the utilization of two outstanding peaks as look-out stations, Bald Mountain in Northumberland Co. and Mt. Carleton at head of Nepisiguit River. Cabins have been built, canoes and tool caches furnished the rangers. It was decided to continue the policy of building woods telephone lines, cabins, etc. The Chief Forester will report on three alternative points suitable for a look-out station to overlook the Tobique watershed. He was also instructed to investigate the best means of securing telephone connection with the Restigouche watershed and the new settlements at Kedgwick, Anderson and Five Fingers in view of the great fire danger in this locality from fires due to the clearing of land by new settlers. The reports of fires occurring the preceding year were considered, and it was decided to do all possible to induce action towards placing the C. N. R. under the Railway Commission in regard to fire protection.

The New Game Refuge was discussed and arrangements made for placing special rangers on this area to devote their entire time to preventing hunting, shooting and fishing on the protected area of 400 square miles. Arrangements were made to have the boundaries of the refuge surveyed and marked plainly completely around the reserve, which requires 112 miles of survey line. The lines will be run by the Forest Engineers in the regular course of the Forest Survey this winter, a double party of seventeen men now being on the work.

A forest service pump with 1500 feet of hose has been purchased and will be tried out shortly on some sawdust fires which must be extinguished before the fire season opens. Further purchases will be made if this gives satisfactory service.

Reports were received of the work of the scalers and the amount of cut which it was thought would exceed three hundred million. A compilation of the fortnightly reports received from the 46 rangers on the 620 logging camps on the Crown Lands showed over 230 million feet now on the books. The system of fortnightly reports is considered very valuable because the central office at Fredericton is always fully informed on the situation. Also the licenses receive copies of all the reports and are in a position to ask for a rescale if necessary while the logs are still on the ground. The forest inspectors also report all check scales they make on the rangers so that the information regarding each camp is complete.

Some features of the experimental work being carried on on the Bathurst Experimental Plot were discussed, including slash burning and the cost thereof. It was found that the actual cost of slash burning exceeded the amount usually named for such work. The result of the experimental plot work is being watched with interest.

The Forestry Advisory Board of New Brunswick directs the work of the scalers, game wardens and fire wardens of New Brunswick. The Board consists of five members, of which two, Archibald Fraser and D. J. Buckley are representatives of owners of granted forest lands and of licenses. Thus those interested in the timber lands of the province have a direct voice in the administration of the Forest Service.

D. S. GOTTESMAN IN NEW YORK BANK

The Fifth National Bank of New York has sent out an announcement of the election to its Board of Directors of D. S. Gottesman, President of M. Gottesman & Company, Inc., Wood Pulp merchants, New York, taking effect January 15th, 1920.

Mr. Gottesman's connection with this strong financial institution forms an additional link between banking interests and the pulp and paper industry, which has shown considerable growth in recent years, the banks and banking institutions indicating a broader spirit of co-operation with one of America's most important fields of manufacture.

By the street of By and By one arrives at the house of Never.—Cervantes.

Successful Pulp and Paper Mill Trials on Cotton Hull Fibre

By OTTO KRESS, in charge Section of Pulp & Paper,
U. S. Forest Products Laboratory, Madison,
Wisconsin.

(Continued from January 22).

PAPER TRIALS AT EASTERN MANUFACTURING COMPANY, BANGOR, ME., ON COTTON HULL FIBRE PULP.

All the papermaking trials on cotton hull fibre pulp at the Eastern Manufacturing Company being made prior to the writer's visit to the mill, the following information was obtained from the report submitted by the mill and from representatives who witnessed the trials. Samples of the finished papers were submitted to the writer and tested for strength at the Forest Products Laboratory. These paper trials were made on pulp obtained from cook No. 3 and the reblown stock from cook No. 2 which was packed from the drainer into barrels, and the stock shipped to the Eastern Manufacturing Company.

Runs Made on Reblown Stock from Cook No. 2.

The stock was bleached with 7 per cent bleaching powder and made into paper on the following furnishes: —

	F.O. 1335 lbs.	F.O. 1336 lbs.
Hull fibre pulp	200	400
Sulphite pulp	1050	850
White shavings	200	100
Size	16	16
Alum	25	25

The writer was informed that all papers from these trials made at the Eastern Manufacturing Company were top-sized with "Hercules" gum, loft-dried and finished in a manner similar to two of their standard bonds designated in this report as "grade X" and "grade Y" bonds.

The pulp from cook No. 3 was bleached using 6 per cent of bleach. The half stock was described as "clean, free from hulls, fair color and of a harsh feel." Paper was made on the furnish ordinarily used in the manufacture of their X and Y bonds, an equivalent weight of hull fibre pulp being used to replace the rag stock made from thirds and blues or other rag stock.

Runs were made on the following furnishes:—

	"Grade X Bond" Runs Nos. 1533, 1534	"Grade Y Bond" Runs Nos. 1532, 1535
Hull fibre pulp	600	200
Sulphite pulp	850	1050
Shavings	100	200
Size	16	16
Alum	25	25

The report of the Eastern Manufacturing Company gave the following description of the beating and jordaning of the stock:

Beating and Jordaning.

Two runs of each of the above furnishes were made These will be designated throughout the rest of this report as runs 1, 2, 3 and 4. Run 1 is "grade Y" bond beaten four and one-half hours with the beater roll set so as to give the stock a light brush. The Jordan was set with low gates and a fairly light setting and the stock was passed through several times. Run 2 was "grade Y" bond beaten six hours with the roll set hard on the bed plate. The Jordan setting was very light and the gates set slightly higher than before. Run 3 was "grade X" bond, beaten five and one-half hours with a light brush and Jordaned with a moderate setting and high gates. Run 4 was "grade X" bond, beaten hard for five and one-half hours, and Jordaned with high gates and moderate setting. The slowness tests on these runs were as follows:—

"Grade Y Bond" 1532—Run 1.—
Beater slowness..... 31
"Grade Y Bond" 1535—Run 2.—
Beater slowness..... 43
"Grade X Bond" 1533—Run 3.—
Beater slowness..... 31
"Grade X Bond" 1534—Run 4.—
Beater slowness..... 44
"Grade Y Bond" 1532—Run 1.—
Jordan slowness..... 83
"Grade Y Bond" 1535—Run 2.—
Jordan slowness..... 60
"Grade X Bond" 1533—Run 3.—
Jordan slowness..... 65
"Grade X Bond" 1534—Run 4.—
Jordan slowness..... 106

"Grade X Bond," regular beater slow. 90 ; Jordan slow. 160.

"Grade Y Bond," regular beater slow. 65; Jordan slow. 125.

It will be noticed from the above that the stock was free even in the case of the hard beating and moderately hard Jordaning. This was found to be so on the machine. The fibres were long as shown by the fact that although the machine was only drawing 990 pounds per hour, the screens were operating at full capacity. The freeness in spite of the hard and long beating is probably due to the fact that the fibres being solid do not hydrate as rapidly as do ordinary cotton fibres.

The pulps produced from cooks Nos. 5 and 6 in the rag boiler of the Eastern Manufacturing Company were of a yellowish-white color, the hull particles being incompletely cooked and appearing yellow. The stock was bleached and two paper runs made. Run No. 1058 was made on a 100 per cent hull fibre furnish, his paper not being top-sized. The paper was of a yellowish tinge showing considerable yellowish hull particles. Run No. 1059 was made on the regular "Grade X" bond furnish. The strength tests shown in Table 1 were made at approximately 65 per cent humidity at 75° F., and instead of reporting

Note.—Some trials made under the direction of the editor at the University of Maine on beating raw cotton gave a very pronounced tendency to slowness. —J.N.S.

Table 1. - Strength tests on papers made at Eastern Manufacturing Company, Bangor, Maine

Description of paper	Humidity	Temperature	Weight per ream	Bursting strength	Points per .0001" thickness	Average breaking length	Average folding test
	%	°F	24x36/500 basis	Points per lb.		Meters	number
Standard "Grade X Bond"	64	78	46.0	.60	.71	4740	125
Standard "Grade Y Bond"	65	71	45.5	.53	.70	4350	62
Run #1533	64	70	43.5	.41	.46	3700	29
Run #1534	66	77	48.0	.38	.42	3310	19
Run #1532	64	79	47.0	.45	.55	3860	29
Run #1535	64	78	47.0	.45	.54	3970	48
Run #1335	64	79	52.0	.40	.52	3600	12
Run #1336	64	79	48.0	.43	.56	3910	16
Run #1058	64	69	36.5	.33	.33	2570	12
Run #1059	65	70	36.5	.38	.43	3000	18

strength data on the folio basis all strength tests and ream weights were taken on the 24 x 36 500 basis; the results if desired can readily be converted to the folio basis.

Runs Nos. 1533 and 1534 may be compared with the standard "Grade X bond," and runs Nos. 1532 and 1535 with the standard "Grade Y bond." The other papers were all made on either abnormal furnishes or the stock was handled in a manner so as not to make the runs directly comparable with either the "Grade X or Grade Y bond." The strength of all the papers containing hull fibre pulp falls below that of the standard papers. With harder beater treatment the hull fibre stock would probably have shown greater strength as was shown at trials made at other mills.

Strength tests made at the Eastern Manufacturing Company rated these papers as follows:—

		No.	No.
	"Grade Y Bond"	1532	1535
Bursting strength.....	29	28.1	29
Points Mullen.			
Tearing strength.....	252	322	296

		No.	No.
	"Grade X Bond"	1533	1534
Bursting strength	36	24.8	24.9
Points Mullen.			
Tearing strength.....	330	311	315

The tests made at the Eastern Manufacturing Company indicate that bonds with the lower percentage of hull fibre in the furnish are practically, insofar as the Mullen tests show, the equivalent of the standard "Y bond," and show a decidedly better tearing resistance. The bond made on the furnish with the large percentage of hull fibre shows a decided decrease in the Mullen test and only a slight decrease in the tearing test. In these runs, as well as in the paper trials made at the other mills, the cotton fibre pulp was probably not handled in a manner to develop the maximum strength of fibre. In some cases the pulp lay in the black liquor for several days preparatory to washing and in all of the trials the stock was held a long time preparatory to bleaching, so requiring a very drastic bleach treatment to develop a good white color. Furthermore, neither the writer nor the mills were familiar with the paper making characteristics of this stock, so that in the writer's opinion the best beater conditions were probably not attained in any of the runs.

(To be continued)

BROMPTON AGREES ON TAX.

East Angus, Que., Jan. 26.—Much interest throughout this vicinity has been occasioned by the bill presented before the Quebec Legislature, asking that the Brompton Pulp and Paper Company be required to pay taxes from June last, in accordance with a decision of the county council, which reduced the period of exemption from taxation from 25 to 12 years, and the settlement of the matter has caused much satisfaction.

The company took the matter before the Quebec Legislature, stating that the council had no right to reduce the time allowed by the former agreement, and alleging that the company should pay this year a tax of $13,000 on their $900,000 valuation.

It was finally settled by the company agreeing to pay for the next twenty years, taxes which will be levied on a basis of valuation which will not exceed $950,000.

MR. FOREMAN, IT'S UP TO YOU

Enthusiasm is a healthful contagion, just as indifference is the opposite. Both are catching and the foreman who has enthusiasm will see it reflected in his men.

Nine times out of ten the foreman finds his men are thoughtless of Safety if he thinks little about it himself. On the other hand, if he is honestly and earnestly interested in Safety, so will his men be.

Mr. Foreman, the accident problem is largely up to you. Do your part. Neglect on your part means neglect on the part of your men. If you look out for the safety of your men they will do the same, will do better work—will boost for safety and for you.

BRITISH TRADE NEWS

(From Our London Correspondent)

London 7th Jan'y. 1920.

There is a holiday feeling here in the paper and pulp market at present. It is the aftermath of Christmas and very little business is being done. Most of the mills are working off their contracts and work in this sector is going on steadily. Unfortunately in the transport more trouble is threatened on the railroads and as I write the pendulum is swaying as to whether it is to be a strike or accept the wages offered by the Executive. The workers are out for more money and if their demands are not conceded trade in the country may once again be dislocated. Should this course be decided upon the paper and pulp men will be greatly inconvenienced—indeed, more than one can realise.

Railway Rates Increase.

Pulp and paper men in Canada should take notice of the fact that railroad prices are increasing here from the 15th January up to 100 per cent. The rise will be from six cents to twelve cents per ton and in the case of 100 per cent the advance applies to parcels by passenger trains. Coal and fuel goes up 25 per cent on the ton. Owing to the recent demands by the workers, the rates on all the railroads have to be increased and, naturally, the extra cost on freightage for coal will add to the increased cost of production in those paper mills who have to depend on their supplies being handled on the rails.

Pulp Quotations.

The running of pulp over the railroads will, unless otherwise settled, mean a change in quotations for the raw material. It will thus be seen that the paper mill owners in England are being hit in every direction. At present pulp quotations are about as follows in London, (c.i.f. English ports):—

Bleached Sulphite	£40. — £41.
Easy Bleaching "	32 — 33 5s.
Easy Bleaching Soda	28 — 28 10s.
Strong Sulphite	30 — —
Strong Soda	25 — 26
Groundwood	9 — —

These quotations include agents commission. During the past month supplies have arrived with frequency and the quality of the pulps is very fair. The Norwegians say that existing contracts must be reduced and prices for available stocks must be considerably advanced. Norway, however, seems to be in a bad way. If it is not labor troubles, it is decreased production in the mills, that cause trouble in their market and strange to say their prices are constantly hardening on paper. Of course the early closing of the North Baltic ports shuts out a large quantity of pulp from the British market, but at the same time it would be interesting to see a report showing the actual state of the pulp industry in Norway.

German Chemicals.

This week I was present at a meeting of the Society of Chemical Industry and heard a report from Dr. G. S. Walpole, who visited Germany in a private capacity to see for himself what condition the chemical industry was in Rhine-land. Dr. Walpole pointed out that the picture conjured up by German chemical industry to-day was team-work in its highest development. One noticed everywhere the most stringent economy in materials and men, but the most lavish expenditure of capital on plant designed to work with minimum of attendance. It was as rare to see a man shovelling anything as to see a waste product. The power of German chemical industry lay in ias policy of united effort extending its control to every detail of their program. The policy of having the railways running direct into every works and the "staff work" of the larger chemical manufacturers resulted in an organization of an industry as one big self-contained industrial body. The thoroughness with which the whole cycle of operations was studied by the chemist in the first instance, and the sureness with which the chemical engineer laid out everything in the mill or otherwise, were most remarkable. Plants were not put down piece-meal and haphazard with a view to catch some temporary gain, but finished, well designed, and thorough, as part of a combined policy which had the world market as its main considerations.

The Paper Makers Association.

From all accounts the annual banquet of the British Paper Makers Association, to be held next month, promises to be an elaborate affair. The business meeting usually precedes the dinner and this year's gathering should be interesting in view of the many difficulties mills have had to contend with. I hear pulp men will speak as well as paper men.

Paper Census.

The Trade Board here is adopting the principle of the American Paper Makers Association in the matter of finding out the production of mills. A census of paper mills' production is arranged for this year and signed declarations will be demanded so as to ensure the output is correct. Chemical industries are also included in the order.

Notelets.

Sir Henry Birchenough, who was associated with the Royal Commission on paper, has been raised to a Baronetcy by King George.

Mr. E. V. Evane, chairman of the Brtish Chemical Commission, says the outstanding impression from the German chemical works was that of a huge and highly efficient organization temporarily paralysed.

The German chemical industry supplied 80 per cent of the world's requirements of dyes in pre-war days.

Mr. Lake, of J. C. Lake & Co., paper merchants, London, has endowed a scholarship at the Isleworth County School, where his eldest son was educated. The bursary will be given for engineering, analytical chemistry or aviation.

Norwegian unglazed kraft is selling at £52 a ton in London, while M. G. is going from £55 to £56 a ton.

The rate of exchange is somewhat hampering business between England and Belgium. Canadians who want to do business in Belgium should communicate with the British vice-consul, at Ghent, who will distribute or forward copies of catalogues or quotations to intending purchasers.

The Canadian Exhibition to be opened in London in June next is largely advertised in England today. According to the latest news all the exhibits will be assembled at Montreal and conveyed in a special exhibition ship to London.

The inside working of a pulp mill is shown on the films in London and attracts much attention.

In 1919 groundwood (moist) in London dropped from £11 to£9.

Technical Section

REVIEW OF RECENT LITERATURE

K-4. The cooking and washings of rags. E. Arnould. Papier, **22,** 129-32, (May 1919). Paper, **24,** 830-2, (1919). Pulp & Paper, **17,** 747-8, (1919). See Pulp & Paper, **17,** 582, (1919).—A.P.-C.

K-4. Notes on the cooking of rags. C. Negri. L'-Industria della Carta, **22,** 4, p. 47. Paper, **24,** 756-7 (1919). Pulp & Paper, **17,** 573-4, (1919). A brief study of relative advantages of NaOH, Na_2CO_3 and $Ca(OH)_2$ for the cooking of rags.—A.P.-C.

K-6. Ink removing process for waste paper. U.S. A. patent No. 1,298,779. Wesley M. Osborn, Carthage, N.Y. Paper, **24,** 1013, (1919). The paper is cooked in a digester with cooking liquid such as is used in sulphite mills, together with soda ash. The process yields a high grade pulp differing but slightly from the original sulphite pulp.—A.P.-C.

K-6. Waste paper for papermaking. Researches on printing ink in relation to its destructibility. Henry Aldous Bromley, F.C.S. Paper Maker & Brit. Trade J. Paper, **24,** 791-4, (1919). The object was to find an ink which would be fast to light and general atmospheric conditions but which could be easily and cheaply destroyed by chemical means in such a way as to cause a minimum amount of deterioration of the paper stock, thereby permitting of the use of larger proportions of waste paper in the preparation of new paper than was used heretofore. Experiments were carried out with 3 classes of pigments, (1°) purely inorganic compounds; (2°) organic salts of mineral bases; (3°) pigments produced artificially by the precipitation of a dyestuff on a neutral substratum (including lakes). In the first class, chemically prepared Fe_3O_4 was of a satisfactory color, but resistant to chemical agents, while Mu_2O_3 did not give satisfactory black. In the second class, black tannate of iron was not entirely satisfactory as regards fastness to light. In the third class, Cross Dye Sulphur Black BDN, precipitated by means of Glauber salts on green ferrous hydrate gave entirely satisfactory results. —A.P.-C.

K-7. Improved beating engines. U.S.A. patent No. 1,277,637. Edward Partington, Westwood Park, England. Paper, **24,** 90-1 (1919). The beating process is rendered continuous instead of intermittent by feeding the stock near the mid-feather and allowing it to overflow at the wall of the vat, or vice versa.—A.P.-C.

K-8. Basic, acid and substantive dyes. W. H. Watkins. Paper, **24,** 590-4, (1919). A plea for support for the American dye industry.—A.P.-C.

K-10. Engine sizing. Paper, 24, 1055, (1919). Varying qualities of rosin size will give the same results if properly handled. For this, practical experience is necessary and theory at times is of little or no value. Rosin size should be made with Na_2CO_3, not with NaOH.—A.P.-C.

K-10. Control of rosin size solutions. M. O. Smith. Paper, **25,** 96, (1919). At the mills of the Brown Co., Berlin, N. H., a special hydrometer is used, supplied by Eimer and Amend, having a scale divided into 0.1°Be and easily readable to 0.05°Be. With a properly regulated system of size soap cooking, the free and combined rosin and the free alkali ratios, etc., will ordinarily remain constant, leaving the total rosin factor to be controlled. Under these conditions a variation of 0.05°Be in reading corresponds to 0.3-0.4% in the strength of the milk.—A.P.-C.

K-18. Notes on the manufacture of Bristolboard. J.J. Papeterie, **41,** 12-3, (May 25, 1919). Paper, **24,** 885, (1919). Practical hints for obtaining the best results.—A.P.-C.

K-19. When coated book paper was first made. Paper, **24,** 813-5, (1919). An account of the early experiments of Chas. M. Gage, about 1874 or 1875, for the production of paper coated on both sides and of dull surface coated paper.—A.P.-C.

K-19. Coating compound for carbon paper. U.S. A. patent No. 1,292,404. Sanroku Hattori, Tokyo, Japan. Paper, 24, 977, (1919). The paper is coated with a Ba, Al, Bg, etc., salt of stearic or other fatty acid, mixed with an oily material and suitable pigment.—A.P.-C.

K-23. Waterproof paper of Japanese invention. World's Paper Trade Rev., May 9, 1919. Paper, **24,** 794, (1919). The paper is first treated with gelatine solution, then with a solution of chrome alum and ammoniacal alum, and is finally coated with a solution of castor oil, tung oil and a Pb or Zn salt. This yields a wrinkleless paper, having the resistance necessary in the purpose for which the paper is used, while preserving its waterproof character.—A.P.-C.

K-23. Water resistant papers for baling. F. P. Veitch and E. O. Reed. Paper, 24, 878-80, (1919). The strength of paper is decreased by nearly half by creping, but it is not affected by corrugating. Impregnating with paraffin gives little or no protection from loss of strength when paper is exposed to the action of water. Asphalt gives much more satisfactory results. If the paper is duplexed and surface coated with asphalt, or if it is duplexed with tissue by means of asphalt, there is practically no loss in strength after exposure to water for 3 hours.—A.P.-C.

K-0. Argument for standardization of paper. Wm. Bond Wheelwright. Paper, **24,** 841, (1919). A plea based on the improved quality which would result from standardization, and which would result in giving paper "Made in U.S.A." a universal reputation. —A.P.-C.

K-0; R-4. Technical control in papermaking. Standardization of paper in America. Wm. Bond Wheelwright, Paper, **24,** 507-7, (1919). A plea for adopting a system of buying and selling paper according to specifications.—A.P.-C.

M-4. Some suggestions on pulleys. Paper, **25,** 85-8, (1919). Advice as to the proper care and selection of pulleys, together with a description of the various types on the market.—A.P.-C.

R-2. The writing of a technical report. Harold H. Holden. Paper, **24,** 708-9, (1919). Advice as to how to set about writing a technical report.—A.P.-C.

R-2. British patent office library accessories. M. Hubbard. Paper, **25,** 140-60, 455-9, 525-6, (1919). A select bibliography of cellulose, paper, and allied subjects.—A.P.-C.

R-2. Paper research literature. Paper, **24,** 755-6, (1919). A list of contributions by members of the lab. of A. D. Little Inc., Boston, Mass., 1889-1918.—A.P.-C.

R-5. Spanish trade in coarse papers. Paper, **25,** 101-2, (1919). A review of the Spanish paper trade since 1912, and of its present status.—A.P.-C.

R-13. Spring meeting of the T.A.P.P.I. Paper, **24,** 622-62, (1919). A detailed account of the proceedings of the meeting.—A.P.-C.

R-0. Papermaking in Ireland. World's Paper Trade Rev., May 9, 1919. Paper, **24,** 817, (1919). A brief description of the present status of the Irish paper industry.—A.P.-C.

R-0. Work of Bureau of Standards, Paper Section. Paper, **24,** 799, (1919). A brief review of the work done during June 1919.—A.P.-C.

R 0. Paperpulp manufacture in Australia. Gerald Lightfoot. Bull. No. 11, Advisory Council of Science and Industry, Commonwealth of Australia. Paper, **24,** 832-4, 929-32, 927-3, 1014-5, 1061-4, 1100-2, 1141-1, (1919). A detailed review of the work which has been done on the possibilities of establishing a paper industry in Australia. At present, about the only really commercial proposition would be to use straw. —A.P.-C.

R 0. Papermaking possibilities in the Phillippines. Paper **24,** 980-2, 1076-80, 1105-6, (1919). Text of a report to the U. S. Dept. of Commerce by J. F. Boomer, Manila, Lab. Experiments by Geo. D. Richmond, carried out some years ago, show that bamboo (especially cana bojo), which occurs in very large quantities and reproduces itself very rapidly, yields an exceptionally strong and high grade pulp, with relatively small consumption of chemicals. Abaca, or Manila hemp, is already used in the form of old cordage and fibrous waste; but no use has been made, as yet, of the semi-fibrous waste, of which a large supply would be available. Of the grasses, the more important are cogon and Talahib, which both give a good yield (about 50%) of an easy bleaching pulp. Plantains (including bananas) could furnish a large amount of material which at present is allowed to go to waste. NaOH, SO_2 and bleaching powder could be manufactured in the Islands if there was a demand for them.—A.P.-C.

PLEASE NOTE THESE CORRECTIONS

On page 1026, Nov. 27, 1919, col. 2, last abstract: Instead of " during 1917, 1918, and the first 5 months of 1919," read " during the first 5 months of 1917. 1918, and 1919."

In 'Notes on the manufacture of one-ply Bristol", Jan. 15, 1920, page 52, 6th line from the bottom of the first column, change the word "wire" to "sand trap." The sentence should then read "the slope of the sand trap should therefore be considerable....."

YOUR PRESENT JOB

Your present job is your best opportunity. Your future depends on how you do your present work. If you do it carelessly and half-heartedly, or even mechanically, you will never get ahead. If, however, you will put energy into it, try to produce more, and give the company a new idea once in a while, your present job will soon be a stepping stone to a better job. The way to get ahead on any job is to make yourself more useful than the other fellows. The blowing of the whistle means stop working, not stop thinking.—"The Digester."

EDUCATION IN ECONOMICS IS ESSENTIAL

In the current number of "Sphinx Talks," the house organ of Miller, Franklin, Basset Co., President Basset lays an axe at what we believe is one of the principal causes of industrial unrest and the seed which blossoms out in the red flowers of Bolshevism. After mentioning methods men have tried, often successfully, to bring about a better unity of effort between workmen and management, Mr. Basset says:

Although I'm a disbeliever in "sure cures" there is one thing which I believe would lay a foundation for quieter labor conditions in all industries. That is education in the fundamentals of business economics. It is ignorance of this that makes so many formerly contented men prey to the inflammatory false reasoning of agitators.

The source of wages for instance is a mystery to most workmen. They are accustomed to cartoons of a fat capitalist with bulging money bags—from which, presumably, he doles out as little as possible in the way of wages. We know that wages are not paid out of capital but from production—but most workmen don't. If they did, it would be easy to convince them that **they** can reduce the high cost of living by turning out more work in a day.

Few workmen realize that relatively little capital is in the form of money. They don't stop to think that anyone who saves and buys a house or a piano is a capitalist, and that if capital were confiscated, he would suffer with the other, richer capitalists.

He demands interest from the bank on the savings he puts by for old age—but he forgets that the capitalist who builds the plant he works in is also entitled to interest.

We don't teach these fundamentals of economics in our public schools, and you may be surprised therefore to find that even some of your well-up executives are not well enough informed on these basic principles to offer a better argument to Bolshevik teachings than "Oh bunk!"

The radicals know of this ignorance and work upon it. We should combat their false teachings with true ones.

With this fundamentally sound foundation each employer can then go about getting the co-operation of his men in his own way with a much better chance for success.

RECENT FRENCH PATENTS.

Machine for Shredding fibrous substances.—Fr. patent 493,554. Samuel.

Improvement to the method of application of gum lac and similar substances to sheets of paper.—Fr. patent 493,156. Cie. Française pour l'exploitation des procédés Thomson-Houston.

Rigid and waterproof cardboard for roofing building, making boxes, etc.—Fr. patent 493,220. Société Veuve Etienne Baron & Cie.

Folding box from cardboard or other material.—Fr. patent 493,227. Aviss.

Absorbent fiber for roofing felts.—Fr. patent 493,387. Kron.

Articles made from reinforced paper.—Fr. patent 493,477. Poetschke.

Hardening and waterproofing objects made from paper, pulp, paste-board, etc.—Fr. patent 493,643 Macairet.—A.P.C.

WALMSLEYS TO BUILD PRICE BROTHERS MACHINES.

Last week the editor mentioned the very pleasant interview that he had with Mr. John Wolstenholme, director of Charles Walmsley & Company, Limited, before that gentleman returned to England. Mr. Wolstenholme said he had not only spent a very busy and successful period in Canada but that he had also greatly enjoyed the visit. Between the installation of the monster 232 inch machines for the Abitibi Company, and the planning for the new mill with its six specially designed paper machines at Price Brothers new mill in their new town to be built at Saguenay our friend certainly had a busy time. He said that the No. 5 machine at Price Brothers Kenogami mill should be in operation in April and Nos. 5 and 6 at Abitibi should be turning out paper in October. The six machines for the mill at Saguenay will be 160 inches which seems to be adopted as a standard size by Price Brothers.



JOHN WOLSTENHOLME,
Director, Chas. Walmsley & Co., Ltd.

To accomodate the enormous pieces of machinery required for these new machines as well as to handle the other items of manufacture incidental to the construction of the paper machines, Mr. Wolstenholme says that the capacity of both the Atlas Works and the branch on Wood Street in Bury will be doubled. This extension is going forward rapidly at the present time. It is interesting to note that in order to accomodate the casting of the huge dryers for Abitibi 323 inch machines it was necessary to dig a pit in which to place the moulds.

Mr. Wolstenholme said that a new machine would have the most up-to-date features and would be designed from a mechanical standpoint of operating at 1000 feet per minute. This speed will depend principally on the skill in operating them. Mr. Wolstenholm expects to return during the coming summer to see how operations are progressing.

PROVINCIAL PAPER MILLS, LIMITED, TO BUILD.

In an interview granted a representative of the Pulp and Paper Magazine of Canada, in Toronto this week, Mr. I. H. Weldon, President of the Provincial Paper Mills, Limited, made it clear that in at least two lines of paper—those of writing and book—the prevailing impression of shortage was not justified by actual conditions. It is known that various stationery manufacturies and printing houses are contemplating programs of expansion during the present year and their plans will naturally be largely governed by the prospects of a free supply of paper and in this connection Mr. Weldon was asked as to supply and demand in these lines and as to general conditions as they exist at the present time. In reply to questions along these lines Mr. Weldon said:

"During the year just closed, the Canadian mills making book and writing papers, we believe, ran fully up to capacity. In our own case we exceeded the tonnage of any previous year by about 5%. Our entire production was sold in Canada, but about 3% of this was exported by one of our customers.

"Few customers, we believe appreciated how little extra tonnage would be required to fully satisfy the present shortage in Canada. While it is almost impossible to give any definite figures, we have made as careful a survey as possible and estimate the shortage to be five tons per day which is about one third the product of a modern paper machine.

"In regard to the handling of our own production we distributed it in what we consider the fairest manner possible—that is we confined our sales to the customers to whom we had been supplying paper in the past and who were depending upon us solely, giving them as near the amount in pounds each month as they had received per month in previous years.'

Asked in regard to the Provincial Paper Mills plans for the future Mr. Weldon said:

"Some months ago we decided on quite an extensive program, which will, of course, extend over a considerable period and the progress and completion of which will depend entirely upon the increase in consumption of paper in Canada. We have already acquired land adjoining each of our present plants at Thorold, Mille Roches and Port Arthur and at each of these points we will build additional mills, each building being planned to accomodate two machines. One machine will be installed along with the construction of each building and further machines as conditions warrant, making in all six additional machines with a total tonnage of not less than 120 tons, making with our present production, 200 tons per day. Plans and specifications for the first additional plant have just been completed. This plant will be fully equipped with the most modern machinery available and will have a capacity of about 20 tons daily of either book, writing or bond papers. This plant will be rushed to completion as soon as weather conditions permit, and as rapidly as the Canadian market consumes this increased tonnage we will proceed with the installation of further machines, until we have rounded out our plans as above outlined."

Mr. Weldon emphasized the fact that the shortage in these lines was not as serious as it would appear, declaring that an ample supply of paper will be available in the near future to meet any reasonable increase in consumption that might be planned.

Fire Protection of Log Piles

With Reference to the Growth of Fungus and the Quality of Pulp

By F. J. HOXIE, Boston, Mass.

Introduction.

Log pile fires occur when the outside of the piles is dry. Most of them have taken place in summer. In cold climates there have been a few large winter fires. The dry atmosphere and snow keep exposed vertical piles in these climates dry in winter. Most of the large losses have been in August.

Dry punk wood is doubtless the chief source of fires in log piles. This light rotted wood when thoroughly dry can be ignited by the smallest spark and will burn with the utmost persistancy.

Dry pulpwood can be most practically obtained by piling in low, well-separated piles which can be effectively protected against fire by hose streams. Where wet wood can be used the entire pile can be kept wet and thereby greater uniformity secured, fires prevented and rotting reduced. That wood rots "between wind and water" is a matter of common knowledge, illustrated by the fence post which rots first at the surface of the ground where the moisture is most favorable for fungus growth. In order to make practical use of this peculiarity it will be necessary to determine definitely the moisture limits of the three or four varieties of common fungi which destroy pulpwood as well as roof planks and structural timber.

First Principles of Fire Protection.

There are three grand divisions in the efficient control of fires. Prevention is the first and most important, although the least spectacular; methods of extinguishing are second. These have been given most attention by fire protection engineers because of their conspicuous practicability; the separation of values in-



Fig. 3.* Punk Wood Log in Pulp Pile.

to parcels of amounts reasonable to risk a total loss even when such a loss is improbable with the means at hand is the third and is governed to a considerable extent by the prevention and protection available.

When factories were insured with only hose stream protection, prevention was by far the most important factor in fire engineering. Fire extinguishing was more a matter of chance than an exact science. When automatic sprinklers were introduced this chance was greatly decreased by making it more certain to extinguish a fire in its early stages and preventing small fires from becoming large ones. The automatic feature also considerably compensated for defects in fire prevention methods. The reliability of the automatic protection immediately gave it paramount importance. It reduced the uncertainty due to the personal element ever present in fire protection, depending on carefulness and good judgment.

The success of the automatic sprinkler is the result of its being able to quickly and automatically extinguish a small fire with a comparatively small amount of water. There are but few mills at the present time which have a sufficient water supply to successfully extinguish the entire structure should it all become ignited at the same time.

Velocity of Combustion Determines the Necessary Water Supply.

The velocity of combustion is the factor which determines the water supply necessary to extinguish a fire. A gallon of water can absorb about 9000 British thermal units, and therefore if heat is being generated at the point where this gallon of water is applied at a rate much greater then 9000 British thermal units during the time the water is applied, there will be little hope of extinguishing the fire, unless the water



Fig. 5. Grated Punk Wood under Conveyor.

can be so applied at the seat of combustion as to reduce the temperature below that at which wood can rapidly combine with oxygen.

The combustion of wood takes place in two stages. The first is destructive distillation such as takes place in a charcoal kiln; the wood is separated by heat into combustible gases and charcoal. The gases burn in the air above the wood and form the luminous flame characteristic of fire. The charcoal burns by combining with oxygen in the original location of the wood forming an intensely hot and luminous bed of coals. The heat from both burning gases and charcoal distills wood and increases both the temperature and rate of combustion, the increasing velocity of combustion being only limited by the rate at which air can be brought

*Numbers of illustrations are given to correspond with those used in his address by Mr. Hoxie. Only a few are reproduced.

into contact with the burning wood. In the same way the temperature of a house in winter is regulated by limiting the air supplied to the burning fuel in the furnace by means of the drafts or dampers.

The velocity of combustion of a log pile will at first rapidly increase with the temperature, the temperature accelerating the rate of combustion and increasing the air supply by the increasing upward velocity of the column of hot gases, finally coming into equilibrium at a point at which air cannot be supplied or products of combustion removed any faster.

There are two possible means of reducing the rate of combustion. First by reducing the temperature; second by shutting off the draft. The first is that commonly used in fire fighting and consists in putting water on the hot coals, thereby reducing the temperature below that at which destructive distillation can take place. In order to accomplish this end with the smallest possible amount of water the water must be applied to the hot coals at the base of the fire, not to the flames which are the burning gases as is frequently done.

It is a matter of considerable difficulty to get water to the seat of combustion against the strong upward

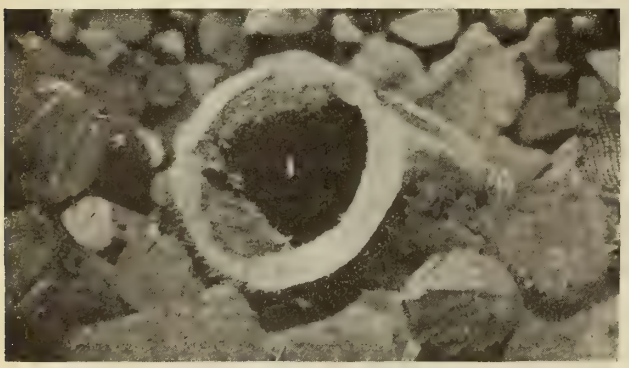


Fig. 8. Rotten Hearted Log near Railroad. After dry Weather such Logs are Ignited by the Smallest Spark.

force of the column of hot gases. It is impracticable to apply it from the bottom or sides in the direction of the incoming cold air due to the wood on the outside of the pile which acts like a grate admitting air to the burning wood on the interior through the spaces between the logs. Therefore the fire once under way can only be fought with reasonable chance of success by applying large solid hose streams from above with sufficient force to overcome the upward force of the rapidly ascending column of gases. If the water is thrown up onto the pile from the ground, it may come to rest in the air directly in the column of asccending gases and therefore it can be carried aside by horizontal air currents and will not reach the base of the fire where it could exert its greatest extinguishing power.

If more pressure is applied to the hose streams it will cause them to spray and offer greater surface to the



Fig. 10. Sap Rotted Logs near Railroad can easily Ignite the Pile.

buoying action of the ascending gases. The rate of combustion would be expected to increase very rapidly at first and become nearly constant when the air supply has come to equilibrium in the same manner that the fire under a boiler or in a stove burns for hours at a practically uniform rate when the drafts are regulated. Finally when the fuel supply is nearly exhausted the rate of combustion rapidly decreases. Therefore we should expect a large conical log pile to burn at a practically uniform rate for a considerable period and the combustion would take place within a comparatively small area due to the concentration of the fuel, therefore it would be necessary during this period, to apply water in sufficient quantity to absorb the heat faster than it is generated in order to extinguish the fire.

An idea of the amount of water which would be required can be obtained from the following table, in which the velocity of combustion of several of the more important log pile fires has been calculated from the fire reports, and opposite this has been placed the amount of water available as near as could be estimated. Taking 2500 pounds of dry wood to the cord as an average figure and the heat equivalent of dry wood as 7000 British thermal units to the pound.

Each pound of wood will require approximately a gallon of water to absorb all of the heat generated. That this is supported by experience is shown by the fact, that when the rate of burning is much in excess of this, the fire is not extinguished until practically

Velocity of combustion of Log Piles and Water Supply Available.

Date	Direction of wind	Cause	Hose Streams	Hours time	lbs of wood burned per minute		gals. of water per minute
6/13/00	S.W.	Exposure	7	20	*4000	e.	2000
5/ 5/03		Conveyor	5	6	80	e.	1500
5/13/08	N.W.	Unknown	9	13	1200	e.	2000
5/14/10	E.	Locomotive	7	8	2100	e.	2000
6/ 4/18	S.W.	Unknown	15	27	14000	c.	3500
8/ 4/18	S.W.	Conveyor	14	36	28000	c.	3500
8/11/19	N.W.	Locomotive	22	13	25000	c.	3000
8/19/16	S.W.	Forest fire	—	60	17000	c.	——

e. extinguished.
c. consumed.
* low flat piles.

all of the wood is consumed. Another factor worth noting is the rather constant velocity of about 2500 pounds of wood per minute at which the larger conical wood piles have burned, showing that in the larger fires, the period of constant velocity due to draft equilibrium occupies nearly the entire time of the fire.

From the above figures it is apparent that if the rate of combustion at the fire of August 11, 1919 had been uniform throughout over 25000 gallons of water a minute would have been necessary to have absorbed the heat. It is apparent that an average large water supply of 2000 to 3000 gallons per minute can only be expected to control a fire in a large conical pile if applied in the very early stages of the fire.

The amount of water contained in the wood is important in slowing down the rate of combustion at the start and making it possible to get hose streams on the fire before it has attained too great velocity. This may be the reason, that while there have been more fires in the early part of the season they have generally been more successfully extinguished than the fires which have occurred in August when the wood on the surface of the piles is more thoroughly dried, causing the fire in the early stages to spread more rapidly. The August losses have been about five times as much as the combined losses of all other months.

To supply the amount of water required in the later stages of the fire according to the above calculations, seems to be beyond the range of practicability. Where the same method of computation is applied to large paper mill or cotton mill buildings it will be found



Fig. 12. Large Log Pile nearly Burned Out. Note Central Crater.

that the hose streams available are about equally insufficient, although in this case the fuel is spread over a much greater area but the results have generally been disastrous when the fire has passed the first lines of defense and got well under way.

A similar method of computation was used as a basis of determining the spacing of sprinkler heads necessary to control fires in celluloid, a substance which burns 10 to 15 times as fast as wood and therefore must have water applied 10 or 15 times as fast in order to control it. The calculated number of heads were installed in a small vault in which large quantities of celluloid were burned experimentally and the results showed that the method of calculation was remarkably reliable.

Open Sprinklers in Continuous Operation are More Efficient Than Automatc Sprinklers.

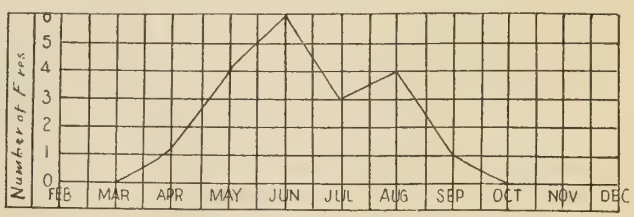
The common cause of failure of automatic sprinklers is some unforeseen obstruction such as a shut valve, an obstruction in the pipe, or a defect in the controlling link, therefore if it were practicable to use open sprinklers operating continuously instead of automatic sprinklers, the greater part if not all of the failures would be eliminated, as with the sprinklers in contin-



Fig. 18. Lenzites Sepiaria on Spruce Logs kept at a Favorable Moisture Content by Nearness to the Earth.

uous operation any defect would be immediately discovered; moreover it would not be necessary to extinguish fires, as the combustible material would be kept too wet for a fire to start, and the sprinkler instead of being an extinguisher would become a device for prevention.

This form of protection while impracticable for factories is entirely practicable for many of the larger log piles. A perforated pipe of moderate size or a series of large sprinkler heads can be extended along the conveyor over the top of the pile and supplied by a pump of reasonable capacity, kept in condition throughout the summer months, the object being to maintain moisture on the surface of the wood at about the same amount that is maintained by nature through the remainder of the year, which seems to be entirely successful in preventing fires as shown by the following fire records. Open sprinklers in continuous operation throughout the summer months should afford protection equal or superior to that of the automatic sprinkler now in satisfactory service inside the mills.



Fire Record Curve.

Punk Wood Important Cause of Fire in Pulp Wood.

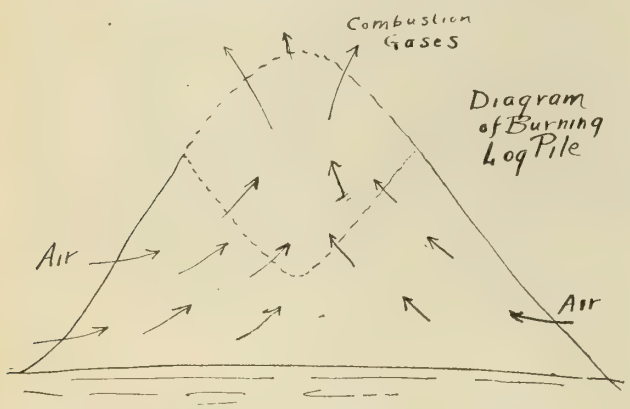
The reason that a small amount of water can give successful results in fire prevention in log piles is doubtless the part played in ignition by partly rotted or what is commonly called, "punk" wood. This material, which is highly combustible when thoroughly dry, takes up water readily from rain or dew, but when the weather is very dry it loses its moisture and can not only be easily ignited by the smallest spark, but the combuston once started persists with the utmost tenacity, a fact familiar in fence posts when they have

become ignited by grass fires. Most of this rotted wood is doubtless present in the logs when they are put in the pile, as rotten hearted logs brought from the forest. Some of this punk wood is grated into small fragments by the conveyor and distributed through the pile.

Fungus plants causing rot can grow in partly dry wood in the pile causing it to rot in time. Wood kept thoroughly wet will resist this fungus growth, and wood kept dry is immune to rot. That which is kept in an intermediate condition rots rapidly, therefore continuous sprinkling will serve a further useful purpose in retarding fungus growth in a pile which is most active in summer, as the low temperature of winter prevents it.

The Process of Combustion and Updraft in Conical Log Piles.

In several of the fire reports mention is made of the fact that the fire started at the top of the pile and apparently burned directly down to the bottom through the middle of the pile, rather than over the outside as would be expected. In the report of the fire of May 19, 1908, a drawing is given showing a conical opening in the middle of the pile which it is stated, later fell in. A similar phenomena was observed at the fire of June 4, 1918. The following drawing shows this condition diagramatically.



The unbarked logs give abundant air spaces for the draft and serve as a grate, with the result that the fire burns from the centre of the pile towards the surface rather than from the surface towards the center. Apparently bark on the logs has a somewhat retarding influence on fires in the early stages as it tends to shut off the draft by filling these spaces. After the fire is well under way this is probably of less importance as the updraft caused by the heat will be sufficient to cause a strong suction at the base of the fire. At the fire of June 4, 1918 the logs had the bark on; the exceptionally strong wind was doubtless the important factor in the failure of the hose streams in the early stages of the fire. It will be noted from the velocity table that this was the slowest large fire recorded doubtless due chiefly to the shutting off of the draft by the bark.

A further cause of the failure of hose stream protection under these conditions is, that it is difficult or impossible to get water to the seat of the fire owing to the fact that there is an enormous updraft in this crater, and on the outside of the piles the logs prevent the water from being thrown onto the fire from the back. This updraft has been stated in several conflagrations to be sufficient to carry burning 2" planks to considerable heights in the air. With such a powerful updraft it would not be expected that a small or large hose stream unless applied downward with force, would be able to get anywhere near the seat of combustion, but instead, such part of it as is not evaporated would be carried by the updraft directly away from the fire. In most of the cases where heavy hose streams have proved effective in extinguishing the log pile fires they have only been brought into service towards the latter part of the combustion when the walls of the crater had burned down to a considerable extent (see figure 12) and the combustion had been distributed over a wide area, considerably reducing the updraft. A very large solid stream of water forced directly down into this crater will be about the only means of successfully combatting such fires. How large the stream must be, or how to get it to such a height as to force it directly into the crater is a problem of considerable difficulty, especially with conical log piles 100 feet or more high. A good supply of water quickly available on the conveyor or other structure over the center of the pile seems to be the only way that this could be brought into service before the fire attained uncontrollable dimensions.

Bearing of Moisture on the Manufacture of Pulp.

The effect of the amount of water contained by the wood on the process of pulp manufacture has been discussed with several of the most progressive and best informed pulp makers. All agree that for groundwood pulp the most thorough wetting is an advantage; all agree that uniformity in the moisture for the chips for chemical pulp is highly desirable. It is stated that a sulphite liquor can be made of suitable strength for any practicable amount of moisture that the chips can carry, but the same liquor will not give equally satisfactory results in a mixture of wet and dry chips. In the large log piles in dry weather in the summer time the top of the pile exposed to the hot sun and wind is nearly bone dry, while the interior of the pile protected from these drying influences will doubtless contain nearly 50% of moisture. By the method of conveying the logs from pile to the mill the dry logs from the top of the pile are indiscriminately mixed with the wet ones from the interior, with the result that in dry weather the widest possible variations in moisture occur. If the top of the pile was continuously sprinkled in such dry weather the result would be that the moisture throughout would be kept much more nearly uniform. It would not be possible to get much more than 50% of water into the logs at the bottom of the pile, and those at the top might be kept up to 40% which would improve their uniformity without greatly affecting the absolute moisture in the chips. Moreover in the large news mills where the largest wood piles are maintained, at least half of these piles are used for groundwood. Some of the mills now test the chips daily for moisture in order to determine the most desirable strength of the liquor.

Wood from the large piles now averages from 45% to 55% moisture. Wood from moderately low flat piles with only a small amount of spaces between the piles contains from 30 to 40% and this figure can doubtless be reduced form 20 to 30% by making the piles lower and more widely separated. Dry wood obtained by this method of piling is preferred by makers of

soda and the better grades of sulphite pulp. Experience at the fire of June 13, 1900 indicates that the fire hazard of low flat wood piles well separated can be satisfactorily taken care of by a reasonable amount of hose streams and hydrants well distributed through the wood-yard. Moreover this thorough separation not only makes hose stream protection efficient but is necessary to obtain the lower moisture content that prevents the growth of fungus in the piles which is not only a saving of wood, but an improvement in the quality of the pulp produced.

At some of the mills where the best pulp is made, the rotten wood is now carefully separated from that used for pulp and sold for firewood or other purposes. If these mills will go a step further in this respect and separate out the rotted logs as they are received from the river or cars, they will not only remove a source of infection of the piles but this punk wood which is the chief hazard of the log piles will be eliminated and a more uniform pulp and better yield secured.

Piling of Pulpwood for Either Storage or Drying.

Pulpwood piles can be divided into two classes. The first is wood which is kept to insure a constant supply for the mill and to counteract irregularity in shipments, storage over winter, etc. The keeping of of this wood is a storage proposition and it is probable that if it can be kept from rotting it will frequently be found economical to store part of it for a considerable length of time, using the wood coming in from day to day at the wood room and only taking from the storage when the shipments are not sufficient for daily use. In this case it will be necessary to study carefully the moisture in the stored wood in order to know when it is too wet or too dry for the growth of wood destroying fungi.

At some of the mills, particularly soda mills and a few of the sulphite mills making a high grade bleached pulp, dry wood is stated to be highly desirable. In very few of the mills is there any determined attempt to secure this dry wood by piling or chip drying. It is possible that as the price of wood continues to advance, and the demand for better qualities of pulp increases dry wood will be sufficiently desirable to make it worth while to adopt piling methods which will secure it. In this case it will be necessary to pile the wood in small separate piles for a certain length of time, the piles being so exposed to the drying winds as to remove the moisture in the shortest possible time. Apparently it is possible in a few months, under favorable conditions to reduce the moisture to 20 percent in well exposed barked piles.

If wood is left in ranked piles for several years the season cracks opening on the top logs absorb moisture and cause abundant growth of fungi on the top of the pile, such piles generally being found rotted at the top and bottom and sound in the middle, except where some of the logs have projected and thereby taken up an abnormal amount of water.

Water a Cheap and Efficient Means of Preventing Rot.

Sound wood from prehistoric times has been found in the lakes of Switzerland. Water-logged logs from the bottoms of rivers and swamps are sawed into lumber after having been submerged for many years. Dry lumber in the roofs of churches and in furniture is sound after hundreds of years. Fungus causing rot, grows in partly dry wood. Fence posts rot first at the surface of the ground, remaining sound much longer under wet ground and in the dry air above the ground. Observations in the rotting of the weaving mill and paper mill roofs indicate that rotting takes place most rapidly in wood which is at equilibrium with water saturated air. Such wood contains about 30 per cent of moisture. (Mr. Hoxie showed a section of planks from a paper mill roof rotting through the middle. The top of the plank was too wet to rot and the bottom too dry to rot.)

Exact knowledge is not available as to the upper and lower moisture limits of the common wood destroying fungi. There are doubtless slight differences in the moisture and temperature requirements of the different varieties of fungus are indicated by the position at which they are found in log piles and on roofs. No fungus can actively grow at freezing temperature. This fact is doubtless useful in keeping logs in the large piles in cold climates where the heat insulating action of the wood keeps the interior of the pile not far from freezing most of the year.

The fact that wood which has been in the water for some time appears to acquire an increasing power of resistance to fungus might be made use of where it is necessary to float logs for some distance in reducing the loss from rooting, the wood which has been a long time in the water being selected out and kept for the storage pile, that which is received by car being put into the wood room at once.

When wood is to be kept for some time in ranked piles, it would doubtless be worth while to split the top logs in halves placing two layers of the heart or flat side up, giving the piles sufficient pitch so that the flat logs would serve as shingles shedding rain water from the top of the pile. There would be little tendency to form season cracks on the heart side of the split log thereby reducing the absorption of water and the resulting rotting wood.

Fungi That Affect Pulpwood.

Only a few varieties of fungus are concerned in the destruction of pulpwood. This is due partly to the fact that only a few varieties of wood are used for pulp. The moisture and temperature at which the wood is kept doubtless also is a factor.

Lenzites Sepiaria is the most destructive of spruce, hemlock or pine. It grows at the top of the pile where either season cracks or bark causes the wood to take up sufficient moisture to meet its requirements. Frequently, fruiting plants will be found growing at season cracks on the top of a log, while the bottom of the same log is too dry to support this growth. When located near the earth the entire log contains sufficient moisture to support this plant. See figure 18.

Fomes Roseus has a rose pink fruiting plant and is frequently found on spruce, hemlock and pine. It apparently requires a lower temperature and more moisture that the lenzites as it is generally found near the earth or in the interior of log piles. Figure 25 shows it on the ends of a ranked pile of spruce which had another pile close against it here .This plant did not

*Timber rot caused by Lenzites Sepiaria by Perley Spaulding, U. S. Department of Agriculture, Bureau of Plant Industry Bulletin 114, Page 28.

extend to the top of the pile but where there are three or more ranked piles close together it is almost always to be found on the ends of the centre pile if it remains undisturbed for two years or more. Figure 21 shows an abundant growth of this plant on a spruce log which has been in contact with the earth and surrounded with weeds for several years.

Fomes Hirsutus is the most common destroyer of poplar and some other varieties of soda pulpwood. It is apparently able to get along with a moderate water supply at the top of the piles. See figure 24.

Polyperous Pargamenus, a smaller bracket fungus, violet towards the edge of the under side of the fruiting plant, is frequently found on birch and less frequently on other kinds of pulp wood. It is much less common than those previously mentioned. See figure 22.

Many other varieties of fungus are sometimes found on pulpwood but they are not frequent enough to be important factors in the destruction. A careful study of the habits and requirements of the above mentioned varieties should be valuable suggestions as to the most practicable means of combatting them. Observations thus far indicate that controlling the moisture is the most practical method of attack.



Fig. 21. Fomes Roseus on Spruce Log at Bottom of Pile.

Caratostamella Pilifera is a very common sap stain fungus which gives a slate blue color to the sap wood of the pines and many of the pulpwoods. It is generally characteristic of sap wood but does not cause rapid weakening of the fibre like wood rotting fungi. The filaments in the wood cells are large and dark colored and may cause specks in the pulp. See figures 27 and 28.

Mr W. A. McCubbin* mentions a case in which sap stained wood gave discolored pulp. He states that the wood showed discoloration suggesting rot which is not commonly caused by the sap stain fungus but sap wood is rapidly attacked by all sorts of fungi to which the variety of wood is subject and generally several varieties of fungi may be found in the same sap wood.

I am inclined to believe that a cause of specks in pulp may be water-logged sap wood. The sap wood takes up water more rapidly than the heart wood therefore pulpwood which had been acted upon by water for a short time would have the sap wood saturated and the heart wood comparatively dry with the result that the sap wood chips would locally dilute the digesting liquor and remain uncooked when the heart wood was thoroughly cooked. In this case it would be expected that this uncooked sap wood would be to some extent taken out by the screens and these screenings would show the characteristic sap stain fungus as Mr. McCubbin states was noticed in the case which he investigated. On the other hand if pulpwood is subject to drying influences the sap wood would be expected to give up its water more quickly than the heart wood and would therefore be cooked more rapidly. Any method of handling pulpwood which will keep the heart and sap woods at the same moisture content should correct this trouble.

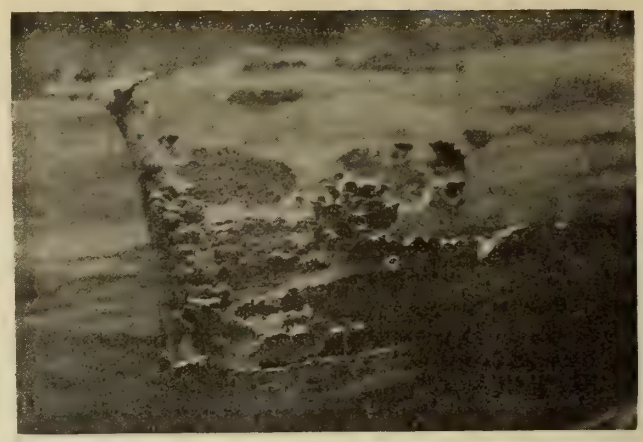


Fig. 22. Polyporus Pargamenus on Bottom Logs of Five Year Old Pile.

Special Winter Hazards of Log Piles in Cold Countries.

A notable exception to the general rule of log pile fires in summer was a fire in a log pile in a cold climate. This occurred in February and consumed 4000 cords of wood in three days which gave a velocity of combustion of 2500 pounds per minute. Fourteen hose streams throwing about 3500 gallons of water per minute were unable to extinguish the fire, probably due to the snow and ice which served as a roof and threw off the water.

At the point at which the pile was ignited it was retained by a high vertical pile which, due to its perpendicular surface was not covered with snow, therefore it exposed a large surface of wood to the drying action of the wind. The fire was probably started from live coals from a stove in a watchman's house at a surge tank above this pile. The snow and

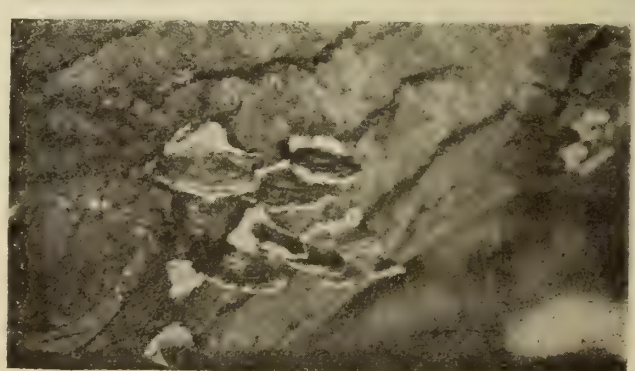


Fig. 24. Fomes Hirsutus on Poplar Logs.

* Pulp and Paper Magazine, May 15, 1919, page 461.

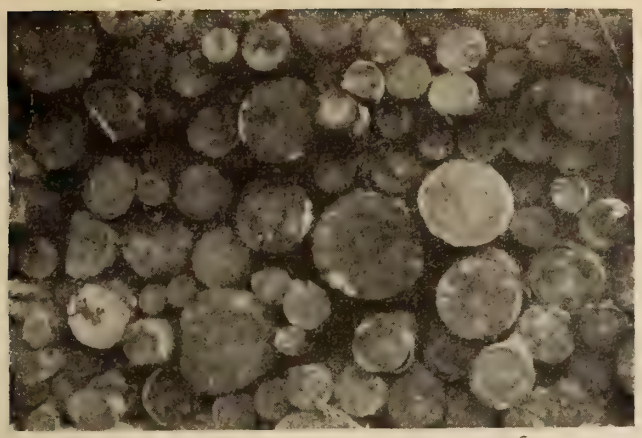


Fig. 26. Fomes Roseus on Center Pile with Three Ranked Piles Close Together.

ice prevented the penetration of the water from hose streams into the pile and doubtless due to the screening action which kept out the air, the most of the wood was transformed into charcoal. This experience suggests that it would be advisable to avoid high vertical retaining piles in cold countries.

Doubtless such vertical piles in cold countries are dryer in winter than in summer as there is practically no rain due to the low temperature. The snow which covers the top of the pile forms a roof over it and rather increases the dryness than otherwise.

If such piles could be given sufficient slant to hold snow and ice this will not only protect the wood from sparks but will shut off the draft by filling the spaces between the logs. The slow velocity of this fire was doubtless due to the scant air supply caused by the partial covering of snow.

Most of the larger sulphite mills at the present time are using wood containing 40 per cent or more of moisture and but few of the mills have wood which contains less than 30 per cent moisture. From 30 per cent to 40 per cent of moisture appears to be the most favorable range for the growth of fungus.

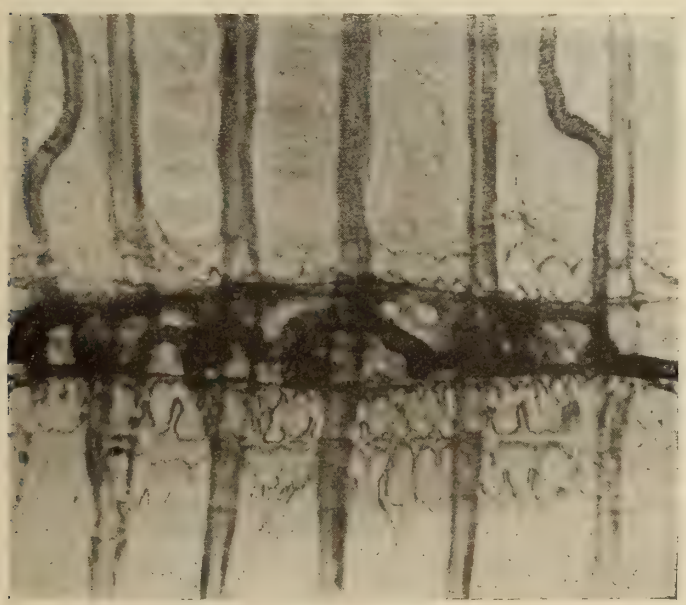


Fig. 27. Sap Stain Fungus in the Cells of Jack Pine, Highly Magnified.

Pulpwood Stackers and Conveyors can Serve as an Important Part of the Fire Protection.

The stacking and conveying apparatus in use at the pulp mills can doubtless be made useful at slight cost in connection with fire protection. In many cases where very large piles of logs are kept the elaborate conveying system in use will facilitate both the continued wetting of the piles in dry weather as well as quickly getting at a fire on the top of such a pile; whereas rough and tumble stacked piles are difficult and dangerous to climb with hose streams and such a process must necessarily be slow.

It is generally appreciated among the mills that in the next few years careful study must be put into the handling and storage of wood. The high price of wood as well as the high price of labor make it necessary to avoid loss by rotting, and the elimination of hand labor, possibly by use of more complete conveyor systems.

If the piles are sprinkled this process will only be required during dry weather or when high drying

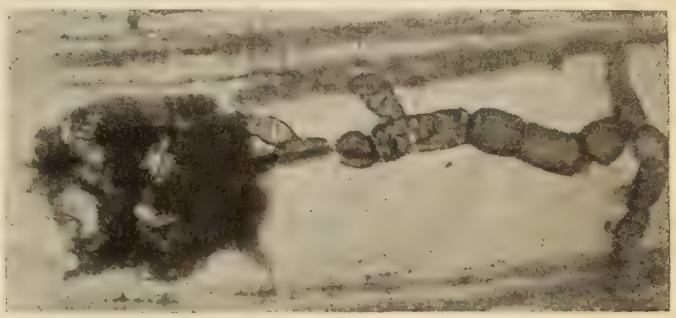


Fig. 28. Sap Stain Fungus in the Cells of Poplar, Highly Magnified.

winds prevail in the summertime. At such time an abundant supply of water should be used. In the majority of mills pumps and pipes are already being installed or are under consideration for fire protection, which will also serve for sprinkling.

In nearly every case centrifugal fire pumps from 1000 to 1500 gallons capacity are advisable. These, of course, will be found more economical than steam pumps and can be throttled down so as to deliver the required amount of water. It will probably be found more economical generally to use them in this manner than to install smaller pumps for the length of time the sprinkling will be required.

A number of experiments have been undertaken, particularly from the standpoint of wood preservation by means of water. While this is familiar enough to everybody it has not been used practically as a means of protecting pulpwood and groundwood pulp from rotting, therefore exact figures as to the limiting amounts are not available.

PAPER MAKING: ITS PRESENT AND FUTURE IN JAPAN.

By J. P. Suzuki, Foreign Editor, "Industrial Japan."

In spite of the fact that paper making and the cotton spinning industry came into existence almost simultaneously in Japan, they have not developed at the same rate; for while the cotton spinning industry, which occupies at present the foremost position in the industrial world in Japan, has progressed with gigantic strides to such an extent that during the recent European war its products were exported in large quantities to other countries, paper making is still far behind the other industry in its stage of development or prosperity during the last few years.

Paper Development Slow

The difference in development between the two industries—one rapid and the other slow—may be attributed chiefly to the fact that the cotton spinning industry, which is much simpler and easier than paper making from a mechanical or technical point of view, is such as can easily be conducted in any district or locality as it is comparatively easy to get the necessary material and there is no special difficulty in disposing of its products. In addition, the cotton spinning industry is quite suitable for Japanese working women. But just the reverse is the case with paper making; it has a great deal of difficulty in getting hold of forests in order to obtain wood which constitutes the most important material. Even if proper forests can be secured, there still exists a greater difficulty in getting the motive power required for dealing with such forests. Moreover as mechanical equipment and scientific knowledge constitute the foundation of paper making, it is well-nigh impossible to develop the industry unless a proper place of operations and the services of men who possess both mechanical and scientific knowledge, coupled with practical experience, can be secured. It is true that there are many Japanese who have knowledge and experience in matters of forestry, many who have knowledge and experience in handling machinery, many who have both knowledge and experience in the electric business, but unfortunately there are few who have a happy combination of scientific knowledge and practical experience in all these different subjects as a whole. This, it may safely be stated is the principle cause which is responsible for the slow progress of paper making in Japan.

Development More Rapid Since 1905

Up to the time of the Russo-Japanese war in 1904-05, paper making in Japan had been in a most deplorable condition, so that no thorough-going or extensive research work regarding the industry could be made by paper manufacturers. But during and after the war those engaged in the industry secured big profits which led them to extend their business. In point of scale on which the industry was conducted, Japanese paper manufacturers were not much inferior to those of Europe and America. For instance, they could produce printing paper enough to supply the whole domestic demand. Soon after the war pulp manufacture was started in Saghalien, with the satisfactory result that foreign papers of superior qualities were produced in large quantities.

Paper Prices Advance

Now, owing to the stoppage of importation caused by the war, Japan could not obtain foreign papers. On the other hand, there was a constant influx of orders from China, India, and the South Seas. Taking this opportunity, Japanese paper manufacturers made greater efforts than ever before to increase their output, so as to meet the requirements of the times. However, the demand far exceeded the supply, in consequence of which the prices of all kinds of papers went up higher and higher. Under the circumstances not only the manufacturers themselves, but also the working people concerned, were greatly benefited materially by the prosperity of the industry. The European War lasted for a period of five years, but during that period the industry has made progress the like of which would take about ten years to attain in time of peace. It is no exaggeration to say that, although paper making in Japan may be still inferior to some countries in Europe and America where the industry is best developed, yet it can stand comparison with the other countries.

Wars Stimulate Paper Making

The principal cause which was responsible for the slow progress of the industry in its first stage has already been explained. There is no denying the fact that both the Russo-Japanese War and the recent European War became undoubtedly powerful factors in the rapid development of the industry. Through their instrumentality the Japanese paper mills have been able to consolidate their foundation and gain much experience, and it may safely be predicted that the industry will progress in the future at a rate as rapid as, if not more rapid than, that of the cotton spinning and other industries.

Twenty-seven Mills in Japan

At the end of 1918 there were just twenty-seven paper mills throughout he counry, capitalized at yen 66,000,000. The net amount of profits secured by them during that year was estimated at yen 13,000,000, which was nearly 40 per cent on the total amount of capital invested in the industry. It is quite evident that the rate of profits which the paper manufacturers may secure in the future may not be so great as it has been in the past, but at the same time there is no indication which leads one to believe that the industry will undergo any sudden decline.

Output of Mills Increased

It is interesting to note that the output of those paper mills which belong to the Paper Manufacturers' Association were altogether 25,000,000 pounds in 1913, whereas it had already increased to 45,000,000 pounds this year. As in the case of Europe and America the demand for papers in Japan increases yearly at a rate of 10 per cent. Therefore, if Japan were to supply her whole domestic demand, without imports, it would be necessary for her to have each year a factory capable of turning out monthly 4,500,000 pounds on an average. As a matter of fact, this is not so easy as it may appear to be. Such being the case, it is almost inconceivable that Japan will be able to attain a state of self-supply, so far as paper-making is concerned, for a considerable time to come.—Paper Trade Journal.

PULP AND PAPER NEWS

R. M. Grant and M. Crockett, of Toronto, have established a waste paper collecting and baling business under the firm name of the Davenport Paper Company and have opened a warehouse and offices at 86 Don Esplanade Toronto. The company will handle waste paper exclusively and will collect the product by motor and grade and bale it at their warehouse. They will use the Schick balers and will instal a power press. It is proposed not only to collect from the business houses, but a plan will be worked out whereby the householders in the outlying districts of the city will find it to their interest to save their old newspapers and turn them into money.

Charles Clarke who has been the advertising manager of the Christian Guardian in Toronto for the past twelve months, has resigned his position to become the representative in the west of the Columbia Gramaphone Company. Mr. Clarke, who saw much service at the front, was at one time business manager of "Church Life, Limited," in Toronto.

Ontario newspaper circles were shocked on Jan. 18th to hear of the tragic death of L. G. Morgan, who had been editor and proprietor of the Port Dover Maple Leaf for the past 38 years, although having retired from business a few months ago. Mr. Morgan's badly burned body was found in a room of his residence at Port Dover following a fire in one of the rooms. An oil stove is supposed to have started the fire which was hard to locate owing to the smoke. Before entering the newspaper field the late Mr. Morgan taught school near Port Dover. He was generally conceded to have been one of the best masters of English in Canada. Deceased was in his 73rd year.

So scarce has small change, particularly coppers, become in the north that Abitibi Limited has posted a request to all its large force of workers to re-deposit all silver and coppers in the bank as soon as practicable after they are received. The notice reads: "There is a growing scarcity of coins, and owing to the difficulty in securing enough for the big payroll of the Abititi mills it may be necessary to stop giving out coppers at all. '

To carry on the business of printers, publishers etc., in Quebec a company known as L'Imprimerie Industrielle, Limitee, has been granted a charter by the Dominion Government. The incorporators are Ernest Roy, Romeo Langlais, Antonio Langlais, Thomas Tremblay and Francois-Xavier Godbout, all of the city of Quebec.

Letters patent have been granted for the incorporation of Lonsdale & Bartholomew (Canada), Limited, for the purpose of carrying on business as manufacturers and importers of fine art publications and novelties, printers, engravers etc. Among the incorporators are John Gordon Birnie and Charles Wellington Baker of Montreal.

The Canadian Paper Barrel Company, Limited, with headquarters at Montreal, has been granted incorporation. The charter, among other things, empowers the company to operate pulp mills and to carry on business of paper manufacturers and the incorporators include Colville Sinclair, R. E. Allan and S. G. Dixon advocates, and William Taylor, manager.

M. J. Hutchinson, formerly a widely-known Ontario newspaperman of Toronto and Peterborough, and who has for the past four years been business manager of the Edmonton Bulletin, has resigned his position and will be at the head of an organization that is being formed for the purpose of establishing a chain of confectionery stores in Edmonton and district.

Several conferences have been held lately between representatives of the paper manufacturers and the Weekly Section of the Canadian Press Association in Toronto, with a view to standardizing the size of the country weekly newspapers. The mills say that they are being put to considerable loss through cutting so many different size sheets for the many weekly papers and want the orders limited to a few standard sizes, while for special sizes extra charges will be made for cutting. It is expected that a satisfactory arrangement will be arrived at shortly in regard to the matter.

William A. Monaghan, manager of the T. C. Allan Company, manufacturing stationers, Halifax, who was injured in a street car accident recently, passed away two days later at the Victoria General Hospital, Halifax.

The warehouse of the Richmond Paper Company, owned by Orr Brothers, Halifax, was completely destroyed by fire recently. The blaze evidently started from defective wiring. The loss is estimated at $175.-000 and is partly covered by insurance. The Richmond Paper Co. carried a heavy and representative stock and the members of the firm are well-known in the east through their business relations with several Ontario and Quebec paper mills.

Many of the older members of the paper trade will learn with regret of the death of J. H. Tippet, who passed away lately in Boston, Mass. Mr. Tippet was, in the eighties, a well-known traveller in the Provinces of Ontario and Quebec which territory he covered for many years in the interests of the E. B. Eddy Company, Limited of Hull. Mr. Tippet is survived by his wife and four brothers.

The Don Valley Paper Company, Limited, Toronto, are installing a new 30-ton capacity Jordan engine built by Noble & Wood. The machine will be direct motor driven and will be in operation in about two weeks time. The company will also instal additional beaters.

The National Paper Co., at Valleyfield, Que., is running at night only for a while. This action is due to the damage by ice to one of the water wheels of the cotton mill from which electric power is derived. The plan is working out very well. The new super-calender is erected and will soon be connected to the motor drive.

A fire in Montreal last Saturday caused some damage to the premises of the Financial Times by water and smoke.

B. C. MILLS NOT LIKELY TO MERGE

The Vancouver Daily Sun printed the following item in its issue of January 15th:—

Contemplated Merger of all Pulp and Paper Mills of B. C.

(Special to The Sun.)

"CHICAGO, Jan. 14—Brokers and financial companies here who already have monetary interests in pulp and paper manufacture in British Columbia, have been working for several weeks on a scheme to merge all the pulp and paper mills of British Columbia into one large concern, operating with one overhead.

Depletion of pulp resources in U. S. Atlantic States is given as the reason for large financial houses seeking the control of the pulp business of the Pacific Coast.

Interested banks with investments in newspapers and all lines of finished paper products fear that the government of the Dominion of Canada will put a ban on the export of pulp, which would cripple their invested capital unless they had some means of manufacturing paper in Canada and caring for their United States plants.'

After interviewing the different managements of the British Columbia Pulp and Paper Manufacturing Companies your Vancouver correspondent comes to the conclusion that there must have been some high financing on paper or else some reporter was handed a proposition by some dreamer in the financial world of Chicago. It is noticeable that no figures were mentioned with the proposal merger. Anyone knowing the size of the plants of some of these British Columbia mills and also otheir financial connections can readily imagine about what such a combination would mean in actual dollars and cents. One estimate was made that if such a thing were at all possible it would mean an aggregate of some $75,000,000.00 or upwards. Even though such a merger were possible some considerable time would elapse before such a thing could be consummated.

Another thing is that such a merger at the present time would not in any way interfere with developments of new companies which are being formed and perhaps have already been formed to carry on pulp manufacturing operations in British Columbia.

In many respects the British Columbia pulp industry is looked at the same as many of the other industries in British Columbia, that is that very few people, comparatively, realize the pulp possibilities of this great Province. These possibilities not only are along the coast line of Britsh Columbia but in the interior there are enormous acres of pulpwood which, in time, will be logged off for the manufacture of pulp. Those who do realize the possibilities are very actively engaged at the present time and they are either organizing or carrying on investigations preparatory to organizing for the manufacture of pulp.

Like other large manufacturing interests the pulpwood industry is subject to the merging of interests into one company for the sake of economic operations but it seems to the writer that the industry is altogether too young for any such merger to take place at the present time or in the very near future.

Sir George Bury has just returned from a business trip to the East and is again at the helm of the Whalen Pulp and Paper Mills, Ltd.,

Mr. K. Muraki, manager for Import and Export Department of the Nishimura Shoji Company, Ltd., Tokyo, Japan, was in Vancouver recently and is travelling through Canada and the States investigating the pulp and paper and textile industries. The fact that a representative of a large Japanese firm is making this tour of investigation is ample evidence of the interest Japan is taking in Canadian manufactures.

GENEROUS BACKING OF FORESTRY ASSOCIATION

When Mr. Frank J. D. Barnjum learned that the work of the Canadian Forestry Association was likely to be seriously interefered with, if not entirely stopped, he took immediate action, as shown in the telegram printed below. In a recent communication to the Pulp and Paper Magazine (Jan. 1, 1920) Mr. Barnjum pointed out the serious condition of Canada's forests and offered to contribute $10 000 toward a fund to enlighten the public in regard to this important matter. That his heart, as well as his hand, is in the work is shown by his message to the Canadian Forestry Association:

"Boston, January 11, 1920.

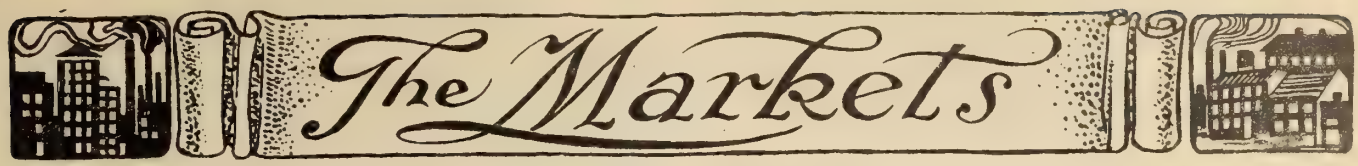
"To R. Bobson Black, Secretary,
Canadian Forestry Association,
Ottawa, Ont.

"Your wire of the eighth only just received. In reply to same, I am pleased to comply with your request for a subscription of one thousand dollars to the Canadian Forestry Association and will subscribe ten thousand dollars additional to the Association provided all the other pulp and paper companies will give a like amount. The time for serious action has arrived towards the protection and perpetuation of our most important and most rapidly diminishing natural resource, our forests. Am leaving for Montreal tonight. —Frank J. D. Barnjum."

ROYAL SECURITIES SOLD FIVE PAPER ISSUES IN 1919

A few Items of Activity From the Record of the Royal Securities Corporation for 1919 will Interest the Pulp and Paper Industry.

In February, together with American associates, it underwrote and publicly offered $4,000,000 6% General Mortgage Bonds of the Riordon Pulp and Paper Company, Limited, the issue being largely oversubscribed. In April, its offering of $2,000,000 Fraser Companies Limited 6% Mortgage Bonds was oversubscribed. In May, it offered and sold $2,000,000 Mattagami Pulp and Paper Co., Limited, 7% Convertible Mortgage Debentures. Subscription lists for its fifth large offering in six months, $1.500.000 Whalen Pulp and Paper Mills, Limited, 6% First Mortgage and Refunding Mortgage Serial Bonds, were closed some time ago. An issue of $1.750.000 6% First Mortgage Bonds of the Donnacona Paper Company was offered and sold in September, very largely in the United States. During the period of the recent Victory Loan campaign, and for some weeks preceding, no offering was made, the entire organization devoting itself to the Loan.



CANADIAN TRADE CONDITIONS.

Toronto, January 24.—There is little change in the paper situation to record this week and the paper dealers who keep their finger on the pulse of the industry are predicting that the output will not catch up with the demand for at least two or three months. The shortage, while it applies to most lines, is more acutely felt in newsprint circles and a good many of the smaller papers which have to buy in the open market are living from hand to mouth, although it is conceded that the mills are doing their best to keep them supplied in common with the larger publication houses which are protected to some extent by contracts with the mills. Fair deliveries of sulphite pulp are being made but groundwood pulp is hard to get and in many cases the paper makers, in their anxiety to get supplies for their product, have to go over the heads of the sales end of the business and try their luck with the mills direct. But with the orders piling up at the mills, both for pulp and paper, it requires quite a lot of persuasion and negotiating on the part of the paper dealers to lend a car of paper or pulp and it is no sooner received than it has been handed out to anxiously waiting customers. This shortage of pulp has caused a general advance in most groundwood products. manilas and most specialty lines having increased materially in price within the past ten days. The general shortage of paper is reflected in the difficulties under which many of the job printing houses are operating. The first thing that a printer does when he figures on a job is to phone the salesmen or the mills to see if he can get paper and in many instances the reply has been that he couldn't have the paper even if he was awarded the printing contract. In these circumstances many tenders have been allowed to go by the board and the job printer had to be content to carry on with the smaller jobs in hand. In other words, if the printer can't get the paper he can't figure and it is the general testimony among the salesmen in Toronto that they have had to turn down many of the jobs after a long distance call to the mills.

There are some lines, however, in which there is no material shortage and in this category come book and writing papers. In these lines the output is below the demand but not in the same proportion as prevails in many lines, such as newsprint, kraft, Manilas etc. An estimate made by the head of one of the big paper mills in the St. Catharines district places the shortage at not more than five tons of book and writing paper a day and if this discrepancy were made up, he declares, it is a question whether or not this extra tonnage would be absorbed. The maker of this estimate was inclined to think that in the lines mentioned, especially, the shortage cry was exaggerated and this in turn caused some hesitancy on the part of some paper converters and printers from going ahead and expanding, fearing that the supply of materials would hamper them in their development. It is claimed that there is no serious shortage in book and writing papers and that there will be ample supplies to meet both the present needs and any program of expansion by the paper dealers that might be contemplated.

Recent advances in wrapping paper, kraft and tag manilla have had no appreciable effect on the volume of business and mills and jobbers are as busy as ever, despite the increases. Jobbing houses all report business this January as producing more trade than in any opening month of the year in the past five years. Deliveries are still late and all mills are accepting orders in all lines at prices prevailing at the time of shipment. Despite the fact that the plants are running to capacity, production is falling farther behind. The paper board mills cannot guarantee delivery for three months. Toilet and tissue plants are about three to four months in arrears.

Several new dryers have been installed by the Canada Box Board Co. in their plant at Frankford, Ont., and Montreal, which will increase production by several tons per day. All paper box factories are particularly busy owing to the demand from the manufacturers of confectionery who are doing a record business in sweets and this naturally calls for big supplies of boxes, plain and fancy. The manufactur-

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, NEW YORK

We buy all kinds of Canadian WOOD PULP AT TOP PRICES. Write us and be Convinced.

ers report a great shortage of girl help and at least three of the companies in Toronto have plans in contemplation for the extension of their plants to meet the urgent call for more paper box containers.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$45.00
Sulphite, news grade	$75.00
Sulphite, easy bleaching	$90.00
Sulphite bleached	$110.00 to $120.00
Sulphate	$85.00 to $90.00

Paper.

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) at mill, in carload lots	$5.25
*News (sheets) in less than carload lots	$5.50
xBook papers (carload), No. 1	$9.75
xBook papers (ton lots) No. 1	$10.00
xBook papers (carload), No. 2	$9.50
xBook papers (ton lots), No. 2	$9.75
xBook papers (carload), No. 3	$8.25
xBook papers (ton lots) No. 3	$8.75
Ledgers	18c. up
Sulphite bonds	13½c.
Light tinted bonds	14½c.
Dark tinted bonds	16c.
White Wrappings	$5.25
Writings No. 2 (M.F.)	12½c. up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$12.50
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$12.50 to $14.00
Grey Browns	$5.75
Writing No. 1 (S. C.)	13c. up
Fibre	$7.85
Manila, No. 1	$7.35
Manila B	$6.10
TagManila	$7.50
Unglazed kraft	$9.50
Glazed kraft	$9.50
Tissues, bleached	$1.35
Tissue (unbleached sulphite)	$1.20
Tissues, cap	$1.00
Tissues, manila	90c.
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.
Paper bage, manila (discount)	35 per cent
Paper bags, kraft	27½ and 10 per cent
Confectionery bags (manila)	35 and 15 per cent
Straw board	$80.00
Chip board	$80.00
Vat lined chip board	$87.50
Filled wood board	$90.00
News board	$87.50
Double manila lined board	$150.00
Manila lined folding board, chip back	$95.00
Pulp folding board	$103.00
Jute board, No. 3	$80.00
White patent coated board	$130.00
Grey folding board	$115.00
Pasted board	$95.00

*For Canada only.

xThese prices are for machine finish, super-calender one-half cent higher.

NEW YORK MARKETS

New York, January 24.—Demand for practically all kinds of paper continues well in excess of available supplies, and, as would be expected with such conditions obtaining, prices are gradually but steadily seeking higher levels. A new factor is commencing to play a most important role in governing paper prices, namely, that of advancing costs of raw material. On all sides talk is heard concerning this subject and proof is not wanting that prices on most kinds of raw stock have been obliged to increase quotations on their own product. Only this week the largest manufacturing organization of fine papers in the States announced a blanket advance of 20 per cent on all its papers, and in making the fact known to the trade, entire blame for the advance was placed on the rising cost of raw materials.

Rag values have soared recently with such rapidity that prices at present are very close to record-breaking heights. Wood pulp prices have climbed to new high levels, while the cost of old waste paper stock, of chemicals, in fact of virtually every commodity consumed by the paper mill, has increased in relative proportion. In spite of their reluctance to do so, paper makers in numerous cases are finding it necessary to mark up quotations on their product in order to meet the rising cost of manufacture. Not only this, but labor costs are also mounting. Paper mills in the New England district this week granted an additional advance in wages to their employes, and it goes without saying, that manufacturers in other parts of the country will doubtless have to follow suit.

In view of conditions, therefore, it is not surprising that paper prices are touching new high spots. Demand keeps up in remarkable volume and manufacturers and dealers in common declare that they are simply at a loss to cope with all the wants of their customers. Buyers who are proving unsuccessful in their efforts to fill requirements through ordinary channels are searching in various other directions for the supplies wanted, with the result that there is an unending inquiry for all grades of paper.

The newsprint market is just as strong as ever and as much of the demand as hitherto is going unfilled. Publishers of large city dailies are equally as anxious for paper as are publishers of country papers and are not letting matters of price deter them whenever they discover available supplies. This class of consumers of newsprint are paying the stiff prices quoted on spot shipments of paper as readily as small publishers, and when one analyzes the situation this is not surprising Large consumers of newsprint of course have the major portion of their needs covered by contract supplies, which paper is costing them no more than 4 or 4.25 cents per pound. It is no wonder therefore that they stand ready to pay twice this much for the small tonnages of peper required to tide them over the present shortage, thereby enabling them to carry the bulk of the advertising business offered them. One of the leading distributors of newsprint in New York made the assertion the other day that he could without any semblance of difficulty dispose of a thousand tons of newsprint within a day's time at prices not under 10 cents a pound. This is illustrative of the very strong market that exists at present and of the high prices to be obtained for newsprint.

Fine papers are moving actively and most manufacturers have jocked up quotations, advances averaging between fifteen and twenty per cent above pre-

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

viously ruling levels. Book papers are quotably firm and in pointed demand, while coarse papers of all kinds are eagerly sought and are selling at strong prices. Boards are firm in price and the market is in a sold-up state, mills almost as a unit having their production for several months contracted for.

GROUND WOOD—Severely cold weather in grinding sections resulting in the freezing of mill streams and the curtailing of production has promoted a stronger undertone to the mechanical wood pulp market, and most sellers have advanced prices. Fifty five dollars per ton at shipping points for freshly ground pulp for prompt delivery is about the lowest price named, while most quotations on spot shipments range up to $60, with business actually done in numerous cases at the latter basis. Grinders in frequent instances are reported to be in a quandary in supplying customers with all the pulp wanted. With many grinding machines down because of the lack of water, surplus stocks have been practically entirely removed and some manufacturers are said to have resorted to pro rating such amounts of pulp as they have available among contract customers. Demand is keen and far from being satisfied.

CHEMICAL PULP.—Higher prices are the rule for most kinds of chemical wood pulp, and the market in its entirety is characterized by an extremely strong tone. Consumers are anxiously inquiring for supplies and are quickly absorbing virtually all the pulp found available irrespective of prices, so long as those asked are within reasonable bounds. Domestic bleached sulphite of No. 1 quality has sold at 6. 25 cents a pound at pulp mills and there are but small lots to be had at this price, producers for the most part having nothing to offer. Newsprint sulphite is readily fetching 3.75 cents a pound at pulp mills, while domestic soda pulp is quoted at 5.25 cents for spot shipments and at 5 cents on contract. Even kraft pulp, which was for a time the one weak spot in the market, shows increasing strength and is moving in larger volume at around 3.75 cents for No. 1 domestic and 4 cents for foreign kraft. Foreign advices are of a bullish character and tend to dissipate any hopes entertained for increase supplies from such sources for some months to come. Swedish mills are reported sold out for first open water over the Baltic and to be paying little attention to the American market owing to the higher prices obtainable elsewhere for their pulp. Quotations from the other side on pulp for future shipment indicate that there is not likely to be any recession in prices for at least the next six months.

RAGS.—The market for papermaking rags continues in a lively and strong condition. Demand appears to be steadily expanding and prices are moving upwards with such rapidity that it looks as if it will be some time before the advance is checked. Paper manufacturers display signs of being in pointed need of supplies and are consequently meeting the figures quoted without any show of reluctance. New and old rags alike are sharing in the activity and new high prices have been established in the trading this week. Roofing rags have sold to mills at a basis of 3.50 cents per pound f. o. b. New York for No. 1 packing, while old white rags have fetched 11 cents for No. 1 repacked whites and 10.50 cents for No. 1 miscellaneous packing. Repacked thirds and blues have sold at 5 cents New York, and new white shirt cuttings of No. 1 quality at 18 cents and more. New rags of nearly every description are eagerly sought and are commanding premiums. In fact, not since the memorable boom in 1917 has the rag market been in such a condition as now prevails, and most grades are at present selling at prices in excess of those realized during the last great upturn in values.

PAPER STOCK.—The waste paper market exhibits equally as much strength as those for other kinds of papermaking material. Demand is of a voluminous character and consumers are granting high prices for supplies. The heavy snowfall in many parts of the country has seriously hampered collections and available stocks are at low ebbs, which encourages dealers and packers to demand stiff prices for the material they have to sell. Shavings are quotably strong at around 5.85 cents per pound f. o. b. New York for No. 1 hard whites and between 4.75 and 5 cents for soft whites of No 1 quality. Heavy book stock is readily fetching 2,80 to 2.90 cents New York and is hard to get in sizable tonnages. Newspaper is quoted at high levels, flat folded being held at 1.65 to 1.75 cents at shipping points, overissue newspapers at 1.90 to 2 cents and white news cuttings at 3 cents. Mixed paper is moving freely at a price basis of 1.05 to 1.15 cents New York.

OLD ROPE AND BAGGING.—There is a steady demand for old rope suitable for papermaking purposes and sales to mills are reported at between 6.75 and 7 cents a pound f. o. b. New York. Dealers complain over the small amounts they are receiving from collection sources and are cautious in booking orders for supplies other than what they have immediately available. Scrap bagging is quotably firm and is moving in fair quantities at a quotational basis of around 3.25 cents New York for No. 1 packing.

NEW PROPOSITION FOR PULP AND PAPER IN KOOTENEY DISTRICT OF BRITISH COLUMBIA

It has been reported that certain interests are planning to interest capital in England for the purpose of operating a pulp and paper company in the Kootenay district of British Columbia, in the vicinity of the Kootenay and Arrow lakes and upper Columbia River. There is a possibility of there being plenty of pulpwood in that section, but is it a good location for the operation of a pulp manufacturing plant?

New operations with the backing of British capital are always to be encouraged , but British capital should make a very thorough investigation when a new proposition such as this is placed before them.

The principal questions are: Is there sufficient pulpwood, properly located for transportation to the mill and is there sufficient water power to operate a mill on the proper basis to insure profitable returns on the capital invested?

Just at this time it is to be hoped no moves will be made that will result in a loss to the British investors and thus cause a loss of confidence in the opening up of new undertakings. A large part of previous losses in British Columbia undertakings in which British capital was invested could have been averted if the investors had made proper investigations before expending large sums of money.

The slip of a belt is like the drip of a tap; it is a leakage that indicates a want of efficiency somewhere.—The Amphibian.



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Finnish Cellulose Union, Helsingfors, Finland

and

Finnish Wood Pulp Union, Helsingfors, Finland

According to advice from **DEPARTMENT OF COMMERCE, WASHINGTON, D.C.** dated January 17th, United States imported from Europe during the month of November, 1919, **27801** tons of **Chemical Wood Pulp.** Of this **FINLAND** supplied **8275** tons or **29.76%** about one third of the entire tonnage. This speaks well for the quality of Finnish pulps. There is a ***REASON*** why the American paper makers like Finnish goods. You should find out!

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UNITED STATES NOTES

In a statement reviewing the paper business of the Connecticut Valley during the year just ended, President George A. Galliver of the American Writing Paper Company says that conditions in that section were never better than right now, and that this may be taken as an indication that the paper business generally has emerged from the slump it was in just prior to the close of the war and for some time subsequent to the signing of the armistice. The usual August slump in ledger, fines, superfines and papeteries, says Mr. Galliver, was conspicuous by its absence last year. Coincident with this condition, he states, was an almost universal drive on the part of the mills of the Connecticut Valley, where are located the country's leading producers of such papers, for increased business at better prices. As a result of this a demand was created that in December crowned the capacity of all the mills. "In the case of the American Writing Paper Company,' says President Galliver s statement, "orders booked for the month of December, amounting to nearly three and a quarter million dollars, exceeded any previous record in the company. ' The Connecticut Valley manufacturers, he says, are working with an eye towards standardization and stabilization, hoping to reduce to a more even keel the fluctuations in demand, holding the business to normal seasonable variations only, so that the deplorable characteristics of feast and famine conditions become a thing of the past, assuring at the same time the prosperity of the valley's paper business. All are optimistic for 1920 says Mr. Galliver.

Hearings on legislation to protect the American dye industry were closed last week by the Senate Finance Sub-Committee and work was begun on amendment of the House bill. A high tariff on foreign dyes was urged at the final hearings by representatives of the American Dye Institute.

Net earnings before depreciation and income of the United Paper Board Company for the six months ending November 26, 1919, were $165,807, equivalent after preferred dividends to 98 cents a share earned on the $12,000,000 common stock. Mill earnings amounted to $266,752, from which expenses of $95,242 were deducted, leaving a balance of $171,510. After interest, etc., net profits were $118,492.

The employees of the Southworth Paper Company, Springfield, Mass., struck last Thursday to enforce wage demands. The mill employs about 100, virtually all of whom are said to have walked out.

The labor troubles in connection with the New York printers' unions seem to have been finally adjusted and the printing plants affected are gradually getting back to a normal basis. Many of the plants are operating with three shifts to make up for lost time. The electrotypers and photo-engravers in New York are naturally extremely busy in assisting the printers to get into their accustomed stride.

Andrew Ragone, president of the Main Paper Stock Company, 25-31 Peck Slip, New York City, one of the most widely known and progressive firms of its nature in New York, announces that prospects for 1920 could scarcely be improved upon and that the company anticipates the best year of its existence. Formed in 1911 for the sole purpose of collecting by purchase and then reselling waste paper and rags, the Main Paper Stock Company has prospered and grown until it added a new department, one of envelope manufacture, which is prepared to supply any individual or firm with envelopes of any kind and quality in any amount. This company, which grew out of and it built upon the salvaging of waste materials, has established a large import and export business. England and France contribute no small amount to the rags collected by the company.

Wage statistics just published by the New York State Industrial Commission, showing that while the average weekly earnings of workers have increased from twenty to thirty-three per cent in some industries over the previous year, the average earnings during the month from September to October in paper manufacturing rose but one per cent and in water, light and power plants, the increase amounted to three per cent. The gains in these two lines, it is said, appear to have been due to more working time in October. The greatest increase is shown in the clothing and textile industries where the gains ran as high as thirty-three per cent over the corresponding period of the previous year. The biggest decrease during the month in the earnings of factory workers was recorded for those engaged in the paper goods and printing industries, and the wage decline in those occupations is attributed to reduced operations resulting from the strike of printers in New York City.

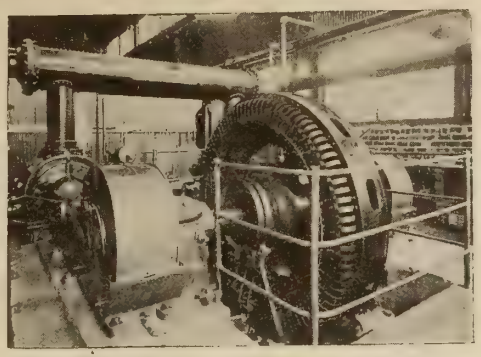
E. O. Merchant, formerly associated with the Federal Trade Commission as paper expert and chief statistician, has been engaged by the G. H. Mead Company of Dayton, Ohio. Henry S. Mead, one of the concern's heads, sent out an announcement to customers of the firm telling the employment of Mr. Merchant and the formation of a statistical department under his direction. This departure, it is stated by Mr. Mead, is expected to work out to the mutual benefit of the firm and its customers, not only in the present conduct of its business but also in the forecasting of future conditions.

TO MERGE NEW YORK SUN AND HERALD

New York, January 26.—Frank A. Munsey, owner of the New York Sun and the Evening Sun, who recently bought the New York Herald and Evening Telegram from the estate of the late James Gordon Bennett, announces that the Sun and Herald would be amalgamated February1 under the name of the Sun and New York Herald.

The plant of the Sun is to be used for the publication of the Sun and New York Herald. Mr. Munsey explained, because the ground lease upon which the Herald Building now rests expires in a few months and will have to be abandoned.

One hour a day would in ten years make an ignorant man a well informed man.—Marden.



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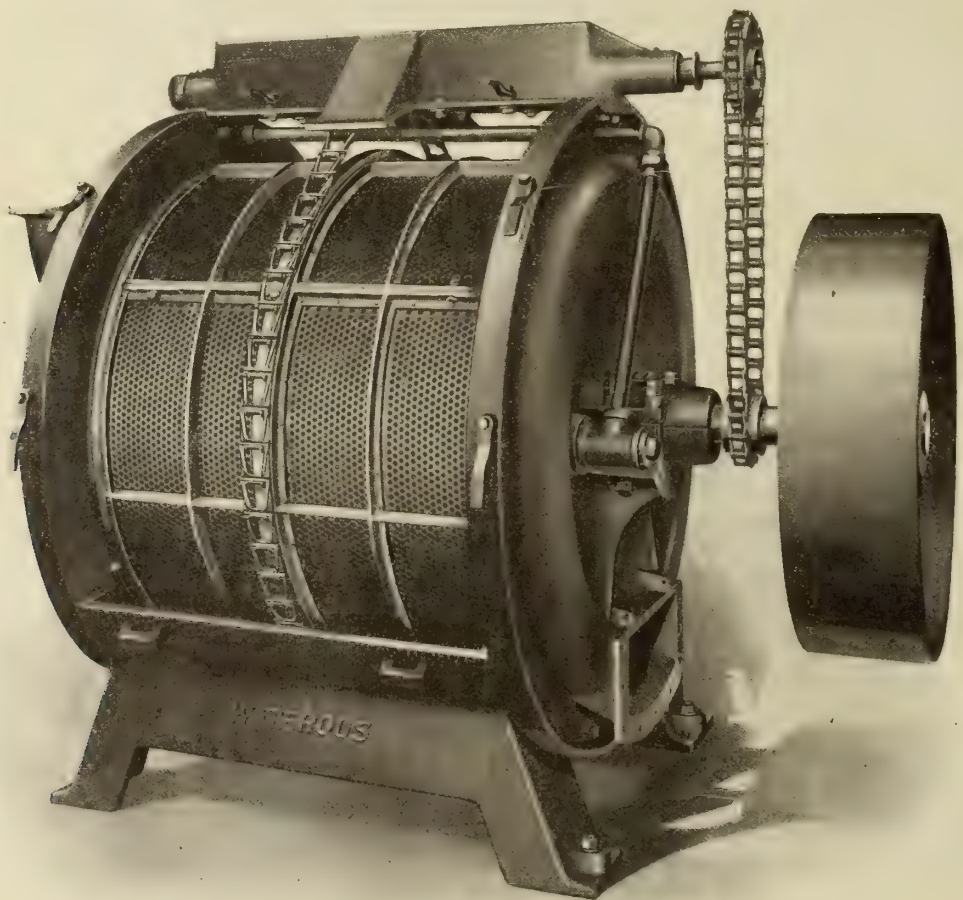
THE CENTRIFUGAL KNOTTER.

In the article on the "Manufacture of Soda Pulp" in the Pulp and Paper Magazine for April 17th there were shown illustrations of two types of knotters. A machine which is considerably different from the worm knotter and slightly different from the centrifugal knotter described in that article is the machine built by the Waterous Engine Works Company. Referring to the illustration it will be seen that this consists of a slowly rotating cylinder made up of screen plates perforated with quarter inch holes. The whole cylindrical body is slowly turned by means of the chain gears and this motion tends to keep the holes from plugging and the plates are further kept clean by the strong shower from a pipe which is seen extending across the top just above the screen cylinder.

Inside of this screen cylinder is a runner of cast iron consisting of vanes that catch the stock as it flows in through the funnel just visible on the left of the picture and distribute it in vertical sheets against the screen plates. By a careful arrangement of the inlet and due to the construction of the runner the stock is spread over practically the whole of the inside surface of the screen cylinder. The runner further has the effect of breaking up lumps of fibres and separating slivers from good stock.

The particles that are too large to pass through the perforations in the screen are not fit for paper making and pass out through the opening at the right of the picture. The good stock passes through the screening plates and is delivered through an opening on the far side of the screen at a point corresponding to the position of the name of the maker that is visible on the base casting.

These machines can be used on any grade of chemical or mechanical pulp and the quality of the stock can be regulated by the size of the perforations. A knotter with a capacity of 40 tons in twenty-four hours will require about 20 h. p.



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B. Hull, Canada, October 30th., 1912

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Mr. W. M. Arnold,
Manager, The Ottawa Car Manufacturing Co.,
Ottawa, Ont.

Dear Mr. Arnold,

We have pleasure in enclosing herewith a copy of the letter which we sent to The Spanish River Pulp & Paper Mills Ltd. of Sault Ste Marie, Ont., several weeks ago.

Yours truly,

The E. B. Eddy Co. Limited
BY ..... ST. MANAGER

PURCHASING DEPARTMENT

ESTABLISHED 1851.

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B. Hull, Canada, October 11th. 1912

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COPY

The Spanish River Pulp & Paper Mills Limited,
Sault Ste Marie, Ont.
Canada.

Gentlemen,

We have your letter of the 7th.inst in reference to Acid Resisting Bronze Castings made by the Ottawa Car Mfg. Co.

Our experience with their Castings has been extremely satisfactory. We have used their Castings for a number of years now and so far we have still to find any which have not stood up to what is expected of them. We do not hesitate in recommending them for your use.

Yours truly,

PURCHASING DEPARTMENT

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OTTAWA CAR MANUFACTURING COMPANY, Limited, Ottawa, Can.

THE MEANING OF SERVICE

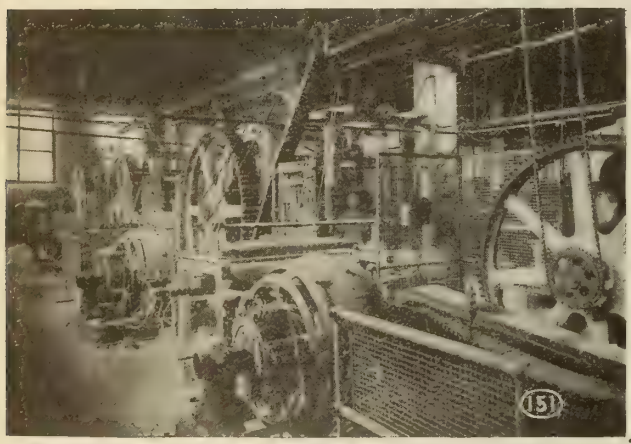
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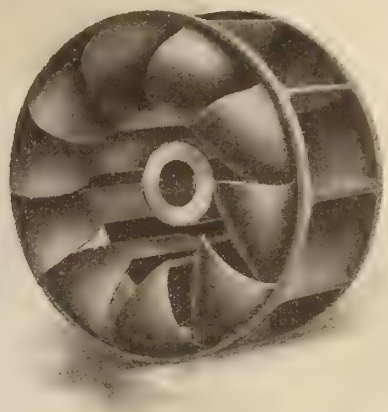
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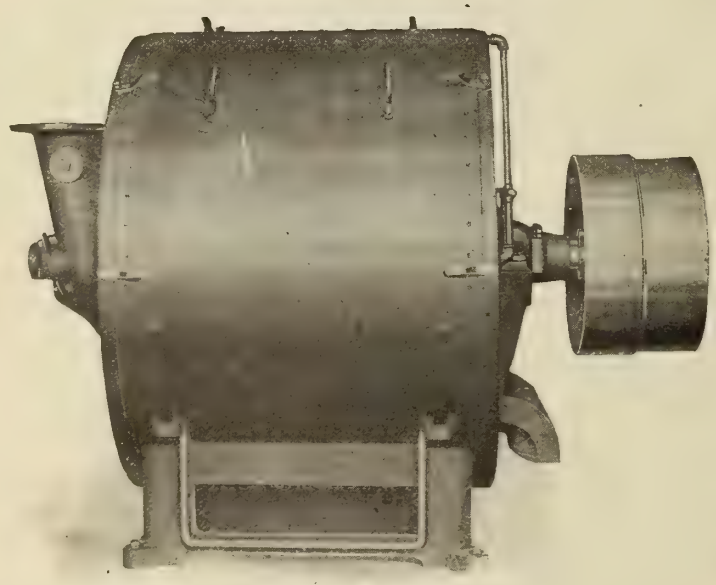
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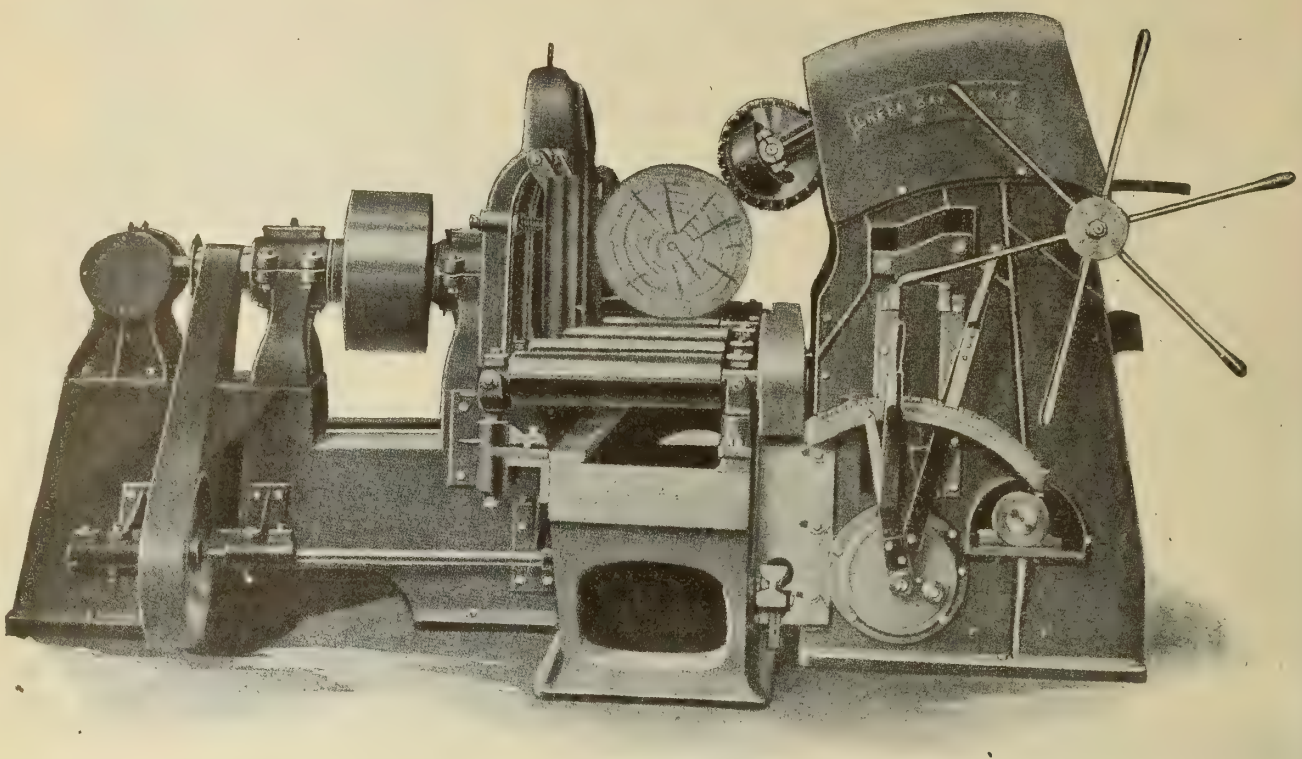
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1920

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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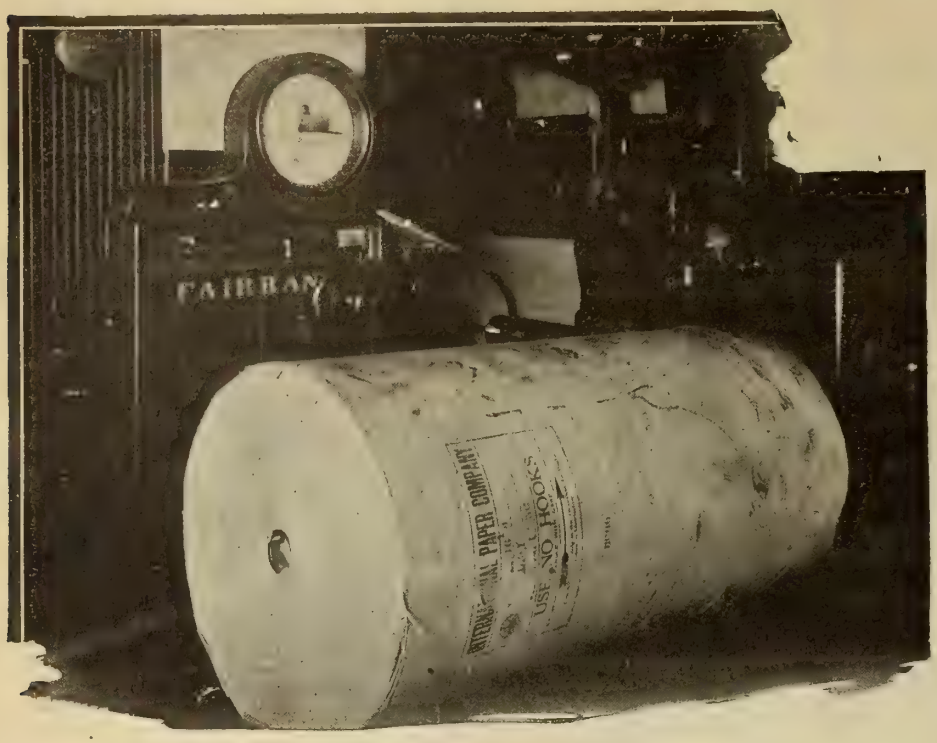
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EDITORIAL

DOLEFUL DOPE.

Sir Andrew McPhail has a well-deserved reputation in several lines, but he would hardly qualify as an optimist, judging from his remarks at the luncheon of the Canadian Pulp & Paper Association last week. The idea that we have no obligations toward future generations or that there is no use in planting trees because we shall not be here when they mature fifty or sixty years from now is hardly in harmony with the spirit of the times. Someone remarked that Sir Andrew is a humorist, so the statement must have been a joke. This explanation is perhaps justified by the remarks of the speaker with reference to some reaf-forestation of his own. His experience was that seeds planted in the forest made little or no growth, while those in cleared ground developed rapidly into sturdy trees. This substantiates his argument for clean cutting and refutes his argument against planting. Such cleared lands should be put in a condition to reproduce immediately, by natural growth if satisfactory, by planting if necessary.

We have a duty towards future generations of Canadians, even if we don't know who they are to be. To say that we have not is to admit lack of faith in the living qualities of Canadian ideals and institutions. The pulp and paper industry has faith in the future and intends to discharge its obligations by so conducting its present affairs that the future may not be dimmed. To this end it is developing water powers and laying plans for the perpetuation of the forest.

We don't agree with the intimation, that this world is a vale of tears. It is true there are shadows, but that is because there is light. This is not the time to advocate the easiest way because we have no concern with the future but rather should we exhort to courageously do the difficult things that will make us stronger for the doing, and the future happier because they are done.

U. S. COMMISSION ON CANADIAN PULPWOOD.

There has just appeared in the newspapers, a dispatch to the effect that the United States Senate is considering measures with regard to prying off the embargoes on pulpwood from Crown lands. The matter is too important for hasty comment and too big for discussion in the space available this week.

Carelessness is either disinterest of the heart or disqualification of the head.—Ex.

SIR LOMER'S GOOD SUGGESTION.

Sir Lomer Gouin, Premier of the Province of Quebec, was the principal speaker at the banquet of the Canadian Pulp & Paper Association last week. Sir Lomer's address showed an acquaintaince and grasp of pulp and paper conditions which explained the sympathetic and helpful attitude which this government has consistently shown toward the pulp and paper industry in this province. Aside from Sir Lomer's reference to the forestry situation and the opportunity for co-operation between the mills and the Government as regards the conservation of their pulpwood supplies a very important suggestion was made in regard to the provision for a supply of intelligent operators for the future.

The statement was made that the province stands ready to provide instruction in pulp and paper manufacture just as it has provided instruction in forestry practice and in commercial branches of education. The plea of the speaker that the pulp and paper makers give the young men of this province a chance to reach the highest positions in the industry should be heeded and the offer of the government to establish a pulp and paper school should be promptly accepted and enthusiastically supported. A point well taken was the intimation that such a school will not be most fully successful unless the industry stands firmly behind it.

The industry has already shown both by its interest as an association and by the action and attitude of individual mills that it firmly believes in the value of education. The association voted without hesitation to duplicate the appropriation of last year so that now $10,000 has been voted for the preparation of a series of text books which are now well under way.

Practically every mill in the province is either conducting classes in the idea of improving the intelligence and efficiency of their workers or is closely co-operating with local school authorities to provide a high standard of common school education. A number of mills have expressed their willingness to send at their own expense or to assist materially in permitting promising workmen to take up studies in the technology of the industry should the proper courses be arranged for along the lines of the industry. In addition to this condition there is at present available a large proportion of the Dominion grant of ten million dollars to be spent in assisting technical schools to provide education of a technical nature. Prof.

Lester W. Gill is now the head of this part of the work of the Federal Government and can be counted on to enter wholeheartedly into co-operation with such a movement as might well be inaugurated right now.

From the above it is readily seen that the present is the most propitious time to establish courses in the manufacture of pulp and paper and any supplementary subjects that should be understood by the man who is employed in the industry. It will not be an extremely difficult matter to organize such a school nor will it be difficult to plan the courses nor to find the equipment. The first need will be a suitable building and the greatest need will be suitable instructors. The building requires a large initial outlay, and as Sir Lomer has suggested, the industry would be well advised to make a substantial investment in such an undertaking. It will not return large dividends. An attempt to use an existing building and to adapt an unsuitable condition for the installation of paper machinery has come under the observation of the editor and he realizes the need for planning our Quebec school properly from the beginning.

It will not be necessary to build a very extensive affair as there is already in the province one of the most perfectly equipped technical schools on the continent for instruction in associated subjects. While the building required need not be extensive it should be perfect and, of course, should be architecturally in keeping with the associated technical schools should such co-operation prove feasable. A very considerable outlay will be necessary for pulp and paper machinery. This is not of a character such as is very often contributed by the machinery manufacturers, although some of them may be generous enough to donate samples of their machinery or to make substantial reductions from what might be a profitable price on them. On the other side, both in England and on the continent manufacturing concerns have found it to their advantage to make very liberal contributions to equipment of paper making schools. It is to be hoped that such will be the case here. In any event the industry can hardly afford to neglect any longer the duty of providing facilities for properly educating the coming generation of paper makers, and for improving the knowledge of their industry of those who are now engaged in it.

The principal difficulty that schools of this kind have encountered has been the ability to attract and hold the services of capable instructors. An enthusiastic and able teacher in such a school naturally experiences little or no difficulty in finding openings in industry at a much more satisfactory salary than the teaching profession ordinarily pays. With the assistance of the industry in providing a fully equipped demonstration pulp and paper mill, the province, with the continued assistance of a federal grant should be able to maintain a first class corps of instructors.

It will be most gratifying for the Province of Quebec to have the honor of establishing the first government pulp and paper school in Canada. A school has been in progress at the University of the State of Main for about seven years and considerable growth has been shown. The advantage and success of the school is seen in the large number of its graduates who are holding responsible positions in the industry. The government of that state, however, failed to appreciate the opportunities to their fullest extent and we sincerely hope that the provincial government will not only be approached by a representative delegation for paper makers but that the government will continue to show the same interest in the industry that is now in evidence. We should then have the assurance of a continually successful school that would be a constant source of satisfaction to the province and to the industry.

In further support of the need for a school of Pulp and Paper Making, Mr. Harry Kay, who has recently been engaged as mechanical engineer by Price Brothers & Co., and who for some years has been connected with the well known firm of Chas. Walmsley & Company where he has had much to do with the design of paper machines, states that one of the principal contributions to his success as a machine designer has been his acquaintance with the operation of such machines through his attendance at the Manchester School of Technology. At this school there is a well equipped laboratory of pulp and paper technology and it is thus possible for a student of mechanical, electric or chemical engineering to acquaint himself with the principles of pulp and paper manufacture and with the operation of the principle processes and machinery required in the industry. Such a school would be of very great value to the coming generation of engineers in Canada and would be of great service, not only to the pulp and paper industry but to the iron and steel industry as well with its broad connections with the many concerns that manufacture equipment for pulp and paper making. Such a school as Sir Lomer Gouin intimated might be appropriately provided by the Quebec Government would serve such a purpose and it is to be hoped that plans for this type of education will be started at the earliest possible moment.

COBWEBS.

The owner of a lumber mill in British Columbia valued at $200,000 plans to sell the business to the 100 employes as a co-operative proposition. He wants $100,000 down, the rest on time, probably out of profits. There would be a very small chance of getting every employee in a paper mill to invest $1,000 in the business, though we believe a greater effort should be made toward encouraging them to have a financial stake in their jobs.

With the present state of demand for papers of all kinds this would seem to be an excellent time for pulp and paper salesmen to take a good vacation.

Forty-eight tons of newsprint paper were used by the U. S. Government to print speeches made in the Senate, while newspapers are going without and the Government prescribes various quack remedies.

It was suggested in Washington that all tariff duties be removed from Canadian print papers, but this would have little or no effect on the present situation, as contract prices are now within the duty-free limit.

Comforting thought for the pulp men. It is said that Swedish pulp mills are sold out for several months ahead and paying little attention to American business to the south and at the same time, keener competition in foreign markets.

The Eastern Manufacturing Co. of South Brewer, Maine, publishes a paper called The Mill. A very pretty custom they have is to extend a welcome to new employes and to print their names and where they work, so as to make them acquainted and "at home" as quickly as possible.

The Federal Reserve Bank of Philadelphia says the present industrial situation is characterized by a lack of efficient workers. It would mean about the same thing, only more so, to say a lack of willing workers. The two terms are not exactly synonymous, but the effect of these characteristics on production is the same.

In referring to the housing problem in England, Mr. F. E. Becker made a very good point when he suggested that it might be good policy in the future where extensions of capacity are contemplated, for the company first to provide the houses for the workmen so that the extra labor required would find proper accommodation. The change from the twelve hour to the eight hour shift in England has left some mills very much embarrassed in this regard. Another matter that deserves attention in this connection is the necessity for providing some helpful means of employing the leisure time of the man who is suddenly in these days of short hours confronted with a large amount of idle time. As Mr. Becker says he either gets into mischief or he gets miserable. It is gratifying to know that most of our Canadian mills are taking account of this situation and are attempting to provide not only satisfactory houses but opportunities for recreation and avocation as well.

The Canadian pulp and paper industry is being honored by a visit from Mr. W. A. Aitken, manager of the Empire Paper Mills at Gravesend, England. Mr. Aitken is in charge of the Northcliff paper mills and has personal direction of what is probably the largest mill in the world. It operates sixteen paper machines. Those who have had the opportunity of meeting Mr. Aitken have not only enjoyed his genial personality but his interesting discussion of conditions on the other side, particularly with reference to the relations between the management of paper mills and their employees. While it is hardly likely that a man of Mr. Aitken's experience will learn very much about the manufacture of paper, he will, however, have an opportunity of becoming acquainted with the conditions under which our product is produced, with particular reference to the manufacture of wood pulps such as are exported to England for the use of the mills on the other side. The necessity for using such a variety of kinds and conditions of raw material introduces a number of manufacturing difficulties in the paper mill that are quite unknown in Canada.

SPEAKING OF SAFETY RECORDS, HOW IS THIS ONE

In October 1918, the crucible Steel Company, Syracuse, N Y., had four lost time accidents. Both the workmen and the man in charge of safety work peeved and so they started the next month with the determination to make a record—and they succeeded. The department operated from the end of October, 1918, to the begining of October 1919, without a single lost time accident.

Grover G. Kingsley safety engineer at the Halcomb plant, attributes this bit of good work to the "exercising of constant vigilance in taking care of the little things, such as the prompt reporting of minor scratches, seeing that everything is in its proper place, keeping tools in A-1 shape and eliminating all horse play."

INDIAN PAPER IN SHORTHAND.

One of the queerest papers in the world is the "Kamloops Wawa, a paper printed entirely in shorthand, for the British Columbia Indians in the Fraser River district.

The idea of the paper belongs to Monsignor Le Jeune, a French-Canadian priest, who works among the Indians. He had difficulty in noting down the sounds of the words spoken by the Indians and bethought himself of shorthand signs and found them suitable to the task. The Indians became interested in this "talk language,' and studied it until they mastered it. Then the priest wrote various parts of the gospel in this language. Later the Indians showed a desire to know the things of the day, and the priest turned out a daily bulletin on a mimeograph. This paper sold out so quickly each week that he found it worth while to have type cast and a weekly printed on the presses of a journal in the nearest town, Kamloops. To-day the paper has a circulation of 3,500 copies of every week, and carries a lot of advertising matter.

To be healthy eat more wheat and use less meat.

Technical Men In The Paper Industry*

H. P. Carruth, Mead Pulp and Paper Co. Dayton, Ohio.

Like all old industries, that of paper making has evolved gradually and conservatively. Only in the new industries, such as the automobile and the electrical, do we find great and radical changes from year to year, and even in these it is clearly to be noted that they tend toward conservatism with age. This conservatism has a real and solid reason for existence. Plants were designed upon the experience of earlier competitors and once built could not be thrown into the scrap heap unless the innovation were extraordinarily profitable. Most of you remember the talk of twenty years ago, of the steel industry scrapping millions of equipment in favor of new designs, but do you hear that talk today? Not in the steel industry where such changes have become less profitable.



H. P. CARRUTH,

So the paper business passed through an area of change where machines displaced the old hand methods and then paused except for minor improvements and perfection. Again, activity came with the commercial production of the various kinds of wood pulp and plants became obsolete in a few years and were replaced by larger units of better design. No great source of profit has appeared on the pulp and paper horizon since the production of sulphate and kraft reached a point of equalization between supply and demand.

Until recently our industry has had before it the vision of great sources of raw material and has not realized that these could be exhausted, or if it has, has left to the next generation the problem of discovering new sources of supply. Today we see, not many years in the future, depletion and finally exhaustion of our main source of supply, and we are all giving thought to what must be our solution of this problem. Perhaps we stand today on the verge of another great step in industrial evolution which will turn our faces away from the North, toward which they have so steadily been directed for the past few years, and we may find ourselves going south-ward into the tropics,—the prolific producer of cellulose, our basic material.

It is such thoughts as these, gentlemen, which have in part brought about the great increase in our industry of men with technically trained minds, but there is another train of thought connected and interwoven with these, which has been still more responsible for this change.

The elimination of waste has proven a prolific field to the technical man in all industries. In ours he has perhaps found it particularly easy to show savings. These opportunities have not yet been exhausted, but even in those plants where technical control is most complete new ways of saving keep showing up. In this line technical men have saved the industry many millions and will save many more.

The design of plants progresses from year to year largely by the efforts of our engineers, they develop new materials and build us each year better mills in which to work, harness our waterpowers to deliver power more efficiently, equip our boiler plants with wonderful instruments to tell us of its efficiency.

Research in chemical and bacterogical fields has already proven of value, and the studies made in governmental and private laboratories have added much to the wealth of the industry. I believe we will see many great changes come along in the next few years as a result of the research work now going on. This field is, of course, limitless in possibilities and may very well revolutionise the industry in the next decade.

Bacteriologists are at work upon investigations into the causes of wood decay and methods of removing non-cellulose matter by bacterial action.

The continuation of our forests rests upon those technical men trained to deal with them scientifically.

There is no aspect of our business but what is today receiving the thought of these specially trained men.

Trained Minds Think Straight

It seems strange, perhaps, that men trained to observe the working of the material laws of the universe should be especially susceptible to see the new idea of human efficiency, but a little thought easily discloses the reason. Law is law, cause is cause, and effects follow causes by the law. The mind trained to think in terms of the mechanical laws, or the chemical laws, naturally must seek the laws which govern all of the different aspects of industry and life with which it comes in contact. Therefore, it asks itself questions when it sees results which are dissimilar, as:

Address to the Technical Section, C.P. and P. A., January 29, 1920.

*The address of Mr. F. J. Hoxie, on "The Protection of Log Piles" was published in the Pulp and Paper Magazine for January 29. The discussion of this paper and the reports of committees of the Technical Section with the discussions will be published as soon as the speakers have an opportunity to check up the stenographic record of their remarks. The next issue of the magazine will contain a full account of the luncheon and banquet of the Canadian Pulp and Paper Association.

"What cause was there for these results and by what law did it act?", for to such a mind all action must be based upon law—not the short sighted, half considered laws of man but the inviolable laws of the Creator, always and forever unchanged: and so we see this trained mind comparing, analyzing and observing facts, and from this study constructing a new basis of human relations, based upon fact and aiming always toward the nearest observance of the natural laws which our knowledge at the time makes possible.

We live in a time when "Capital and Labor" are the words upon the lips of all and we experience the suffering incident to the struggle to correct the violation of those natural laws which our fathers and grandfathers did not know, or knowing, did not observe, but the laws are being searched for and many have been found, and the old laws which we heard of in our churches are being brought out and practiced in our business life as they have never been practiced before.

A few days ago I heard Mr. Roger Babson speak at the Windsor Hotel here, and the words which impressed me most were to this effect: that the great need of the times was not more inventions or machines, or other physical contrivances, but more religion, and today, gentlemen, the men who are doing most for their religion are these same technical men: not in churches and Sunday schools, but in factory and office, the store and the bank. Teaching obedience to the great fundamental law because they know that through such observance only can real and lasting progress be made.

I fear that many of you men had expected to hear more about the chemical, mechanical and electrical or biological advances which have come to the industries through technical men. These have been great and no doubt will be greater year by year as we go on, but I know you will hear much of such matters at this meeting from others far better able to discuss them than I, and I felt of I could perhaps bring home this other thought of service for the technically trained minds in our industry it might perhaps leaven your thoughts in the coming year, whatever your chosen branch of science may be. Never in the history of the world was there such obligation upon men of education and ability to lead in logical clear thinking as today exists. The complexity of our social and industrial life of today required a higher type of leadership and a keener analytical study than ever in the past, and it is from you men, taught to think logically as you bend over your calculus or test tube, that the world must select many of the leaders in the days to come. Therefore, I say our industry needs the technically trained men, not only to help in the solution of the material problems—and that in itself were reason enough—but more and above this, to keep us in the straight path of clear thinking in these days of confusion.

Canada's population is estimated by the census branch of the Department of Trade and Commerce at 8,835,102. Three-tenths of one per cent of them are paper or pulp mill employes. Apportioned on the basis of adults, this would be approximately one per cent.

Dost thou love life? Then do not squander time, for that is the stuff life is made of.—Franklin.

COURT WILL DECIDE BOARD'S AUTHORITY.

Two important statements made Tuesday by Sir Henry Drayton, Minister of Finance, and another reference by a member of the Board of Commerce, were the chief features of the Canadian newsprint situation at Ottawa early this week.

Briefly they indicated, that there was now no trouble between the American State Department and the Department of Finance, there was not going to be a $10 per ton tax imposed on export paper shipments, and the powers of the Board of Commerce to put embargoes into effect were still undertermined and the Board's authority will be decided by the Supreme Court of Canada.

With the resignation of Mr. R. W. Breadner, temporary Paper Controller, last Thursday, the control of newsprint went to the Board of Commerce. Mr. Breadner since he resigned has stated to the correspondent of the Pulp and Paper Magazine that at the time of his appointment he was told that he was only appointed temporarily to straighten out the Fort Frances situation, and when this ended his duties ceased. He did not care to state what might or what might not be done by the Board of Commerce. With the passing of control to the Board of Commerce it seems very probable that the Government does not intend to lift or stop its control over the manufacture supply and sale of newsprint paper in Canada, which has in one form or another existed for more than two years.

Up to Wednesday morning, it was understood on good authority that the two members of the Board of Commerce who were considering the newsprint situation and what policy would be adopted to meet the impending situation, were Judge Robson and Mr. James Murdock. Mr. W. F. O'Connor, the third member of the Board is looking after other matters.

The first statement made by Sir Henry Drayton was in reference to the report from Montreal that the Department of Finance had under consideration the placing of a $10 per ton tax on all export shipments of Canadian mills. The Minister of Finance generally denied this report and said: "There is no such duty in contemplation."

Late Tuesday afternoon the report became prevalent in some circles that all embargoes on newsprint to the United States had been lifted, at the request of the American Government. When asked as to this, Sir Henry Drayton, stated as follows:

"There is no trouble now whatever between the Finance Department and the United States State Department. The whole paper situation is in the hands of the Board of Commerce. I understand that all embargoes are off, but I cannot say whether or not the American newspapers are receiving their supplies from Price Bros."

A member of the Board of Commerce later pointed out, when questioned as to the embargoes, that they had not been placed or put into effect by the Paper Controllers, as such individuals did not have the power to place them. Instead, what had been done was that the Government on the suggestion, or at the request of the Controller, had put the embargoes into effect. When questioned as to whether or not the Board of Commerce had power to order embargoes being placed on paper, the members said, that the powers and jurisdiction of the Board would be later decided and determined by the Supreme Court of Canada.

MORE MONEY FOR HOWARD SMITH MILLS.

Several Canadian financial houses are offering to the public $1,025,000 Howard Smith Paper Mills 8 p.c. Cumulative Participating Preferred stock.

This company is the largest manufacturer of writing papers in Canada. It owns three large mills, situated to best advantage as to cheap raw material, labor and markets. As a reserve supply of wood pulp it owns timber limits estimated to provide 20 years' needs whenever called upon.

The company's assets, after depreciation and allowances for all prior obligations, amount to $250 for every preferred share outstanding.

Operations during the three years previous to last year, at considerably less than the present output, averaged an amount of over double the preferred dividend requirements. Last year's earnings were at the rate of four times the dividend.

These earnings, which should be considerably augmented in the present year, amount to over 15 per cent on the common stock issue. Should the common stock pay more than 8 per cent an equal percentage must be paid on the preferred up to 10 per cent. It is evident that with the company's increased capacity and scope, the expectation of a higher rate than 8 per cent on the preferred is reasonable.

Of the $1,025,000 of this issue for sale, approximately one half has already been purchased at par by the company's directors and shareholders.

LAURENTIDE COMPANY. LTD., LAUNDRED.

Without a dissenting vote, shareholders representing 54,925 shares of Laurentide stock, ratified the reorganization plans of the company as formulated by the directors. The plans adopted called for the taking over of the assets, plants. etc., of Laurentide, Limited, as a going concern, by the newly-incorporated company, Laurentide Company, Limited, capitalized at $35,000,000. The stock of the new company will be distributed to holders of the stock of the old company in the proportion of three new shares for each one of old now held, as it is understood that the distribution of the stock of the new company will be distributed immediately the old stock is turned over to the Royal Trust Company, who have charge of the operation.

George Cahoon, Jr., president of the company, pointed out that the extension of the organization was one that was necessary from the point of further development. He said that the company was a rapid-growing one and that operations were being further extended, and that the present plan, when adopted, would go far towards allowing for this expansion.

There was no question of any special significance asked, with the exception of one, by a shareholder, who wished to know how the position of the Laurentide Power Company would be affected by the change. In reply the president stated that the new company would continue to retain all of Laurentide's holdings in the power company, so that the status between the two organizations would not be altered at all.

There was also a question by a shareholder regarding the rate of dividends on the new stock. It was pointed out by the president, that no consideration had yet been given this matter by the board of directors, inasmuch as the time was not yet opportune for the determination of distributions to shareholders on this new stock. He alluded, however, to the usually generous position taken by the board in this respect, and the meeting was given the impression that the best possible would be done for shareholders in respect or return on their investments in the company.

BENNETT, LTD., BURNED.

Fire destroyed the old mill of Bennett, Ltd., at Chambly Canton on December 24th. The insurance report says the cause is unknown and places the loss at $183,686. O. F. Bryant, technical advisor and research director was seen in Montreal last week and he remarked that it was lucky it was the old mill that went. Even so, it means a very severe handicap with the mill already swamped with orders.

MAY SPLIT RIORDON COMMON STOCK.

Coincident with the strength and activity in the market for Riordon common stock the report is heard in several quarters that Riordon stock may be split up—much after the procedure which has taken place in Abitibi, Laurentide and some other pulp and paper issues, says the Financial Times.

In some quarters it is believed that two new shar will be given in exchange for each old, but this ratio according to stories heard in other quarters, becomes three new shares for each old share.

The statement was made not long since that the company is exporting about 200 tons of bleached sulphite pulp to the United States daily. The further statement is heard that this pulp sells around $115 a ton. This would represent $23,000 per day, or approximately $6,900,000 per 300-day year. Purchases from the United States and remittances in New York funds wiuld absorl a portion—possibly 20 or 25 per cent—of this amount, in all probability, but it would seem that a reasonable estimate from which to base the advantage accruing to the company from the premium on these New York funds would be on a basis of $5,000,000. Only on one day this year were New York funds at a premium of less than 8 per cent and the premium has reached 11 per cent several times this week. The common stock of the company is $4,500,000.

In some quarters the report is heard that Riordon shipments to the United States have increased to such a volume that at anything like 10 per cent on New York funds, the company is making its entire dividend on the premium it received on shipments to the neighboring republic.

EXCHANGE RATE SHUT OUT U. S. PAPER.

In a recent interview, J. H. Weldon, Preident of the Provincial Paper Mills, Ltd., said to a representative of the Pulp and Paper Magazine:—

"You will recall that during the early months of the past year the demand was remarkably light and for a time some of the mills were fully caught up with their orders, taking advantage of the opportunity to shut down for repairs. Later in the year the American market became sold up and prices soon advanced higher than in Canada. There was a falling off of imports and when the high rate of exchange soared it shut out American paper almost entirely. This all tended to make a greater shortage in Canada towards the end of the year.

Annual Business Meeting of the Canadian Pulp and Paper Association

The account of the activities and vicissitudes of the industry during the past year is given in the reports that were read at the annual meeting of the Association. Canada may well be proud of the development and achievements of the pulp and paper industry. An important feature of the situation is the great concern which the Association has for the perpetuation of Canada's forests, showing that the mills do not "live unto themselves alone," but have thought for the paper makers of the next generation. Another pleasant observation is the evidence, as given in several reports, of the desire of the manufacturers to work in harmony with the consumer.

Officers Elected.

The officers elected for 1920 are President, George Chahoon, Jr., Laurentide Company; Vice-President, Howard Wilson, J. C. Wilson & Co.; Secty.-Treas., A. L. Dawe, re-elected. Chairman of sections will be selected.

THE PRESIDENT'S ADDRESS.

By J. A. Bothwell, Brompton Pulp & Paper Co.

Gentlemen: In welcoming you to this, the Seventh Annual Meeting of the Canadian Pulp & Paper Association, I will trespass upon your time only very briefly to review the work of the year just closed.

It has been, I think you will agree with me, one of the most critical in our history. If the Association is in a stronger position to-day than ever before, if the membership has been enlarged and the scope of our activities extended, if we are more closely united and in the most complete harmony, it is all due to the loyal support given by the members to your executive throughout the year, and to the membership belongs all the credit.

The year has been one of great activity for all the Sections.

THE NEWSPRINT SECTION, under the able direction of Mr. George M. McKee, its chairman, has again weathered a year of storm and stress. Government control of this section of our industry, as you are aware, still exists. It is unnecessary for me at this time to refer to its latest manifestations beyond saying that it must be patent to all concerned that price-fixing, as applied to newsprint paper, has been proven to be economically unsound and in no sense whatever justifiable. Government control should be brought to a speedy termination, not because it is vicious, unsound and unjustifiable, but also because the interests of the country, no less than those of the manufacturers and the publishers themselves, would best be served by its abolition.



J. A. BOTHWELL,
Retiring president, Canadian Pulp & Paper Assn.
Fanciful Conception by the Official Cartoonist.

Canada's most urgent needs today are, admittedly, increased production and increased exports and no industry, I venture to say, is contributing in greater measure to the national welfare in this respect than the one we represent. I have just been shown advance returns from the census of the industry taken by the Government during the year 1918, shortly to be published. In that year our industry represented a capital investment of $241,708,223. Our products for the year reached a value of$119,309,434; the number of persons employed, exclusive of woodsmen, was 25,863, and the amount paid out in wages and salaries, $26,974,226. Our exports of pulp and paper during the current fiscal year will approximate $100,000,000 in value. More than 75 per cent of these exports are marketed in the United States. We are contributing upwards of $333,000 a day for every working day in the year to Canada's foreign trade and helping to that extent to overcome our adverse trade balance with the United States. Notwithstanding this, our's is the only industry that has been singled out for regulation and price-fixing. We are today permitted to do business abroad only on the condition that we submit to restrictions upon our right to do business at home. It is not surprising that some manufacturers regard the situation as intolerable and have undertaken, in a perfectly legal way, to challenge the Government's position in respect to it. We now have the assurance of the Government that paper control will be terminated in June next and while we are looking forward with confidence to the fulfillment of that assurance we do not for a moment concede the justice or the right of the Government's treatment of our industry during the past three years.

THE BOOK AND WRITING SECTION, under the chairmanship of Mr. Rolland, has found plenty to do throughout the year. The Section was again called upon to resist attempts that were made to reopen the investigation into the price of book paper begun and temporarily abandoned over a year ago. They succeeded in showing that such an enquiry was totally unnecessary. Good work was done in the early part of the year by means of an advertising campaign advocating the exclusive use in Canada of made-in-Canada paper, the expense of which was borne by the Section. The Trade Customs Code has been revised and re-issued.

THE TECHNICAL SECTION, under the chairmanship of Mr. John Stadler, reports a successful year, and much good work accomplished. The summer meeting, which included a visit to the Price Bros. mills at Kenogami, achieved good results. The Sub-

Committee on Technical Education reports satisfactory progress in the preparation of a series of practical text-books and in the development of the educational program for which funds were provided at the last annual meeting.

THE CHEMICAL PULP SECTION under Mr. Angus McLean's chairmanship, has found the usual number of problems to contend with and has held a number of successful meetings. The demand for both sulphite and sulphate pulp was good during the last half of the year, and the future outlook is favorable.

THE WOODLANDS SECTION, of which Mr. R. P. Kernan is chairman, has not been idle during the year. A most successful two days' summer meeting was held at tht Provincial Forest Nurseries at Berthierville and at Grand'Mere. At this meeting a movement was started looking to an improvement in the logging operations of the Province of Quebec. This has since taken concrete form in co-operation with the Quebec Limit Holders' Association and the provincial authorities, and promises to achieve some practical results.

In this connection it may not be amiss to reiterate the warning given by Mr. F. J. Campbell at our last annual meeting concerning the growing scarcity of pulpwood in Canada and the necessity that exists for employing every means possible to ensure a future supply of this most essential raw material. I am glad to say that the work of reafforestation undertaken by several of our members has been well maintained throughout the year and that others are preparing to make efforts in the same direction. The problem is, however, too vast a one for private initiative to cope with successfully, and will never be properly solved until the authorities of the several provinces take it up in earnest and by a carefully planned and systematic policy seriously undertake forest propagation. It is gratifying to note that this subject is at present receiving sympathetic consideration by several of the provincial governments, particularly those of Quebec, Ontario and New Brunswick, but the situation is a critical one and calls for immediate action.

THE MECHANICAL PULP, BOARD, WRAPPING, FELT AND COATED PAPER SECTIONS have all functioned during the year to the satisfaction of their membership, as you will hear from their respective chairmen in due course. Each of them has had its own special interests to look after, and all report a satisfactory year.

Among the more important undertakings of the Association during the year was that of sending, in connection with the industry at large, our Secretary, Mr. A. L. Dawe, to England, in June, to associate himself with the Canadian Trade Mission in London to promote interest in Canadian pulp and paper products among British importers. Mr. Dawe spent three months in Great Britain in connection with this work and was able to accomplish much valuable missionary effort. His own report upon conditions in Great Britain and Europe made upon his return, is familiar to all the members. It more than justifies his mission abroad. Mr. Dawe succeeded in laying the foundation for a valuable connection between the British importers and the Canadian producers, whose full effect will become apparent only when conditions permit of an expansion of our overseas trade.

The adoption of an Association Trade-mark, at the instance of the Book and Writing Section, for use in designating products made by the members, was one of the accomplishments of the year. The particular design adopted was secured by means of a competition for which Mr. I. H. Weldon generously provided a prize of $100 for the successful competitor.

The engagement of Mr. G. P. Ruickbie of Toronto to act as our traffic expert in association with the Canadian Manufacturers' Association, made a year ago, has worked out very satisfactorily, members reporting having received great assistance from Mr. Ruickbie. The Board has renewed the arrangement for another year.

The work of the Association is constantly expanding. It was found desirable in November to change the location of the general offices from the Shaughnessy Building to the Drummond Building uptown, for the greater convenience of out-of-town members and business callers generally, as well as to secure the advantages of more adequate space and other conveniences. The proposal was submitted to the Executive Board and received their sanction.

In this connection I desire to bespeak a word of commendation for our office executives, who have brought the practical work of the Association through a somewhat strenuous year with entire credit to themselves and to the complete satisfaction of the Executive Board. Mr. Dawe's work is known to all of you and too much praise cannot be given him for his faithfulness and efficiency in looking after the Association's affairs. Mr. Beck's services in the conduct of our Publicity Department have been of inestimable value to the Association and of direct benefit to each and every member, and merit our most hearty approval.

The growing activities of the Association, together with the upward trend of prices in all direction have necessitated a slight increase in our annual budget, which will be submitted to you by the Secretary-Treasurer. In this connection a proposal will also be put before you for an amendment to the by-law under which the expenses of the Association are pro-rated among the members. The primary object is, of course, to obtain a somewhat larger revenue, but it has also been deemed advisable to suggest doing away with the flat membership fee hitherto exacted and to put all members upon an equal **pro rata** basis of contribution, based upon each mill's productive capacity. The amendment has the sanction of the Executive Board, and I commend it to your favorable consideration.

In closing, I desire to thank you most heartily for your splendid support during my term of office and to say a word of two on behalf of my successor. I bespeak for Mr. Chahoon the same loyal and hearty support and co-operation of the membership which have been extended to me. Mr. Chahoon, perhaps it is unnecessary for me to remind you, has always been one of the Association's most loyal and enthusiastic members. The Association's present prosperous condition is due in no small measure to his active interest and sagacious advice, and I have no hesitation in predicting that under his able guidance we are assured of a year of the utmost progress and prosperity.

REPORT OF THE CHAIRMAN OF THE NEWSPRINT SECTION.

By GEO. M. McKEE, Donnacona Paper Co., chairman.

Once more we are able to report a year of extreme activity for the newsprint mills comprising this Section. Production throughout the year has been main-

tained slightly above normal capacity, the fourteen companies reporting to the Section having produced 769,802 tons during the calendar year 1919, as compared with 699,310 tons for the preceding year. The increase is accounted for in part by increased capacity in three of the mills. Despite this increase production it was impossible to keep pace with the demand which for the last three months of the year far outstripped the supply. Present indications are that this situation will contiue for some time to come. Commitments made by a number of the mills for new machines promise further relief but the effects of this new tonnage will hardly become apparent during the present year.



GEORGE M. McKEE,
Chairman Newsprint Section.

The Section has also been kept busy during the year in defending the interests of its members from attacks both in this country and in the United States. Unfortunately, while the Canadian Government has seen fit to cancel the War Measures Act and to suspend the operation of most of the Orders-in-council passed under that act, it has been persuaded to extend control of the newsprint industry for an indefinite period. So far as this industry is concerned the war is not yet at an end. In the United States, too, some of the newspaper publishers, though beaten at every stage of the proceedings, are still attempting to impose upon this industry, through the instrumentality of Government interference restrictions such as are applied to no other industry. There are at present pending before the Congress of the United States no less than twelve measures all aimed at harrassing the newsprint manufacturers, not only those who make paper in the United States but also those who make paper in Canada and export it to that country.

While this situation is annoying to the manufacturers, and while Governmental interference continues to constitute an additional hazard to the industry, and one which has to be considered seriously when new capital commitments are being undertaken, experience itself has shown that the operation of ordinary economic laws, as applied to the production and sale of paper, cannot ultimately be evaded any more than can their operation as applied to other industries. The situation in the newsprint industry today is that the law of supply and demand prevails over all the attempts that have been made to supercede it. Scarcity of supply and an overwhelming demand dominate today's newsprint market. The Canadian manufacturers, it may be said, are not taking undue advantage of the situation and the prevailing prices are by no means exorbitant when the increased cost of raw materials, labor and other factors is taken into account.

It is gratifying to be able to report that Canadian newsprint consumers, generally speaking, have come to recognize the logic of the situation. They have recently shown a disposition to relinquish their hitherto antagonistic attitude and a desire to meet the manufacturers on a straight-forward business footing. Their efforts in this direction have been met with a favourable response upon the part of most of the manufacturers and there is reasonable ground to hope that the near future may see a restoration of the amicable relations which formerly existed between the newsprint manufacturers and the publishers before Government interference set up an artificial and unnecessary barrier between them.

The Section held nine meetings during the year most of which were necessitated by vexatious proceedings brought about by Government Control. Twice during the year the members waited upon the Government at Ottawa in a body in an ineffectual effort to get relief. It has again been necessary to meet heavy expenses in connection with the numerous hearings and investigations.

The Section is indebted to the Association's executives for their activity in looking after the interests of our members throughout the year, for their prompt and ready response when called upon for information or assistance and for a zealous regard at all times for our general welfare. Special acknowledgement is due to our Secretary, Mr. A. L. Dawe, for his good work during the summer in England in connection with the Canadian Trade Mission.

The activities of our publicity department have been of great benefit to the entire industry; the special articles and bulletins issued by Mr. Edward Beck have aided materially to allay the serious efforts made by many newspapers publishers to misrepresent the facts and deceive the public.

REPORT OF CHEMICAL PULP SECTION.

By ANGUS McLEAN, Bathurst Lumber Co., chairman.

The Chemical Section held four meetings during the year at all of which means for bettering the industry and closer co-operation were planned. With this object in view a larger body of pulp manufacturers attended a joint meeting of the American and Canadian manufacturers in New York in April last and fully discussed plans for closer co-operation with the American Association and also the adoption of the Kessinger plan for securing statistics and compiling them. After some months of work on this plan it was abandoned as unworkable largely owing to the heavy financial burden the Canadian manufacturer would have to assume.

Your Chemical Section also recommended the adoption of a uniform cost system and we hope it will ultimately be adopted by the association. Several mills are now exchanging their cost sheets and obtain great value by this co-operation.

Uniform Testing.—This section have looked carefully into the best methods for testing moisture in pulp

and unanimously recommend the adoption of what is known as the Wedge System and trust this will be approved by the Association as a whole.

Membership.—Our membership remains the same as during the previous year and comprises about 80 per cent of the total production of chemical pulps

Production—Our production of sulphite pulp during 1919 approximately was 546,000 tons made and 336,000 tons shipped and comes reasonably close to the estimate made at the beginning of the year. The estimated production for 1920 is 668,900 tons and of this quan-



ANGUS McLEAN,
Chairman Chemical Pulp Section.

tity 450,200 tons is the estimated quantity for sale. These figures show about 46,000 tons increase in production but only 21,000 tons increase for sale.

Markets.—Our markets were more or less upset and demoralized during the first four or five months of the year owing no doubt to the changes caused by the cessation of the war. This resulted in most of the mills curtailing production and many of them closing down entirely for a period. This proved to be a wise policy and while no concerted action took place in the way of agreement to curtail or close down we believe it came about naturally owing to the fact that the mills were kept posted by the weekly bulletins of our Bureau and knew exactly the condition of "stocks on hand" "production" and "sales."

Since the month of May there has been a steady improvement in market conditions both as to demand and price and at present stocks on hand are low with a strong demand and advancing prices. Most of our shipments at present are being made to the United States where the paper mills are enjoying a very active market and high prices. It would seem that the present is a most opportune time for us to open trade with the United Kingdom, South America, and other countries that are now seeking to trade with us. It may mean some sacrifices to do this at the moment, as the demand is so urgent and trading conditions with the United States so easy, that we are naturally induced to let our whole product go there. However, conditions in the United States will not remain as they are at present and we will be obliged to look for other markets for at least a part of our product. We should therefore not lose this opportunity of establishing ourselves in the other markets now demanding a share of our pulp.

Costs.—In spite of the fact that most of our manufacturers looked for a reduction in costs at the close of the war the opposite proved to be true. Labor has advanced 25 to 30 per cent resulting in greatly increased costs for our wood and also in cost for mill production and no immediate relief seems to be possible.

Co-operation.—What little has been accomplished during the past year simply serves to show what great things can be done if a greater degree of interest can be developed, so that every mill producing pulp can be made to see that it is to its distinct advantage to identify trade with the Association and co-operate in an endeavor to make the work of the whole more efficient. We are quite sure that the statistics as compiled by the Bureau and sent out to our members have proved their value and we trust 1920 may see every mill reporting and receiving the benefits derived from this work.

I personally wish to thank the members for the courtesy shown to me during the year and for their support and co-operation and to Mr. Dawe for his very efficient assistance. My only regret is that I have not been able to serve you more efficiently. I hope your next chairman will be located so he can be in close touch with your Secretary as I consider this very necessary for efficient service.

ANNUAL REPORT OF MECHANICAL PULP SECTION

By D. A. CLARKE, Gulf Pulp & Paper Co., chairman.

The year just passed has proved an eventful and successful one for the Mechanical Pulp Mills of Canada. From winter, spring and early summer of poor demand, huge piles of pulp and low prices (considering present day production costs) the situation has changed to a fall and winter of great demand, very high prices and no stocks on hand, thus paving the way for a successful year of 1920.

We have had years before of great fluctuations of prices, but never such a change as occurred this year.

With the signing of the Armistice in the fall of 1918 people stopped buying, thinking that they would see lower prices; the result was that business in general, including pulp and paper was rather dull with the early part of 1919; then about June paper jobbers and others began to find their stocks rather depleted and they naturally commenced purchasing which soon filled the mills with orders and from then on the pendulum began to swing upward and has been continuing its upward swing ever since.

Another reason for the change in the groundwood situation was caused by the tremendous demand for newsprint which in turn was brought about by the extraordinary demand for advertising. The results of this advertising have been so beneficial that there is no doubt that it will be continued for some time to come and therefore, we should look forward to a good demand for groundwood pulp for considerable time.

Another, and probably the greatest reason for the scarcity of groundwood pulp this fall and winter was brought about by the heavy exportation of pulp to

England and France during the past summer and fall, Canada exporting about 95,000 tons of pulp this year in comparison with 6,000 tons last year.

At the last meeting of this Section we discussed the best mode of testing mechanical pulp and it was unanimously decided that the "Wedge" system should be adopted and that a resolution should be passed at the Annual Meeting of the Pulp & Paper Association for the Industry to go on record as adopting the "Wedge" system as the standard for testing Canadian groundwood pulp.

It was also adopted at the last meeting that the Secretary of the Association would secure more complete rainfall and river gauge reports over the different parts of the United States and that these reports would be sent to the members of the Mechanical Pulp Section regularly each week. The Secretary is also going to collect and issue regularly for this Section, certain reports covering newsprint, and groundwood production in the United States; also export of Pulp and Pulpwood to the United States, etc. This information should be of assistance to the groundwood mills in looking to the future demand and price for their product.

We are going into the year 1920 with a great demand for pulp, no stocks on hand, which is a record for this industry, with newsprint in great demand and sure to continue so throughout the year and with prospects of large foreign business to take away a large portion of our production. With these facts the future of the groundwood industry seems assured and the year 1920 should prove a banner one for the groundwood mills with high prices ruling throughout the year.

A table of United States imports of groundwood pulp follows:

Imports Into United States of Mechanical Wood Pulp

	1913	1914	1915	1916	1917	1918	1919
Jan.	13985	12094	12807	14299	20976	9841	1288
Feb.	8586	10033	10385	10218	12815	7861	7738
March	9041	12730	8457	11693	23065	8151	8247
April	10429	8536	9008	18028	21156	12841	9714
May	9390	12923	11460	20201	28533	18795	14955
June	11010	15719	12685	24993	32702	15015	15572
July	8762	20912	16063	20999	26289	18729	18161
August	10796	24221	17079	24965	31335	21349	23116
Sept.	29789	33019	19686	27472	24238	20658	18503
October	22946	16711	19177	25007	18037	18671	26037
	134739	166902	136509	197875	239196	151711	143421
Nov.	15662	21206	20959	35915	18359	18586	
Dec.	17753	29470	21065	28669	21517	15030	
	168154	217579	178533	262459	279072	185427	

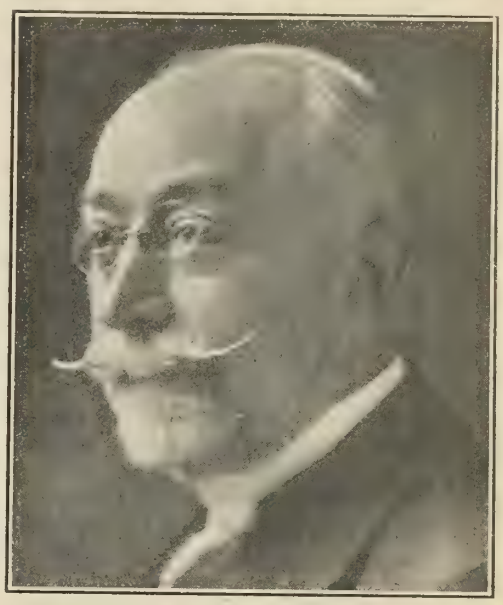
ANNUAL REPORT OF BOOK AND WRITING SECTION.

By S. J. B. ROLLAND, Rolland Paper Co., chairman.

It is possible to look back over the best year with feeling of satisfaction on account of the well attended and satisfactory meetings held by the Book and Writing Section, resulting in much progress being made in many directions. General business has developed to a considerable degree, the mills all being extremely busy practically throughout the year. Most of the mills have received many opportunities for export but it is a matter for congratulation that they have had first regard to the requirements of the home market of which they have taken care.

Many changes have taken place, outstanding among these being the absorption of the Toronto Paper Co. by the Howard Smith Paper Mills, Limited. Considerable progress has been made toward further standardization in which the Canadian Paper Trade Association have shown much interest. In fact one of the happy features of the year's work has been the co-operation existing between the two Associations. Meetings of the joint committees have been held and suggestions exchanged, all of which have tended toward the stabilization of business.

Some of the mills comprising the section have still been the subject of investigation at the instance of publishers. The most recent investigation terminated early in January, when the controller notified the publishers that after their investigation into the prices of paper here and in the United States, the conclusion was reached that the situation did not justify the further expenditure of the public's money. It is to be hoped that as a result the mills will be allowed to continue their business subject to the laws of supply and demand.



S. J. B. ROLLAND,
Chairman Book and Writing Section.

Thanks to the generosity of Mr. I. H. Weldon of the Provincial Paper Mills, the Association is now in possession of a Trade Mark which has received wide circulation and has become widely known to the consumers of pulp and paper products, due to the success of the advertising campaign carried on by the Book and Writing Section, and also by the effective use made of it by many of the mills. The advertising carried on by members of the Section has been of a high order and has all tended to bring the desirability of buying Canadian made goods before the general public and consumers.

The question of raw materials has been the cause of considerable worry. Not only have prices continued to advance but the quality of many lines has been unsatisfactory. The unlikelihood of a decline in the price of rag or pulp coupled with wage schedules would make it appear that lower prices of paper are unlikely. The present high rate of exchange while working a hardship on those buying raw materials in the United States has resulted in an increased demand for Canadian made products.

Some minor changes have been made in the Trade Customs which have been recently issued in amended form.

The outlook for the present year is good and the only requisite to another more satisfactory year is the continued spirit of co-operation existing between the members of the Association and between those of the Canadian Paper Trade Association.

REPORT OF FELT SECTION.

By W. R. McNEIL, chairman.

The Felt Paper Section has just closed the most unusual year in its history, and had it not been for the close co-operation between the members of the section, the many problems which confronted us during the year could never have been so quickly and satisfactorily solved.

We have held regular monthly meetings throughout the year, all of which have been well attended, especially our meetings of the past two or three months when we have had 100 per cent attendance.

During the year we lost the valuable counsel of one of our oldest members though the death of M.r E. R. Pepin.

We are glad to be able to report that all mills eligible to representation in our section are now taking an active part in our monthly discussions.

Scarcity of good quality, well packed rag stock has presented our greatest problem during the past few months. The scarcity of stock was relieved somewhat by the importation of a fair tonnage of foreign rag stock, and through the co-operation of our members we were able to maintain the quality of packing of stock at a reasonably high standard.

In spite of the lot production in all mills during the early part of the year, the demand during the latter part of the year was sufficient in most cases to bring the year's production above normal. At the present time all mills have sufficient orders to keep them running full production for several weeks to come and the prospects for 1920 look very bright

Again we wish to acknowledge our indebtedness to Mr. Dawe who has so ably assisted our Section throughout the year.

REPORT OF BOARD SECTION.

By J. F. TAYLOR, chairman.

Six regular meetings of the Board Section have been held during the year two in Ottawa and four in Montreal; practically all the meetings being fully attended by the members.

Perhaps the most important matter under discussion was the question of Uniform Trade Customs, which after being under consideration since August 1919, was finally settled upon at the January meeting. The Trade Customs have been issued in attractive form and it is believed will prove a benefit to all concerned.

The market was in a very disturbed condition in the spring and early summer months, owing largely to the collapse of the board and box trade in the United States, during the period of uncertainty following the Armistice. Many United States mills were on greatly reduced schedules of production and others for a time competed sharply, especially in the lower grades, with the Canadian mills. As a result, the production of boards for sale in Canada diminished somewhat during the period.

Export Business.—As a partial offset to the Canadian and United States situation, the gradual release of more shipping enabled some of the mills to resume shipments on a considerable scale to Great Britain, and it is interesting to report that a heavy tonnage was sold for that and other markets during the summer and a quantity of at least ten to twelve thousand tons has been booked for 1920 for the British market.

The demand from that source appears to be increasing, in spite of heavy freights and low exchange rates a large quantity having been contracted for at equal to or better than the prices prevailing in the Canadian Market. The British market appears to be in a position to take care of a greater board tonnage than ever before shipped from this country. A special call is being made for test boards and other stock suitable for large containers, wallboard, etc.

Since July 1919 the Canadian demand has heavily increased and at the close of the year all the mills reported heavy order lists. Many enquiries from the United States had to be turned down for want of machine capacity.

Causes for alarm have been experienced in connection with proposed advance in freight rates, which will sooner or later have to be met. Prices of raw material and supplies have advanced so considerably, especially groundwood, waste paper stock, coal, etc., that the mills have been compelled to increase prices correspondingly.

The board manufacturers are pleased to report that in spite of all the difficulties of the year, their relations with the box makers are on an excellent footing and there is every prospect of this situation being maintained.

The tonnage of boards produced with shipments is as follows for the period of 12 months 1 November 1918—31 October, 1919:

Tons: Made 88,324; Shipped Canada 58,906; U. S. 13,023; Elsewhere 16,973; Total 88,902.

TECHNICAL SECTION

By J. STADLER, Belgo-Canadian Pulp & Paper Co.

The annual meeting of this section held in Montreal on January 30th, 1919 had a programme which included a Practical Operating Synopsis, and the large attendance at that meeting consisted not only of Technical men but also business men of the industry who took an active part in the discussion of the papers presented.

Your section very much appreciated such a move and hopes that in the future business men of the industry will participate more fully in the meetings of this Section, whose aim is to co-ordinate technical knowledge, to improve the operating practice of your plants, and to manufacture economically products to suit the commercial requirements of the industry.

The Section had a semi-official joint meeting with the American Technical Association of the industry, June 11th, 12th, and 13th, at Erie, Pa., Buffalo N. Y., and Thorold, Ontario. The regular summer meeting was held on July 29th and 30th, and consisted of a trip from Quebec up the Saguenay River, thence to Kenogami at the invitation of Messrs. Price Bros., whose plant was visited.

It was considered advisable to omit the Fall Meeting as the majority of members were extremely occupied on problems brought about by the heavy demands for the products of the industry.

The Committee of the Section have in general done very good work, and the Association at large and the industry as a whole have and must benefit greatly by this co-ordinated activity.

The Committee on Programmes: has looked after the meetings in a most efficient and business-like manner.

The Committee on Education: has made very good progress on the Textbooks for the Industry, it has completed arrangements for the publication of same, and several hundred pages have been turned over to the publisher. It has also followed up with great activity Night Schools and University Students' va-

cation work and made recommendations concerning same. It has also made representation about Educational Reforms to the Minister of Education and Premier of each Province.

Committee on Publications and Abstracts: has performed its function, and abstracts of articles appeared weekly in the Official Organ of the Section. The transactions for the past year have not been published, but the Committee recommends having this done when all minutes of the Annual Meeting are available.

Committee on Statistics: has continued its work and thus provided information which gives a clear and comprehensive view of the Industry.



JOHN STADLER,
Retiring Chairman of the Technical Section.

Committee on Samples: has resumed its work and added recent European samples to the collection which is available to all members of the Association. Whereas considerable improvement is reported in the product manufactured by the Association, it is pointed out that the acid test of competition only will show whether our standards of qualities are justified.

Committee on Testing Moisture in Pulp: has further followed up the methods reported last year before the Technical Section, and now recommends the adoption of these methods by the main body of the Canadian Pulp & Paper Association as a standard for testing pulp.

Committee on Chemical Standards:: has various matters under investigation but has not concluded on any specific subject.

Committee on Mechanical Standards: has followed up various subjects and made a preliminary report to the Technical Section with recommendations that some matters be investigated further, and that for certain work there should be appropriated funds from the main association, as the work entailed in some investigations is beyond what could be accomplished by voluntary contribution.

Since the question of contributions for investigation was favourably passed upon three years ago by the Executive of the Association it is therefore anticipated when demands are made by the Technical Section that same will have your full support.

Advisory Committee to Forest Products Laboratory: has as yet not succeeded in bringing about the desired activity. Your representative has through the Technical Section brought before you the pressing facts of the situation, and although the Executive of the Association have authorized a substantial yearly contribution toward the Superintendence of the Forests Products Laboratory, the Government has as yet not advised whether such a proceeding is acceptable, hence the matter it still in abeyance.

Last but not least your worthy Secretary reports that the finances of the Technical Section are in a flourishing condition also that the net membership has increased by 40 in the last year, which brings the total membership of the Section to 142.

In closing it is probably in order to remark that we now have a representation in every important mill in the Dominion, and it is hoped that the management of such mills as have not a full pro rata representation will do their part to come up to the average, for we believe that such a move is not only highly beneficial to the respective mills but to the Industry in general.

REPORT OF WOODLANDS SECTION.

By ROBERT P. KERNAN, chairman.

The first meeting of the Woodlands Section, during the past year, was an all day conference held jointly with the Canadian Forestry Association, in Montreal on the 29th Janaruy 1919. It was largely attended and great interest was shown in the various papers and discussions, some of which touched upon the present methods of logging but most of which dealt with preserving and perpetuating our forests. Generally speaking, the work of the Woodlands Section for the entire year was aimed at insuring for the paper and lumber industries, a future supply of wood, and the present methods of cutting were considered only with this object in view.

The great necessity of protecting the forest from fires, had been thoroughly gone over on the previous day, before the meeting of the Quebec Forest Protective Association, but was brought up again at our meeting, in reference to the fire patrol of the Canadian National Railroads, and a resolution was passed, urging that the necessary legislation be prepared to place all fire patrols of the Canadian National Railways under the control of the Board of Railway Commissioners. As yet nothing has resulted from this attempt to change the present system of handling the fire patrols on the National Railways but the entire matter is to be brought before the next conference to be held on the 28th of January, and members of the Provincial Governments of Quebec, Ontario and New Brunswick are expected to be present and to cooperate in the endeavour to bring about a change.

A paper by Mr. W. R. Brown, of the Brown Corporation brought up the question of changing the regulations for cutting now in force. This subject has been kept alive throughout the year and a Committee from the Limit Holders Association of Quebec and the Woodlands Section of your Association has been working with representatives of the Quebec Government, in an attempt to draft regulations. There are many and varied views as to what cutting regulations will bring about the quickest and best forest reproduction, but the most general opinion seems to be that it will be impossible to adopt regulations, suitable for the entire Province, and that the different sections should be studied and special regulations laid down for each

section. Owing to the practical difficulties of putting this plant into effect it may be impossible to persuade the Provincial Government to adopt the idea, but it undoubtedly would be the most effective.

The second meeting of the Section was held at Berthierville and Grand Mere, on the 25th and 26th of June. There was an exceptionally good attendance, and the interest shown warrants the continuation of the practice of holding meetings in the field where actual conditions can be seen and studied.

Reforestation was the main topic taken up, slash burning being considered in connection with it. The Government nurseries at Berthierville and those of the Laurentide Company at Proulx were inspected and an exhaustive paper on the subject was read by Mr. G. C. Piche, Chief Forester of the Quebec Provincial Government. The question of the cutting regulations in the Province of Quebec was again brought up, and a resolution was passed favoring certain



A. L. DAWE,
Secretary of the Canadian Pulp & Paper Association, etc.

changes in the present law as essential to the preservation and perpetuation of the forests, and suggesting the appointment of a committee of the Association to wait upon the Government urging the necessity of an early revision of their regulations to meet present day conditions.

On the 14th of October, a meeting of a Joint Committee of the Canadian Forestry Association and the Woodlands Section, appointed for the purpose of taking up with the Provincial Government the question of reforestation and of changing the present cutting regulations, was held in Quebec. On the following day these matters were presented to the Minister, and a sub-committee was appointed to draft the proposals into a more complete form. Their work is practically finished, and within a short time the joint committee will report to a general meeting and it is hoped that some definite action will result.

On the whole, the activities of and progress shown along certain lines by the Woodlands Section, seem to amply justify its existence and we believe that its usefulness will increase, year by year, and that it will become even a greater factor in handling all important questions, connected with the present and future supply of the raw material which forms the basis of the great pulp, paper and lumber industries of the country.

REPORT OF COATED PAPER SECTION.

By GEORGE W. PAULINE, chairman.

During the early part of the year the coating mills were not heavily booked with orders, in fact, showed some anxiety as to the future, but within the last six months conditions changed, chiefly on account of the advance in price of S. C. book and the inability of the book mills to make delivery in reasonable time. Consequently, the end of the year found the coating mills congested with orders and considerably behind on deliveries. Notwithstanding the fact that manufacturing costs have kept steadily increasing, no advance in price has been made to date, but it is difficult to forecast what the future will bring.

In this connection, particular attention is drawn to a comparison of the present prices of coated paper in Canada and the United States. In pre-war times these ran from two to three cents per pound higher than in the United States, but to-day they are practically on a par, and in some cases lower. This speaks well for the management of Canadian mills, as it is an admitted fact that the cost of production is much greater in Canada, owing to the heavy duties that have to be paid on machinery and almost everything that enters into the manufacture of coated paper.

Numerous export enquiries have been received, but, as the present requirements of the home market exceed the supply, there is little tonnage to offer.

Normally, coating mills in Canada have only run on a single day tour basis, both from an economic standpoint and the difficulty in securing competent help. Recently, double shifts were put on, which, with the additional buildings and machinery that have been added to all the mills, will greatly increase their capacity, and enable them to take care of the present heavy demands of this market, provided sufficient raw material can be secured for their requirements.

Orders are very plentiful, and the outlook is for a busy year.

MORE NEWSPRINT MILLS NEEDED.

Chicago.—More mills are necessary to relieve the present world shortage of newsprint paper and the mills cannot be built in less than two years, W. P. Hinton, of Winnipeg, vice-president and general manager of the Grand Trunk Pacific Railway said here today.

There is no lack of pulpwood in either Canada or the United States at present, Mr. Hinton said, but added:

"Great inroads are being made in the forests. As the trees are cut the source of supply recedes into the north, haulage to the mills becomes greater and expense of manufacture consequently is increased.

"The demand from Europe is tremendous and prices are unprecedented.

"The present crisis is turning the eyes of capitalists to the spruce forests of British Columbia and to the practically inexhaustible pulpwood supply along the Fraser river. These pulpwood forests are unbroken to the Arctic. Considerable pulp already is manufactured in the province, but most of it goes to Japan."

Successful Pulp and Paper Mill Trials on Cotton Hull Fibre

By OTTO KRESS, in charge Section of Pulp & Paper,
U. S. Forest Products Laboratory, Madison,
Wisconsin.

(Continued from January 29, 1920.)

PAPER TRIALS ON COTTON HULL FIBRE PULP AT AMERICAN WRITING PAPER COMPANY, HOLYOKE, MASS.

The pulp from cook No. 4 made at the Penobscot Fibre Company was dug from the pans, boxed, and shipped to the American Writing Paper Company. A sample of the pulp was sent to tht Forest Products Laboratory, where it was found that 9 per cent of bleach was required. This does not represent the true bleach consumption, as considerable saving could have been made if the stock had been bleached directly after washing instead of waiting for from ten days to two weeks. The stock was shipped about 25 per cent bone dry and determinations indicated a yield of approximately 62 per cent of pulp.

The following fibre measurements made on the raw and unbleached fibre are of interest.

Raw Cotton Hull Fibre as Pulped at the Penobscot Chemical Fibre Co.

Average length of fibre	2.51	m.m.
Longest fibre	5.95	"
Shortest fibre	.74	"
Fibre under 2 m.m.	48	%
Fibre over 2 m.m.	52	"
Average length of fibres under 2 m.m.	1.41	m.m.
Average length of fibres over 2 m.m.	3.74	"

22 black specks or part of hulls to 92 fibres.

Unbleached Cotton Hull Fibre Pulp Produced by Cook No. 4 at the Penobscot Chemical Fibre Co.

Average length of fibre	2.10	m.m.
Longest fibre	3.97	"
Shortest fibre	1.02	"
Fibre under 2 m.m.	44	%
Fibres over 2 m.m.	56	%
Average length of fibre under 2 m.m.	1.46	m.m.
Average length of fibre over 2 m.m.	2.61	"

Although the foregoing data are obtained from only 25 measurements on each of the pulps, they are indicative of the results that would be obtained through the destruction by cooking of the smaller particles of fibre as shown by a slight increase in the percentage of fibres larger than 2 m.m. in the pulped stock. Unfortunately, no sample is available for fibre measurements at the laboratory of the washed and bleached pulp, as the writer believes that these operations would have still further decreased the percentage of fibres less than 2 m.m. long.

The stock was washed in the beater to remove the finely divided fibres obtained from the cooking of the hulls and bleached on different trials with and without the use of alum, or acid, and with the aid of heat. The bleached stock was dropped into a drainer and used in the furnish of papers, where it substituted an approxinately equivalent weight of half stock of thirds and blues. Samples of finished paper were tested for strength at the Forest Products Laboratory. Much of the information in Table 3 was taken from the final report of the co-operating mill and was verified by the writer during his attendance at the trial. Both the amber flat and special ledger were top-sized with "Hercules" gum, and papers being loft dried and finished under similar conditions. The No. 1 amber flat, which was the first run made at this mill containing cotton hull fibre, showed considerable fuzz; this was overcome by a harder brush of the stock for the run of special ledger. The color, strength, feel, rattle, etc. were satisfactory. Approximately as much dirt was found in the regular flat and ledger as was present in the papers in which hull fibre was used.

PAPER TRIAL AT THE EATON, DIKEMAN COMPANY, LEE, MASS.

The writer shipped approximately 1000 lbs. of bone dry unbleached cotton hull fibre pulp to the Eaton-Dikeman Company, at Lee, Mass., for conversion into blotting and vulcanized fibre paper.

A 1000 lb. beater was furnished with approximately 500 lbs. of cotton hull fibre stock and washed with the roll well off the bed plate for four hours. The stock was then bleached for one hour to a light yellowish shade using a little acid to hasten the bleach; it was then washed and the roll dropped for one hour. The

Table III.—Data on papers made at the American W riting Paper Company, Holyoke, Mass.

Paper	Furnish						Strength tests made at Forest Products Laboratory						
	Bulk per ream	Folio Wgt.	Strength ratio	Mul-len	Hull fi-bre	Rag:	Soda:	Sul-phite:	Hum-id-ity	Tem-pera-ture	Wgt. per ream	Bursting strength	Points per .0001" thick-ness	Aver-age break-ing length	Aver-age folding test
	Inches	Lbs.		Lbs.	%	%	%	%	%	°F	24x36/500 basis	Points per lb		Meter	Number
#1 Amber Flat (Cotton Hull fibre)	1-15/16	23.7	.89	21	45		5+	50	66	76	56	.35	.48	2860	16
#1 Amber Flat (Regular)	1-15/16	22.8	1.0	22.8		50	5	45	66	76	59	.39	.54	3200	31
Special ledger (Cotton Hull fibre)	2-50/64	23.7	1.08	25.5	50			50	65	73	57	.39	.53	3250	14
Special ledger (Regular)	2-24/64	21.7	1.26	27.3		55		45	64	74	52.5	.44	.61	3670	33

Table IV.—Absorption test by modified Klemm method on blotting and vulcanized fibre paper made at the Eaton, Dikeman Company, Lee, Mass.

Rag blotter	Cotton Hull Fibre Blotter	Rise in inches	Normal Vulcanizing paper	Cotton Hull Fibre valcanizing paper	Inches
10.5 seconds	3.5 seconds	1/2 inch	44 seconds	5.4 seconds	1/2 inch
60 "	25.5 "	1 "	229 "	44 "	1 "
163 "	71.5 "	1½ "	600 "	121.4 "	1½ "
319 "	142. "	2 "		245. "	2 "
560 "	242. "	2½ "		414. "	2½ "
	376 "	3 "		600. "	2-7/8"
	543 "	3½ "			

stock was put over the machine and a sample of the finished paper put through a laboratory vulcanizing test with zinc chloride, the results of the test being entirely satisfactory to the mill. The strength of the sheet was entirely satisfactory, the main characteristics desired in this paper being ease of vulcanization and absorbency. This company was running at that time vulcanized fibre made on a mixed furnish containing a high percentage of munition linters and this paper, due to the dirt in the munition linters, was considerably dirtier than the paper made from cotton hull fibre pulp. Figure 1 shows the remarkable absorbency of cotton hull fibre paper in comparison with their normal vulcanizing paper. By the ordinary ink-dropping test, water being used to save the time required to prepare the standard ink, the cotton hull fibre stock absorbed 1 c.c. water in 58 seconds, while the ordinary vulcanized fibre paper required 600 seconds to absorb the 1 c.c. of water.

Another run was made at the mill of blotting paper, in which 500 pounds of unbleached cotton hull fibre stock was to be bleached with the object of producing a high white. This was not done, as during the washing and bleaching treatment, the writer was holding the paper machine idle so that the bleaching was discontinued before a high white was reached. It was attempted to correct for color by the addition of a little red and blue dyestuff, but the resulting shade was a grayish white instead of a high white.

The blotting made from cotton hull fibre pulp was compared with a very high grade all rag blotter, and, as can be seen from Fig. 1, showed far greater ab-

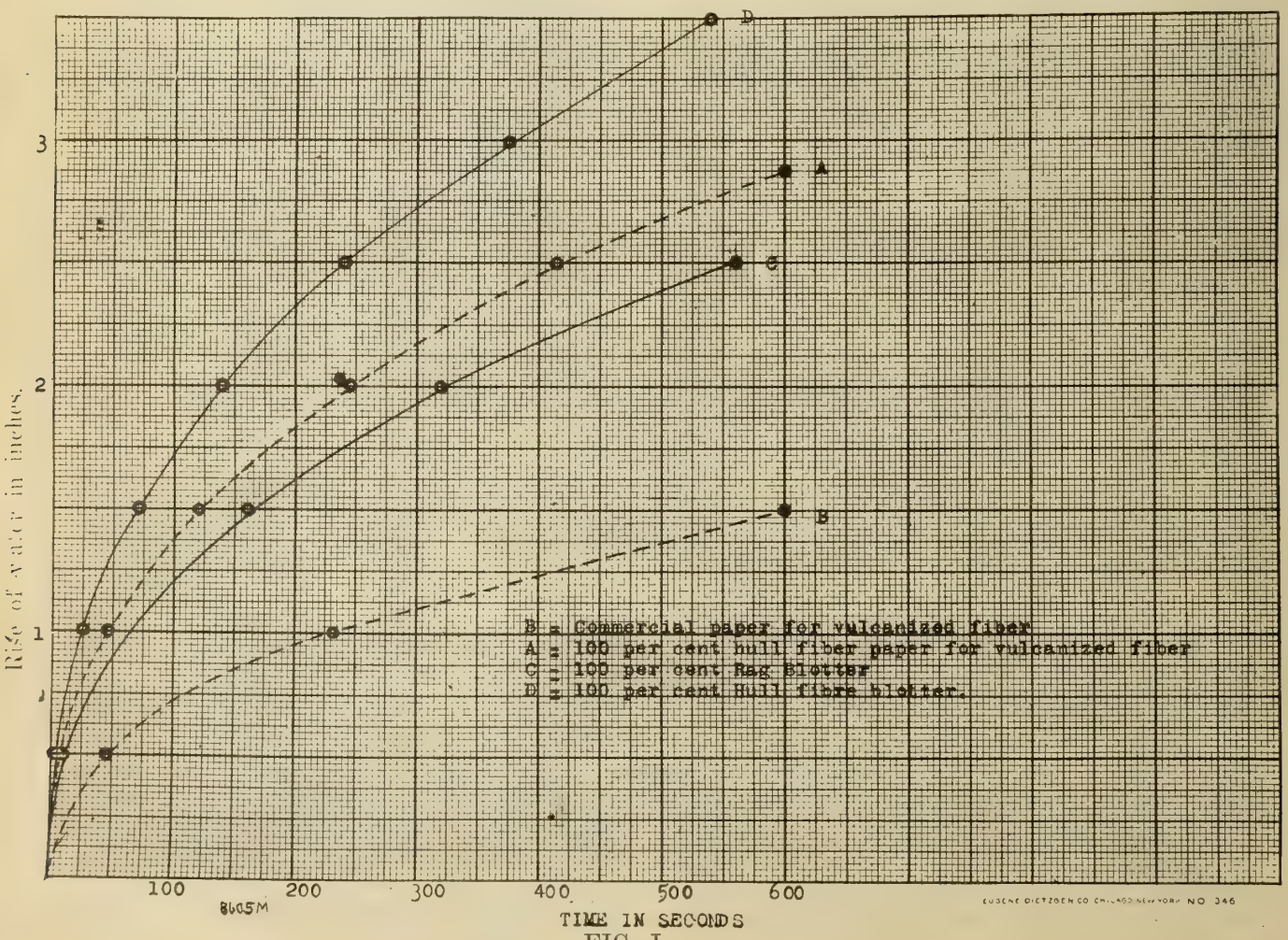


FIG. I.

sorption of water by a modified Klemm test than the rag blotter. By the ink-dropping test (using water) the cotton fibre blotting completely absorbed 1 c.c. of distilled water in 8 seconds, while the rag blotting stock required 19 seconds. The cotton hull fibre blotting paper was run .024 inch thick, while the competing rag blotter was .033 inch thick. The relative rate of absorption as shown by a modified Klemm test for both the blotting and vulcanized fibre papers made from cotton hull fibre pulp in comparison with the normal stocks is shown in table IV.

No difficulty was experienced in handling the stock, and the co-operating mill expressed themselves as completely satisfied.

PAPER TRIALS MADE AT THE B. D. RISING PAPER COMPANY, HOUSATONIC, MASS.

The pulp made at a previous date by Mr. Wells and the writer was worked up into paper at the mill of the B. D. Rising Paper Company, Housatonic, Mass., in the presence of the writer. This stock had been bleached previously using 10.9 per cent bleach and had been in the drainer for several weeks.

A sample of the bleached stock on microscopic examination yielded the following information:—

Average length of fibre	2.10 m.m.
Longest fibre	3.97 m.m.
Shortest fibre	1.02 m.m.
Fibres under 2 m.m.	44 %
Fibres over 2 m.m.	56 %
Average length of fibres under 2 m.m.	1.46 m.m.
Average length of fibres over 2 m.m.	2.61 m.m.

At these trials three papers were made, a paper to be used in the manufacture of a pasted wedding paper and two runs of bond made on a furnish of 75 and 50 per cent hull fibre pulp, and the balance being bleached sulphite. The papers were animal sized but not loft-dried. No difficulty was experienced in screening or in passing the paper over the machine. The papers produced were of a high white free from dirt and of a quality that was satisfactory to the mill.

The strength data on the finished and uncalendered samples are shown in table V.

CONCLUSIONS.

1. Cotton hull fibre similar to the product manufactured by the East St. Louis Cotton Oil Company can be pulped in the ordinary soda pulp digester. There is no question that less drastic pulping conditions can be used than were employed, and especially must the ratio of liquor to fibre be reduced to insure an economical soda recovery, and considerable further work must be done to determine the optimum pulping conditions. In the one cook witnessed by the writer it was not considered advisable to cut the chemical, liquor volume, or time of cook, as only sufficient raw stock was available for one cook.

2. The ordinary soda pulp equipment for handling the pulp, such as rotary and flat screens, pulp thickeners, etc., are not suitable for handling cotton hull fibre stock direct from the washing pans preparatory to putting the stock over a wet machine or a pulp dryer. The writer believes that after the stock is washed in diffusers or pans it might be handled as follows: Slush the stock to beaters and wash while brushing. Cotton hull fibre pulp if handled correctly can and must receive a hard brush in the beater to develop its maximum strength, and this could be partially done while washing. The caustic pulping treatment disintegrates the hull particles which are broken down into individual hull fibres, and these small particles probably have but very limited felting and strength giving characteristics, and for certain papers—bonds for example—where strength is of consideration, must be removed by washing. For book paper or certain other grades they might be of value as a filler and could be compared in their paper characteristics to bleached soda pulp.

Under the microscope with the Herzberg stain the cotton fibres show the typical wine red color of rag stock, while the fibres produced from the disintegration of the hull fragments are stained blue similar to chemical wood pulps. The presence of this disin-

Table V.—Strength data on papers made at B. D. Rising Paper Company, Houstonic, Mass.

Description of papers	Humidity	Temperature	Weight per ream	Bursting strength	Points per .0001" thickness	Average breaking length	Average folding test
	%	°F	(basis) 24x36/500	lbs.		Meters	Number
Unfinished 100% Hull fibre Wedding paper	65	80	73	.25	.23	2230	7
Finished 100% Hull fibre Wedding paper	64	79	71	.26	.33	2200	11
Unfinished Bond 75% Hull fibre 25% Sulphite pulp	66	82	48	.24	.22	2290	6
Finished Bond 75% Hull fibre 25% Sulphite pulp	65	72	48	.25	.30	2430	8
Unfinished Bond 50% Hull fibre 50% Sulphite pulp	66	71	47	.28	.28	3230	7
Finished Bond 50% Hull fibre 50% Sulphite pulp	66	71	46	.30	.36	3260	8

tegrated hull particles, if not properly removed by washing, would probably have a decided influence on the pulp or paper, if it were found to be suitable for the production of viscose, acetyl cellulose or nitration paper for the production of a lower nitrated cellulose, such as is used in the manufacture of celluloid, collodion, pyroxylin, etc.

3. No difficulty was experienced in preparing a clean pulp which bleached to a high degree of white with an economical bleach consumption. Such bleached munition linters as the writer has seen and which were prepared during the War for the preparation of nitro cellulose, are so dirty that in the writer's opinion they are unsuitable for the production of high grade papers. The raw stock on which these pulping trials were made contained, as far as could be ascertained by observation, practically no foreign dirt, such as cinders, and street dirt. From a visit to the plant of the East St. Louis Cotton Oil Company the preparation of the raw fibre was seen and some experiments were observed in which the hull fibre was put through the attrition mills for re-cleaning and further separation of hull fragments. Naturally, the more hull the more hull fragments removed the less drastic is the pulping treatment required, thereby saving chemicale and a percentage of the smaller fibre which would be destroyed by the more drastic cooking. Furthermore, the yield of pulp per unit of raw fibre, or the yield per digester, will be decidedly increased of these hull particles that have been removed by pulping are separated in a preliminary mechanical treatment. In this connection the use of special dusters may prove of direct value.

4. The strength of the fibre is approximately that of the fibre from thirds and blues or other soft rag stock. In papers made at these trials which the writer witnessed, the cotton hull fibre stock made a paper that was apparently a little weaker than those in the finish in which thirds and blue rag stock was used; it is believed, however, that with better handling slightly stronger papers could have been made. Only a limited amount of pulp was available, which, because of delay in bleaching, was undoubtedly in certain cases decidedly weakened by the drastic treatment given to produce a good white. Furthermore, the mills were not familiar with the character of the stock and, because of the apparent shortness of the fibre, hesitated to brush the stock as it should have been handled. As already mentioned, the writer believes that cotton hull fibre to develop its full strength requires a stiff brush and the fibre will successfully withstand such treatment.

5. As far as the general papermaking requirements are concerned, cotton hull fibre offered no difficulties. Practically no adjustments were necessary to screen the beaten pulp or handle it on the machine and the behavior of the stock insofar as giving excellent formation and water marking of the sheet is concerned, was entirely satisfactory. The papers dried readily and had the necessary feel and rattle. No difficulty was noted in regard to sizing; samples of paper from all the runs were examined by the writer and found to be adequately sized. The first run of the No. 1 amber flat showed considerable fuzz on the calendered sheet, but this was readily overcome in the run on special ledger by giving a harder beater treatment which the stock required.

6. Various grades of commercial paper were prepared at four different paper mills and from the results obtained the writer believes that this stock can be used to replace thirds and blues or other soft rag stocks in the manufacture of certain grades of bonds, ledgers, papeteries, writing, blotting, vulcanized fibre paper, book, envelope, cover pasted goods, cover papers, etc. Furthermore, in certain grades of paper this new stock might be of decided interest in making papers requiring a 100 per cent rag furnish. The fine paper mills and buying rag stock subject to market fluctuations and are depending on rag dealers whose industry is not stabilized. If cotton fibre pulp were supplied either in laps or dry in roll form, the mills could purchase this grade of rag stock on contract subject to specifications for cleanliness and quality similar to the purchase of chemical wood pulp. The mills would further be released from the handling of the grades of rags substituted from the sorting room through the bleaching operation as cotton fibre pulp would be furnished in a bleached condition, ready for the beater. Probably, in order to avoid freight charges on the raw fibre, cotton fibre pulp plants would be erected in the South close to the source of supply of the fibre at points where cheap power or coal is available. For Northern paper mills where coal and power are deciding factors the pulp could be partially brushed in the beater during the washing treatment, so necessitating less power expenditure in the paper mill beater. The length of the fibre could, of course, be varied by mixing pulps produced from a lighter cut with the cotton hull fibre pulp. To avoid overcooking with consequent loss in yield the writer believes that the different cuts representing different fibre lengths should be pulped separately.

7. There is available from the four to four and one-half million tons of cotton seed produced annually, some 700,000 bales of fibre that could be used for purposes than those for which this material has been used in the past. At 500 lb. to the bale this corresponds to a production of 175,000 tons, equivalent to a little less than 600 tons of raw material per day (on a basis of 300 working days a year). This enormous amount of a possible paper stock has been made available through the installation of special equipment at the oil mills when the War Department required the fibre for the production of cellulose, only the paper industry can absorb this annual tonnage, but the oil mills will not cut this fibre and maintain the necessary plants unless they can be assured of a market for their product. No estimated cost has been given for the prepartion of bleached cotton fibre pulp, as the cost of the raw fibre varies. It a drop in labor and materials should occur, then the cost of producing pulp would probably drop in proportion to any decrease in the cost and conversion of rag stock. It is, of course, to be remembered that from the experience obtained so far, this cotton pulp does not compete with hard rags but with soft rags such as the typical thirds and blues. The paper industry should receive this new stock with sympathy and study the handling of the stock in the beaters and on the machine in order to ascertain the conditions for the development of maximum strength. It would certainly be of direct advantage to the fine paper mills if this new stock is found to be suitable to their needs, so assuring them of a constant supply of bleached cotton fibre to replace raw rags where the costs fluctuate and which have to be handled through the mill.

The Outlook in the British Paper Industry

F. E. Becker's Review and Forecast.

(Special From Our London Correspondent)

It has fallen to the lot of Mr. F. E. R. Becker, who is well-known in pulp and paper circles throughout the world as a shrewd and level-headed business man, to give us an outline of how things are going on in the British paper industry. He is one of the few men who is not afraid to express his opinions and he ably and eloquently upheld his reputation as such at the annual meeting of Charles Marsden and Sons, Ltd., which das held in London during the second week of the new year. Charles Marsden and Sons, Ltd., are a well-known firm in Sheffield and their report for last year shows a gross profit, after providing for excess profits duty, depreciation, etc., of £93,930 in comparison with £62,180 in 1917-18, £22,884 in 1916-17 and only £18,667 three years ago. The ordinary dividend for the year is 9 per cent, against 8½ per cent in 1917-18 and 6 per cent in the two preceeding years, while the carry-forward is raised from £54,754 to £105,-723. The 7½ per cent preference shares also receive 9 per cent by virtue of an arrangement whereby shareholders are entitled to receive a further 2½ per cent after the ordinary have received 7½ per cent.

In 1918 the company acquired the Irish Paper Mills Company and the acquisition of this mill together with the Ramsbottom Paper Mill Company, coupled with the high prices ruling for all classes of paper, are apparently responsible for the great expansion of business. In April, 1919, 225,000 £1 preference shares were offered for sale at a premium of 1s. per share, increasing the issued capital to £568,509.

Control and De-Control Conditions.

Mr. F. E. R. Becker, who is President of the company, (Messrs. Charles Marsden and Sons) after the annual report had been submitted, lost no time in hitting the Government a "backhander" for their ineptitude. He said that the year just ended had been a troublesome one for the paper trade, chiefly on account of the Government. They were under control until March 1919, and then, on account of the clamour of certain newspapers, the Government suddenly dropped all control. This really had no effect at all on white papers and printing papers, but it closed down the brown mills. He should point out, however, that only one-third of the paper consumed is the white paper used in magazines and newspapers. By far the larger portion of the trade is the brown paper trade—which are known as browns and wrappings. These embrace wall papers, and papers for paper bags, the boxes that boots come home in and various papers to meet trade requirements. A great deal more paper is made for these purposes than for the newspapers and magazines, and it was in this part of Charles Marsden's business in which the company got badly hit, one of the mills having to close down for nearly a month. Everybody was waiting for those wonderful supplies which were supposed to be accumulating in foreign markets, and which were going to bring down the prices of paper.

The result was such that the Government did something which they seldom do—they admitted they had made a mistake. They called together a committee, which steadied things down and gave mill owners six months to look round. Trade at once revived, and "to-day we are free from control, which ceased in September," added Mr. Becker, "and we only want steadying down; we did not want being pulled down like that; but we are all very happy and comfortable now, except that we still have certain difficulties with coal control and shipping control. However, we shall be uncontrolled before very long, and I hope that before we meet again we shall all be masters in our own homes and houses once again."

Wages and The Workers.

The wages question and the necessity of looking after the interests of the workers, were questions next dealt with by Mr. Becker, who remarked that he was very pleased and proud to say that in the paper trade very good relations existed between the men and their employers. The balance sheet before the shareholders was quite a good one, and yet he might tell them that the wages distribution to the men worked out at £4 2s. per ton, while the distribution to the shareholders came to less than £1 per ton. They had a basis of co-operation, and the man in the paper mill who did a good hard week's work and had a bit of luck with his tonnage could walk out with a very nice round sum at the end of the week. He thought it was that sporting element which had kept the relationship so good, and it was hardly necessary to say that as far as the company were concerned everything would be done even to improve if possible, the relations which existed between them and the work-people. The housing problem and the 8-hour shift were the greatest troubles. It would have been a very good idea if the company had provided the houses first and then given the 8-hour shift; but as it was they had now got the 8-hour shift and no accomodation for the additional employees.

Decent Homes for Employees

Mr. Becker's contention that the workers should be studied was borne out by the reference he made to the company's accounts. The shareholders, he said, would observe that £15,000 worth of land and freehold properties had been bought which, when things became a little easier, the company hoped to develop on the lines that he had laid down of trying to make the homes of men decent and comfortable. Then they had to provide something for them to do in their leisure time. A man who had worked all day in the mill in a more or less sedentary occupation, with a week-end off every fortnight, suddenly had a lot of time thrown on his hands. He either got into mischief, or he got miserable. They had, therefore, to provide their men with sports and healthy recreation outdoors. The men always responded to a little of the milk of human kindness and the employers got a better class of workpeople.

Dealing with the accounts of the company, which included only nine months profits from the Northfleet Mill, and the Irish and Ramsbottom Mills, Mr. Becker said their paper sold to-day as it had never sold before. The profits had been earned notwithstanding the fact that the total value of their paper had fallen by £420,000 With regard to the stock figures they had got too little paper and too little material. Although it might appear to some people that they had a very big stock, the actual stock of paper was not a week's run.

Foreign Competition

Speaking later, Mr. Becker said the company had passed through many vicissitudes but he could assure them that the outlook was never better than it was to-

day. The time would no doubt come when they would have "to meet the enemy at the gate"—in other words, the old-time menace from Germany, Austria, Norway, Sweden and America—and when that time came the conservative policy which had always been followed by the directors of Charles Marsden and Sons would bear good fruit. So long as they pulled together he did not think there was anything they need be afraid of .

Mr. Becker, who was re-elected, president of the company reminded the shareholders that none of their mills need look round for business to-day and the right kind of business, as they had it already. In the London office during the company's next year 2,600 tons of paper would probably be dealt with per week. That would put them in a strong position and more or less give them a command of the market for all their varieties. They would continue the policy of amalgamation of interests with other mills.

PRELIMINARY ANNOUNCEMENT OF NEW COMPANY BEING FORMED BY GEO. F. WHALEN.

Although full particulars are not yet at hand, it will be of interest to our readers to know of the formation of a new pulp and paper company on the Pacific Coast.

Mr. Geo. F. Whalen now announces the formation of the Washington Pulp and Paper Company. With Mr. Whalen will be associated Mr. E. M. Mills representing Peabody, Houghtelling & Co. of Chicago, the Zellebrach Paper Company of San Francisco and Mr. James Whalen of Port Arthur.

Contracts have been let for the construction of a paper mill at Port Angeles, Wash. to cost $1,500,000.

Power will be obtained from the Elwah River. Peabody, H. Houghtelling & Co. are already interested in the power company which operates in that district. A part of the paper mill is already on the ground having been there since prior to the war.

The new company will manufacture their paper from British Columbia sulphite, and it is expected to purchase pulp from the Whalen Pulp and Paper Company owing to the officials being out of town, but it paper selling agencies on the continent.

RAINY RIVER PULP AND PAPER COMPANY REORGANIZED.

It has not been possible to get full details of the reorganization of the Rainy River Pulp and Paper Company owing to the officials being out of town, but it is hoped to have full details shortly. Meantime it is known that inside of the next ninety days it is planned to begin operations at the Rainy River Pulp and Paper Company's plant at Port Mellon, B. C. This plant has been idle for some time but financial arrangements have now been made whereby the Company becomes the property of Mr. Everly M. Davis of New York and his associates who are composed of Toronto capitalists.

It is estimated that there is 8000 h.p. which may be developed from the Rainy River and this permits the operating of the plant at a minimum cost. It is understood the new company has purchased 20,000 acres of crown granted timber and coal lands near Port McNeil on Vancouver Island. The acreage on Vancouver Island has cruised 550,000,000 ft. of timber and this with the three limits tributary to the mill will give raw material to the plant for many years to come. At the present time the plant has a capacity of 20 tons of sulphate or kraft pulp per day. New machinery will be introduced which will bring this up to 40 tons per day.

TRANSPACIFIC SHIPMENTS

When the Canadian Mercantile S. S. Canadian Importer sails from Vancouver the first of February she will carry a full mixed cargo of merchandise. Among this will be sixty tons of kraft paper for New Zealand from the Pacific Mills, Ltd., Ocean Falls; 2000 tons of newsprint for Australia from Powell River Company, Ltd., and a carload (20 tons) of newsprint from Eastern Canada besides 2000 cases canned fish, auto tires, accessories, a carload of sewing machines, two or three carloads of miscellaneous machinery, etc.

COMMERCE BOARD CONTROLS PAPER.

Ottawa.—Mr. R. W. Breadner, who temporarily succeeded Mr. R. A. Pringle, K.C., as paper controller, has resigned and his resignation has been accepted. The whole question of paper control has been placed with the Board of Commerce.

The Board of Commerce, it is pointed out, has full and complete authority, is vested with the powers of court and has the right of punishing not only companies disobeying orders, but also directors and managers who disregard them.

They have the right to fine and are in a position to see that their orders are promptly and efficiently carried out.

The Board of Commerce Act specifically provides that its jurisdiction may be added to by the Governor-in-Council and the whole matter of newsprint supply has by the order been specifically added to that jurisdiction. In addition to this, so that the board would be clothed with the fullest possible power to deal with the situation which has arisen, all the authority which different paper controllers have had in the past are conferred upon the board, which is named specifically as paper controller. The result is that the board can exercise to the full not only their own statutory authority in connection with the supply of newsprint but can also exercise all authority which the paper controller could exercise under any order-in-council or under the legislation of 1919.

This step, it is felt, will settle the difficulties which newspapers in both the East and West have been experiencing in regard to their supplies of newsprint.

PAPER MACHINERY HOUSE DAMAGED.

Fire of unknown origin destroyed part of the plant of the St. Lawrence Welding Company, Limited, Montreal, on Tuesday night causing a damage of about $20,000. The premises of the Canadian Fairbanks Morse Company, Limited, on St. Antoine Street, were for a time threatened by the flames.

The blaze did not cripple the St. Lawrence Welding Company, Limited plant as only the store room, the carpenter shop and other small departments of the plant were destroyed. The welding shop, the machine shop and the blacksmith shop were not destroyed and though they suffered through water, work in these departments was resumed on Wednesday.

A chain is as strong as its weakest link; and a belt as strong as its joint.—The Amphibian.

Technical Section

REVIEW OF RECENT LITERATURE.

A-3. Egypian rice straw used for pulp. Pulp and Paper **17,** 940 (1919). Pulp made from rice straw has proven to be best pulp producer of Egypt.—R.C.

A-14. The Microscopy of parchment paper. C. Bartsch, Papier-Fabrikant, **16,** 171-172 (1918). The preparation of parchment paper for microscopic examination by means of oxidation materials is described in detail. The transformation of the paper into a fibrous mass of a solution of potassium permanganate (= 6.5 g. potassium permanganate in 100 g. water). The action is completed for thin paper in 45-60 min. while for thick paper it requires 60-75 min. The paper is then washed many times with water and the precipitate manganous oxide is removed by treatment with about 25 cc. of 5% oxalic acid to which has been added 1 cc. of dilute sulphuric acid until the paper again appears colorless. The oxalic acid is then decanted and the paper is thoroughly washed with water.—J.S.

A-14. Determination of the apparent and actual unit weight of paper. Anon. Papier-Fabrikant, **17,** 472-3 (1919. The determination of the unit weight of paper by means of measuring its length, breadth, and thickness gives only an apparent value, while the actual unit weight, whereby the existing air spaces are taken into account is determined by means of the displacement method. The weight of the glass vessel is determined in air, water and oil and also the weight of the paper in air and oil and the formula for the unit weight (Muller, "Zivilingenieur", 1882) is then calculated from these values. The oil, for which purpose the oil of turpentine is satisfactory, quickly displaces all of the air from the pores of the paper. Knowing the apparent and actual unit weights the degree of porosity of the paper can be calculated. —J.S.

A-15. Cellulose titrations. Walter Quist, Papier-Fabrikant, **17,** 618-824 (1919). The method used by the author is a modification of the one adopted by Richtor in his researches of 1912. 20 gms. of moist cellulose, which is 25% dry substance, as well as 135 c.c. of distilled water are placed in a graduated cylinder fitted with a ground glass stopper, shaken carefully and filtered through a thin silk cloth. The filtrate is then poured back into the flask, measured, and mixed with 20 c.c. of an ethereal iodoeosin solution, containing 2 mg. of iodoeosin liter. It is again shaken and, if necessary, titrated first with 0.01 hydrochloric acid until colorless, and then with 0.01 potassium hydrate until a weak rose color is reached. This method has been used for bleached and unbleached sulfite pulp, sulfate pulp and hydro and oxycellulose with a view of determining the relationship between the results of these titrations and the quality of the paper made from these pulps as regards sizing. Most of the sulfite pulps investigated contained free acid, which if calculated as sulphuric acid amounted to about 0.1 gm. in 1000 gms. of pulp. —J.S.

A-15. Cotton and wood cellulose. Anon. Papier-Fabrikant, 17, 1919-1920 (1919). A comparison of the two types of cellulose fibres with respect to their use in textiles.—J.S.

A-0. Acetyl content of lignin. H. Pringsheim and H. Magnus, Z. Physiol, chem. 105, 179-186 (1919). The acid formed from wood products on treatment with caustic alkalies arise chiefly from the lignin, but a small fraction may be formed from the cellulose. The lignin of hornbeam wood contains nearly twice as much acetyl as that of pinewood.—J.S.

B-3. Hydroplane forest fire patrol. Pulp and Paper **17 893** (1919) through Laurentide Digester. Possibilities discussed from the experiences with a hydroplane used by St. Maurice Forest Protection Association during summer of 1919.—R.C.

E-2. Strehlenert's sulfite coal process. Max Miller. Papier-Fabrikant, **17,** 917-919 (1919). A discussion of the recent advances made in this process. The time of the recreation in large autoclaves has been shown to be surprisingly uniform. The press. and temp. whose limits were formerly 20 kg. and 200° C. respectively, have been considerably reduced. At the beginning of the cooking and as long as the temperature remains low, no sulphuric acid should be formed, in order that the useful receipt may be obtained. On this basis all of the air is withdrawn from the autoclave at the beginning of the process so that the acid material is not available for more oxidation. —J. S.

E-2. Waste sulfite and its value for the production of alcohol. A. Klein. Papierztg., **43,** 759-60, 783-4, 990-1, 1015 Chem. Zentr., 1918, 11,416. A discussion of the process with particular reference to the influence of the liquor on the pulp, the chemical composition of the waste liquor, its fermentations and the recovery of ethyl alcohol. Patent specifications, illustrations and a review of its economic value are also included.—J.S.

E-0, F-0, P-0. Sulphate and sulphite hazards. Erling Riis, Warsau Sulphate Fibre Co. Pulp and Paper **17,** 928 (1919). Outlines the dangers to the workmen attendant upon the various stages of the manufacture of sulphate and sulphite pulps.—R.C.

E-0. Acid proof lining for experimental sulphite Digester. Pulp and Paper **17,** 909 (1919). Experiences of Forest Products Laboratory in relining their experimental digester. After trying several linings one was chosen consisting of a solid stone mass casting of acid proof tile 1 1/2 inches thick and has given satisfactory results.—R.C.

K-12. The deposition of paper pulp on the machine wire. Anon. Papier-Fabrikant, **17,** 750-752 (1919). A discussion of the various factors influencing the formation of a sheet of paper on the wire of a Fourdrinier machine.—J.S.

K-12. Duties of a machine tender. Paul Smith. Pulp and Paper **17,** 889 (1919) through Paper Inds. Description of responsibilities and duties of a machine tender in regard to the operation of the paper machine.—R.C.

PULP AND PAPER NEWS

Mr. H. Sherriff, of the Hodge-Sherriff Paper Company, Toronto, has just returned from a business trip to Great Britain, returning on the Empress of France. In conversation with the Pulp and Paper Magazine, Mr. Sherriff summed up his impressions of Canadian paper trade prospects with the Motherland by saying that there was a great feeling of friendship for Canada in Great Britain and that they are prepared to support Canadian paper manufacturers if the Canadian manufacturers treat them fairly. The old saying that "An Englishman's word is as good as his bond" still holds good over there and as long as good treatment is meted out by the Canadian paper man there will be a good market in Great Britain for the Canadian product. The feeling is one of friendship extended to every department of business activity, largely devoted by Canada's great achievements in the war, and while they are not giving anything away for nothing they are ready to give a preference to this country, particularly in paper products if we see that our quality of output is as good, or a little bit better, than that from the foreign market. Mr. Sherriff sounded a not of warning against Canadian manufacturers overbooking orders for shipment to Great Britain and urged that the paper makers accept no orders that they are not sure of fulfilling, in order that confidence in the trade relations between the two countries might be maintained.

Hamilton, Ont., will have a new paper industry. Tressider Bros who were associated with the Paper Goods Company and still retain an interest in that business, will go into the manufacture of fancy paper boxes of all kinds, with R. A. Tressider as manager and J. W. Tressider as superintendent. They have opened their new plant in the premises recently occupied by the Red Cross Society on Wellington Street north. About twenty five hands are being employed at the start.

At a meeting of the undergraduate newspaper staff in the University College Women's Union at Toronto University it was decided to form a "Women's Journalistic Association." The purpose of the organization is to foster journalistic production in all its phases. A constitution has been drafted and officers will be selected later.

Frank Rolph was tendered a dinner by the directore of Rolph, Clark, Stone, Limited at the National Club in Toronto in celebration of his seventy-fifth birthday. In addition to the directors of the company quite a number of Mr. Rolph's old friends were present. Mr. Rolph, who is looked upon as the dean of lithographing in Canada, was the recipient of many congratulations in the after-dinner speeches that were given.

Tenders were closed recently for the timber-cutting rights on the Minnietakie Lake limit, the contract being awarded to George Farlinger. This is the limit that gained prominence when Hartley Dewart, the Ontario Liberal leader protested in a letter to the Minister of Lands and Forests for Ontario, that it had not been properly advertised and that it could not be cruised at this time of the year. This statement was subsequently denied. There are between 15 and 20 square miles in the limit. The prices quoted by Mr. Farlinger are as follows; $2 dues, plus a bonus of $7.75 per thousand for spruce; $2 dues, plus $19.50 per thousand for white pine; $2 dues, plus $10.75 per thousand for red pine; $2 dues, plus $7.75 per thousand for jack pine; 5c. dues, plus 17½ cents each for ties; 40 cents dues, plus 75 cents a cord for spruce for pulp; 20 cents dues, plus 25 cents a cord for other pulp woods such as balsam, poplar, etc., and 25 cents dues, plus 3 cents a cord for all other rough timber.

The union job printers, pressmen and bookbinders of Hamilton, Ont., to the number of 350 went on strike this week because their demand for an increase from $28.80 to $35.00 a week fo the next six months and to $37.00 a week for the following six months was refused. The bosses offered $32.00 a week, the same as the Toronto scale, and to meet any advance that might be made in Toronto, or $33.00 unconditionally. This offer was refused.

D. H. Morrison, formerly editor and proprietor of The Bancroft Times, which he disposed of about a year ago, has gone to Tweed to assume the management of The Tweed News.

The Canada Gazette contains notice of the incorporation of the Valleyfield Coated Paper Mills, Limited, for the purpose of taking over the business of the National Paper Company, Limited, and carrying on a general paper manufacturing business. Among the incorporators are F. P. Brais, advocate, and Lilly Copping, clerk. Another company just incorporated is L. N. Godfrey Company, Limited, which is empowered to operate lumber and pulp mills. The incorporatos are Montreal men.

The Western Canada Pulp and Paper Company, Limited, has been granted incorporation for the purpose of carrying on business as manufacturers and dealers in all branches of the pulp and paper and allied industries. Among the incorporators are J. A. Kent, M. C. Purvis, G. M. Jarvis, all of Toronto.

O. M. Alger, formerly proprietor of the Tweed News. it is stated, will move to Oshawa where he has in contemplation the establishment of a newspaper to be known as the Oshawa Telegram. He expects to get the new venture under way about March 1 and it will include a job printing plant.

The Sidney Rubber Roofing Company, Ltd., have secured a loan of $100,000 from the Provincial Government of British Columbia under the Department of Industries Act. It is said that one of the chief objects to which the loan will be applied is the erection of a pulp and paper mill, as it is the firm's intention to branch into the paper business and thus broaden its activities.



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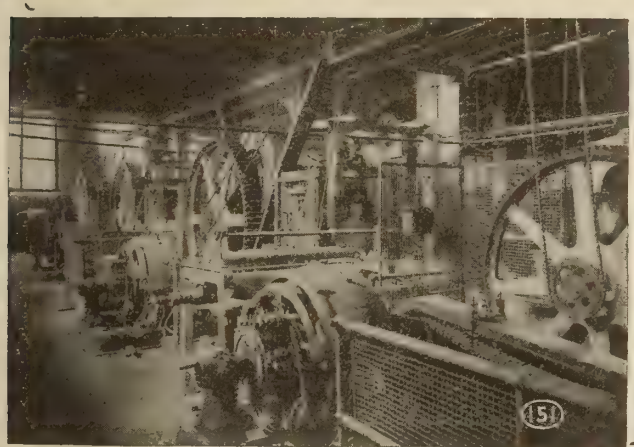
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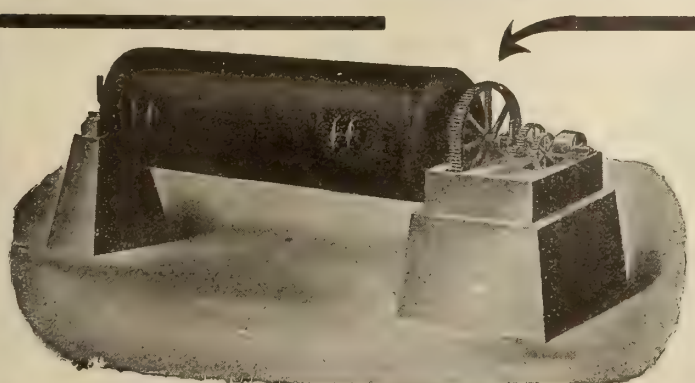
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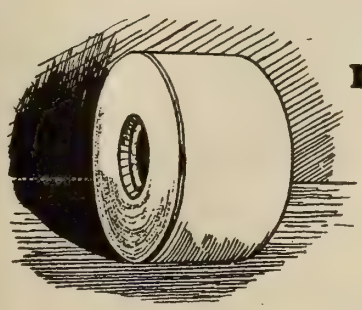
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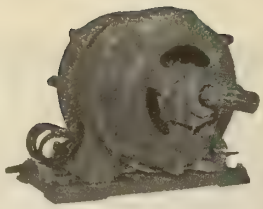
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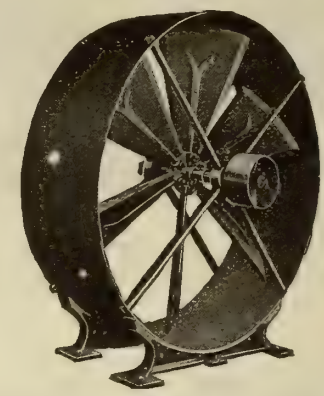
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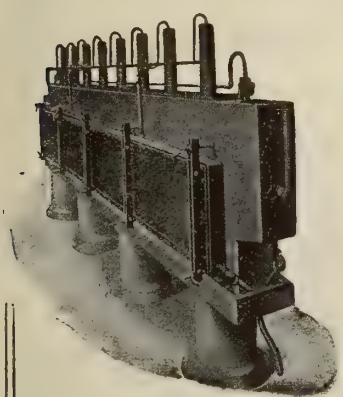
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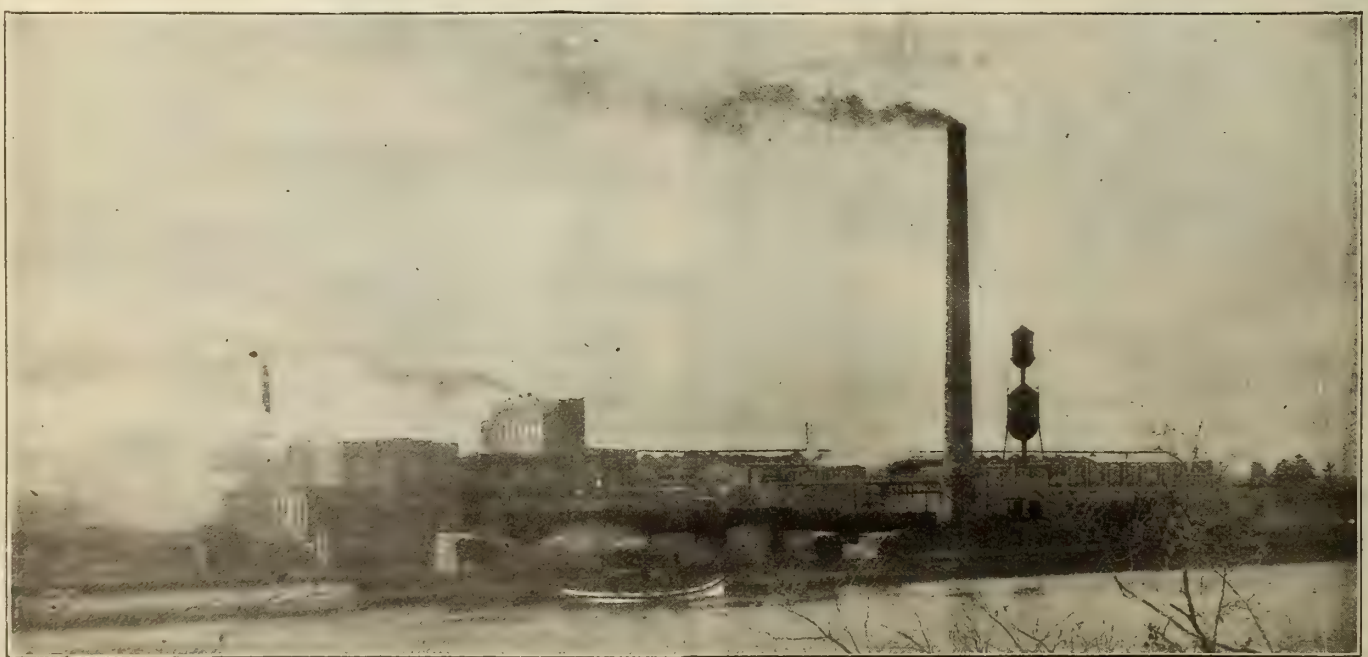
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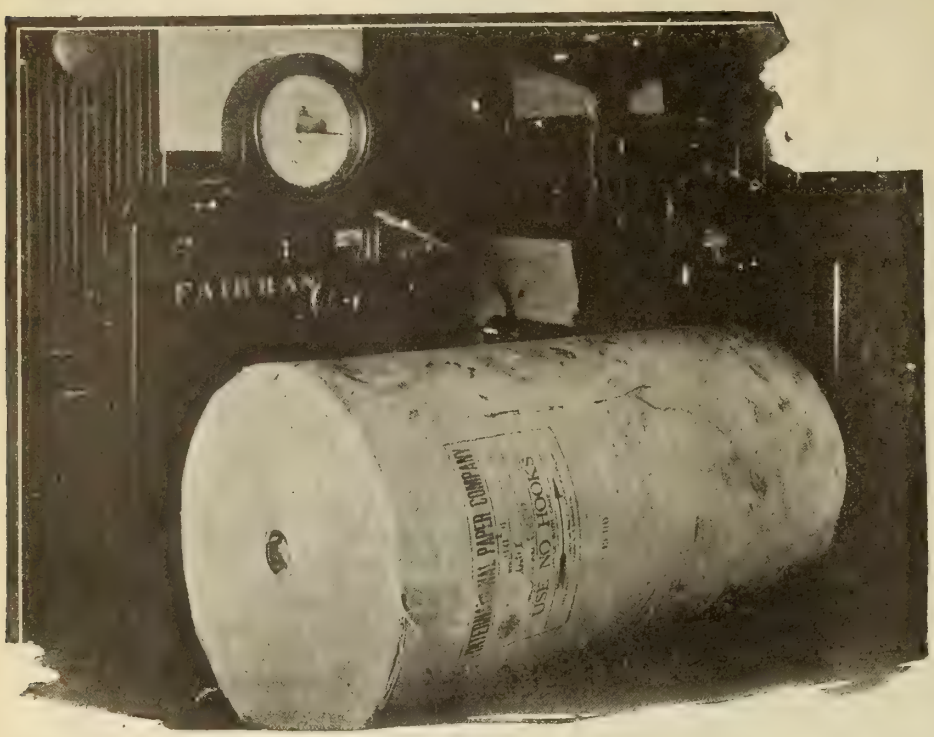
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EDITORIAL

TEXTILE MEN DON'T LIKE IT EITHER.

For the past three years the pulp and paper industry has been suffering from the efforts of a government which has been a bit over-assiduous in behalf of a certain class of business enterprise in the Dominion. A very considerable proportion of the time and attention of everybody, from the president to the office boy, has been directed to providing government enquirers with information that has been more or less relevant to matters under investigation. The result has been a very considerable inconvenience, to say the least, of the management of the pulp and paper mills. The recently appointed Board of Commerce has now taken up the matter of prices of textiles and a questionnaire has been submitted to manufacturers of cloth. A howl of protest has gone up from those affected, who state that not only are they burdened with this unnecessary labor, but that no good purpose will be served by the information obtained when it is collected. Paper makers can sympathize with the textile men in their troubles but at the same time many will realize that this attempt on the part of the Board of Commerce is more directly in the interests of the people of Canada than the newsprint investigations ever even pretended to be.

When such a government agency has succeeded in reducing the price of such necessary articles of common consumption as food, shoes, clothing and building materials for the shelter of the people it will then be time to consider whether such articles as paper, the price of which is largely due to the cost of the labor which produces it and the demand by, and willingness of, the consumer to pay a high price for the product—it will then be time for a limitation of the price of such incidental commodities important though they are.

By that time the people will be so disgusted with government investigations and abortive attempts to regulate prices that the administration which dares to institute another enquiry will do so at the peril of its public life. The people's money can be spent to better advantage.

FORESTRY IN THE U.S. SENATE.

A recent report from Washington intimates that a certain senator has the idea that an ailment affecting a certain group of American citizens will be cured by having somebody else take the medicine. His idea is that an American commission might so influence Canadian governments, Federal and Provincial, that restrictions on the shipment to the United States of pulpwood cut on Crown lands would be removed and thereby the raw material for some short-sighted (but in a way far-sighted) paper mill managements might be assured an extensive supply of relatively cheap raw material without the inconvenience of making provision themselves for such supply. The fact that such restrictions as the province has deemed wise to enforce were instituted for the protection of a fundamental Canadian industry which provides for the support of several hundred thousand Canadians, does not seem to enter into the senator's calculations. He does however recognize, as a good many speakers on the subject have failed to do, that the matter is one in the hands of the provincial governments and that while the provincial government has not the power to institute an export embargo, yet the equivalent is obtained by simply requiring as a condition on a lease of crown timber lands that the wood cut therefrom shall be manufactured in the province or possibly in the Dominion.

The pulpwood and timber under the control of the Federal Government, while fairly extensive in the aggregate, is in large part not of a character at present largely used in the manufacture of newsprint paper and in large part also is not conveniently accessible to pulp and paper plants. That is practically the end of the Federal Government's connection with the matter, except in so far as their advice might be listened to by Provincial authorities.

The senator's assumption that the introduction without restriction of pulpwood cut on Crown lands would reduce the price of newsprint or even make it more easily obtainable, will hardly bear serious consideration. Paper mills equipped to make newsprint and desiring to do so are not at the present time suffering very much for want of raw material. They are operating to the limit and the prices asked are willingly met by the consumers of their product who would even be glad to pay still higher prices if they could get a larger amount of paper. There is thus no necessity at the present time of making newsprint at a lower cost or selling it at a cheaper price as far as the ability of the consumer to pay the current rates is concerned. The principal difficulty is one of the distribution of available supplies and the demand of the business public for the product of the publisher is the real reason for the extensive demand for the product of the paper maker. The importation of more wood from Canada to the United States does not seem to be an important factor in the present state of affairs.

There has been some talk of even tightening up on the amount of pulpwood exported from privately ow

ed lands. This is a matter for the most careful possible consideration, as a number of factors come into that problem which do not enter the consideration of the wood from Crown lands and action along this line need not be anticipated for some time to come. There is, however, in this connection the probability that Canadian mills, realizing the need of conserving their own holdings will see the advantage of purchasing much larger quantities of pulpwood in the open market. They are in a better position now than ever before to compete with American mills in the purchase of such wood as settlers and farmers may have available. Such action, however, would have a more serious effect on some American mills than the Crown land restrictions have ever worked. It might hasten the moving on of American newsprint industry westward to the great Rocky Mountain forests and would certainly hasten the reforestation of denuded forest areas in the northeastern and central states. Work begun along that line now would permit a re-establishment of this important industry in sections where it is now faced with practically starvation for want of raw material.

This starving of some wood-consuming mills across the line which depend on Canadian wood is practically inevitable because the wood available from Canadian farms is, of course, growing less as the farms become more fully cleared and as the governments take proper steps to prevent the stealing by settlers and farmers and jobbers of the wood from Crown lands which border the areas on which cutting for export is legitimate. Along this line it might be mentioned that with the institution of forward-looking cutting regulations on Crown lands there is an obligation on the administrators of our forest policy to require the observance of proper forestry practice by those who are cutting on any lands that are not immediately required for agricultural purposes and particularly on lands which are distinctly timber growing soils. It is only by such intelligent measures courageously applied that the future of Canada's wood using industries can be assured. And far-sighted American statesmen will be glad to see such methods instituted as it will mean assurance of the continuation of relatively cheap products of these manufacturers to the American people as the ultimate consumer, in spite of the unfortunate, but perhaps necessary inconvenience to the short-sighted American manufacturer of the same products who has not taken the measures of preserving his raw material supply that Canadians are now being criticized for introducing.

The senator's idea of a Commission may have been made with the best intentions for helping the American manufacturer, but there does not seem any possible chance for his proposition to succeed either in regard to removing present restrictions on the export of pulpwood or in regard to his rather deluded notion that such a move would result in more or cheaper newsprint to the American publisher.

COBWEBS.

If you can honestly say there is nothing funny among the cartoons in this issue, consult a physician at our expense.

Everyone at the Association banquet enjoyed "The Kaiser's" jazz band. Secretary Dawe is getting to be quite an impressario.

Somebody wants to know why the Scotch entertainers at the Technical Section smokers always pick on George Carruthers for being a Scotchman. It isn't his fault, he was born that way.

Our thanks to Process Engineers for a very handy and serviceable pocket daily memorandum and card case and to Pulp and Paper Mill Accessories for a diary that actually includes a map of Canada.

While Canada may be justly proud of selling one hundred million dollars' worth of paper and pulp annually in the United States, it is interesting to note that our neighbors spent a like amount on imported guns.

Those witty bits flashed on the screen make a great hit. At least the guests were struck by the humor and appropriateness of the jokes and cartoons. We have a "hunch" that Edward Beck knows who perpetrated this stunt.

The United States reversed its figures for exports and imports of paper in November, 1918, as compared with November, 1919. The figures, respectively, were $4,222,477 and $3,246,809 in 1918, and $3,534,708 and $4,486,793 in 1919 for the same month.

The pulp and paper industry in Canada employed 25,863 persons in mills. If we take in those employed in getting out wood and in converting the product into bags, boxes, envelopes, papeteries, etc., and in selling them, the number dependent on the use of paper would doubtless be doubled.

At least one western paper takes up the cry of the Montreal Herald in calling the Gazette a "horrible example" of the pap-fed newspaper, because the Gazette has been awarded a lot of remunerative government printing. There is a difference between the newspaper publishing department of a concern and its job printing plant, just as there is between the operation of a sawmill and a paper-mill by a single concern, though some people refuse to discriminate in either case. Of course, the reason the Gazette gets about all the job printing it can handle is because it has an excellent plant and gives irreproachable service, and not because of its connection with the Press.

Speeches At C. P. & P. A. Banquet

The Annual Banquet of the Canadian Pulp and Paper Association held in the ball room of the Ritz Carlton Hotel, Montreal, Friday evening, January 30th, was enjoyed by about 250 guests. After due attention to the gustatorital opportunities provided by the co-operation of Manager Quick and Secretary Dawe, the toast to "The King" was proposed by Mr. George Chahoon, who had that morning been elected president of the Association. Lieut. Gitz Rice then sang "Keep your head down, Fritzie Boy" and "Canada, my home." By this time the guests had finished their conversation at table (largely) and had turned their chairs to listen to the speeches, the first of which was the address of the new president.

THE INDUSTRY'S OBLIGATIONS TO THE PEOPLE.

By GEORGE CHAHOON, Jr., President of the Canadian Pulp and Paper Association.

The work that has been done and the good results that have been accomplished by my predecessors impress me with the responsibilities of this position, and I have resolved to devote whatever time and attention may be necessary for the carrying out of this work, to the very best of my ability.

I believe that it is the custom and has been the custom in the past for the new Presidents to start their administration with a rather elaborate inaugural address. Never having been a President before I always felt that it might be rather nice for the Presidents, but rather tough on the rest of us.

Now, I want to be a popular President and, therefore, I am going to forego that pleasure, and I have placed the responsibility for the speech making on the shoulders of the three men and whom we all feel are best qualified for that task.

Before I go through the formality, however, of introducing your friends to you, I want to say just a little—it will be very little—about conditions in the industry at this time and the work that I feel that this Association should concentrate upon.

Some three years ago, it was my pleasure to respond to a toast at one of these parties to "Our Industry." We were at war then. Everybody was screwed up to the highest possible tension. The Federal Governments of Canada and the United States had singled out this one industry with which to pay political homage to the best organized Trust on earth. The clouds hung low on our horizon and it was difficult for us to imagine that there could be any silver lining. My plea to you that night was courage of purpose, conservation of our resources, and the closest kind of legitimate co-operation. My plea to you tonight is the same.

The history of the succeeding struggle is too fresh in our memory to bear of review. Our cause was led by two of the greatest warriors in the land. It was a fight to a finish, and the enemy was pushed back and a settlement was reached. During the struggle we were taught much of certain conditions in our industry and I believe that the enemy was convinced that if he was to continue in his present happy position that we, the hardy pioneers were entitled to a fair return on the money invested in this business.

Now, I sincerely hope that none of us have come through that struggle with a feeling that the present cessation of hostilities is due to the fact that we have had a victory in which the enemy has been vanquished, for such is not the case. This is no time for us to



GEORGE CHAHOON, Jr.,
President of the Canadian Pulp & Paper Association for 1920

rest on our oars and sing that old familiar hymn "The Strife is over, the Battle Done, the Victory of Life is Won." True, an armistice has been arranged but, Gentlemen, there will be no peace settlement in our industry untill we have demonstrated that we are enabled intelligently to manage the affairs of this great industry.

Now, when I speak of managing the affairs of this industry, I do not mean solely operating these properties at a profit but I have in mind managing these industries so that the Governments and the people will feel that we are having due regard for posterity and the consumers of our product and will feel reasonably safe in leaving their future supply in our hands.

Unselfish Cooperation Required

Now, that may be a big problem, but all that I believe it will require is unselfish cooperation. It has always seemd to me that there are three points in connection with our industry that are open to question. These three points are distinct hazards against the industry, and I believe on the intelligent solution of these three points our peace with the people of the world will be made and we will be judged.

First, we are using one of the country's greatest assets faster than it is being replenished and we have no intelligent plans for the future. If that is so, it seems to me that we should go to the Provincial government and renew our request for assistance

and legislation that will ensure, if possible, a supply equal to our future requirements. We are not going to take the position of "the people be damned." That was the point of view of some large business interests, a decade ago. Gentlemen, it seems to me that we are going to show our originality by facing this problem before it is forced upon us.

My second point is — the second hazard is — that the market for our products is in the hands of men who have been willing to use their great political influence in any direction in order to obtain their immediate requirement. In the past these men have made and remade tariffs in order to satisfy their selfish aims, and Gentlemen, they are capable of making and remaking governments for the same purpose.

It seems to me, however, that the dangers from that point are pretty well passed. As a result of the knockdown and dragout fight we have had, these men realize that they can not shape their future policies by their past policies and the wisest men among them realize today that their problems are our problems, and I believe that they are sincerely anxious to help us in intelligently solving these problems.

My third point is that we never have had any intelligent information on which to base the future development of the industry. The growth of our business in the past has been purely speculative with an absolute disregard for the health, wealth, or welfare of either the consumer or the manufacturers. What has been the result? We have had violent fluctuations in market conditions and violent fluctuations in supply and demand which are most harmful to any industry. I hesitate to express an opinion on this point but it does seem to me that if human nature has not changed then public sentiment must change in order that the Government and the people may realize that it is absolutely impossible to operate an industry of this kind without the most accurate information regarding each point of the business, and without the closest cooperation between the men who are responsible for the management of the business.

Now, I realize that there is nothing new or startling in any of the points which I have raised. I bring them up here simply because I believe that they are lines along which this Association should work. This industry is open to congratulations at the present time on its present happy position, and it is also open to the congratulation on the fact that so much intelligent work has been done on two out of the three great problems which confront it. War may be Hell, but the war that this industry has gone through in the past three years, in my mind, has been more than that, and my opinion is that it has taught us our obligation to one another and with it our obligation to our industry.

The Premier is Introduced

Now we will turn, Gentlemen, to affairs of State, and we meet the man who is largely responsible for our present happy position. When it first became possible for Sir Lomer Gouin to interest himself in the affairs of this industry we were a poor, sickly, anaemic struggling group of mills. The difference between our condition at that time and our present condition is due very largely to the wise and patriotic resolution of this great statesman that every stick of wood that was cut from the Crown Lands of the Province of Quebec should be stamped with the motto "Made in Canada." During these days of labor unrest and of business unrest and of unrest within almost all of the governments of the earth, it is indeed a feeling of satisfaction and security to know that we are living under a Government whose strength and conservation has never allowed it to waver for one moment from its determination to administer a square deal to all.

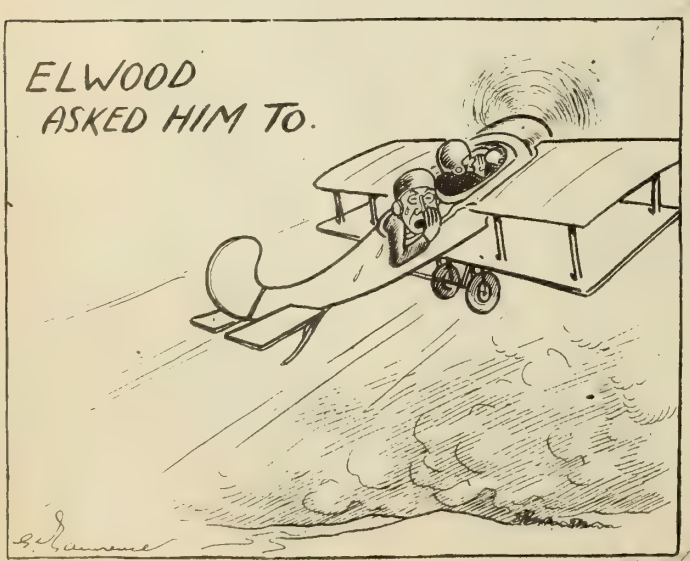
Gentlemen, it gives me great pleasure to propose a toast to our Premier, the Honorable Sir Lomer Gouin.

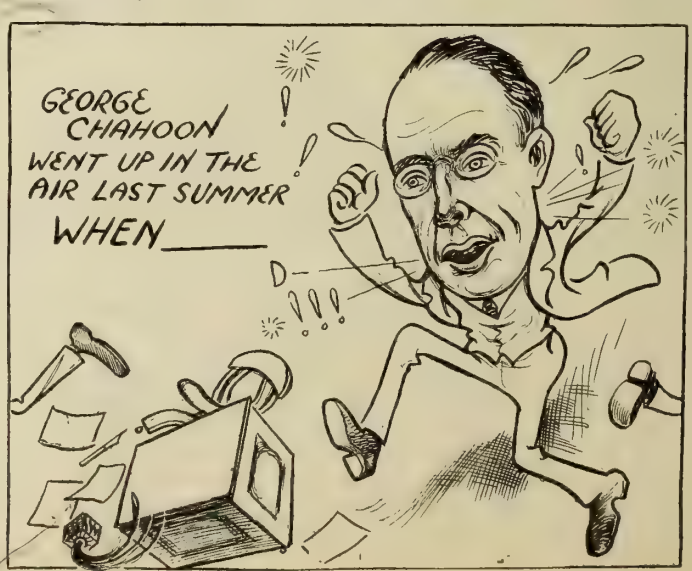
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*The cartoons reproduced in this issue and the one of Mr. Bothwell used last week were thrown on the screen during the banquet of the Canadian Paper Association at the Ritz-Carlton Hotel, Montreal, Jan. 30, 1920. Some "telegrams" were also shown at the time, and caused great hilarity. The point of most of them, however, would be entirely lost outside of the occasion.

ABITIBI ORDERED TO SUPPLY REGINA.

Ottawa.—Shipment of newsprint to Regina from the Abitibi mills in Quebec, at a fixed price of $80 per ton at the mill, is ordered today by the Board of Commerce. Order number one of the Board demands that the Abitibi Power and Paper Company ship to the Toronto Type Foundry Company at Regina one carload immediately of newsprint at a price not to exceed $80 per ton f.o.b. cars at the mill and another car is ordered to be shipped at the same price every four weeks on request of the Regina firm.





QUEBEC WILL PROTECT HER FOREST INDUSTRIES.

By SIR LOMER GOUIN, K.C.M.G., Premier of the Province of Quebec.

Mr. President and Gentlemen: I felt very much honored when I was invited to be one of the guests at this dinner. I felt more honored when I read on your menu that I was to be called upon to answer to the toast of "Our Country."

While I have been in public life for many years—some say too many years—this is the first time that I have ever had the opportunity to answer a toast to "Our Country."

Your good President has made a change in your programme and instead of asking you to drink a toast to Canada he was kind enough to ask you to drink a toast



SIR LOMER GOUIN, K.C.M.G.

to the Prime Minister of the Province of Quebec, and I am very grateful to your President for his kindness.

I have very little to say in answer to his proposal. I have no intention of speaking to you about the Prime Minister of the Province. I think I will interest you more by speaking to you of your own affairs, of your own industry, which is the most important trade, I might say, of our good Province of Quebec.

Some years ago at a dinner given in this very same room, one of the guests parodying Longfellow, said:—

" . . . that our lumbermen,
Living in fashion fine
Leave our forests departing
Stripped of their spruce and pine."

I do not believe for a moment that the pulp manufacturers and the paper makers of Quebec are actuated by any such spirit. I know what you require. I know that you are actually taking vast quantities of pulpwood to feed your immense mills, but I know that at the same time, you are interested in the future of your timber holdings, where you find the source of your valuable raw material, and I know that you are doing all that is necessary to ensure a never-failing supply of pulpwood for your mills. I am glad to say that the Quebec Government has given you all possible assistance in that direction. As a matter of fact, we can claim that we have paved the way for the development of the pulp and paper industry which now ranks amongst the most important in our country.

Realizing the importance and value of our forests we determined first that we should create a Forestry Service. Next, we have established in Quebec a Forestry School for the recruiting of the technical personnel of this service and of that of the lumber and paper companies. About the same time we have created, as you know, at Berthier a Forest Nursery to supply the necessary material for the reforestation of the waste lands belonging both to private individuals and to the Crown. And we have the satisfaction of being able to say that every year we are now in a position to supply over one million of young trees to those who require them.

We have been told many, many times about the immensity of our pulp wood forests. It is true that we have a large supply of pulp wood, but we must never forget that such a supply is not inexhaustible. Some years ago you were more exacting than you are now in the requirements of timber. I remember the days when you would accept only a small percentage of balsam and when you would accept only regular spruce logs for paper making. You have managed so that now you accept all the balsam that is offered to you and you make good use of the burned and charred trees, which you find in the forests, with profit to your mills and with great profit also to the forests, which you are making more productive by cleaning them out.

I do not despair. I am sure that a day will come when you will devise means to use the hardwoods of our forests, and if I may be allowed to speak after your experts, I would advise you to cut from your timberlands only what the timber lands produce yearly. I understand that this will make your lumbering expenditures larger, but do you not think that you can meet such expenditures which will make your limits produce more wood and give you a chance to return sooner to the field which you have exploited?

Government Will Share in Reforestation.

But this is not enough. I do not think it is sufficient for you to reduce the volume of your cutting. The time is come, we are told, for you to think that you should restock your timber lands. This, I understand, means very large expenditures, and I am sure that when we give suggestions and advice we should be prepared to hear the limit holders tell the Government—who, after all, is the proprietor of the lands—"Very well, we are prepared to re-stock but that is your property, what are you prepared to do to re-stock it?" I will only say in answer to this that if you are prepared to do your share to re-stock your limit, I can assure you that the Government of the Province of Quebec is prepared to do its share and its very large share.

I have read and heard, as you have ,pessimistic remarks about our forests. Let me tell you that, while I preach economy of the lumbering operation, I have good faith in the future of our forests. We have, as you know, some four or five million acres of lands under license. We have as a reserve, seventy-five million acres of land of virgin forests. Everybody knows that the Province of Quebec is supplying more than half of the pulpwood supplied in Canada. We have the largest single area of pulpwood forests left in the world, and this forest wealth, I am sure, if properly taken care of, and if exploited with wisdom, and if efficiently managed, can be made to produce enormous quantities of timber forever.

We now cut about one billion feet of timber from our forty-five million acres of leased land, and I might tell you that with proper management we might cut four times or even five times more than this quantity without endangering the future of our supply. This, gentlemen, is from the lands under license. This does not include in any way the seventy-five million acres of land which is still free and belongs to the Crown.

To Establish Forestry Posts.

I must confess that in regard to that new domain our knowledge is limited and that is why we propose to make an inventory of that property; that is why we propose to establish the Forestry Posts, one at Hamilton Bay, one at Ungava Bay and one at James Bay, from which our foresters will go and make an inventory in reference to our resources. These posts we propose to connect by wireless telegraph, and if necessary with the introduction and use of aeroplanes to hasten the facilities of the work of our engineers. What we desire and what we wish is that we should not be taken by surprise, and we want to be in a position to cope with the new demands which may come to us for timber limits, and for water powers.

I do not want to pose as a prophet, but I must express an opinion, and that is that the future of our good Province of Quebec is connected with the building up of the pulp and paper plants.

These new mills mean new towns, with large developments around them, and the new railways which will connect them in Quebec, as the veins of the body are connected with the heart, so that the best blood of the heart of the Province will go to build up our new territory.

Our Province, Mr. President, as you were kind enough to say a few moments ago, was the first to realize the importance of keeping in our Province our raw material for the use of our own mills. We do not intend to relax that policy at all. We may have to go further, and the time may come when we will have to limit the cutting of our Quebec forests for the exclusive use of the Quebec mills, and if the situation demands it, we shall not hesitate to take the necessary measures, because we cannot forget that "Charity begins at home."

Industry Must Encourage Education

There is another subject which I would like to bring to your attention this evening. You require for your industry the highest class of labor; you require experts to conduct your business operations; you require technical men for the direction of your plants and woodlands. We have foreseen your needs, and to meet them we were, in Quebec, the first to create technical education; were the first to give, in the city of Quebec and in the great city of Montreal, the Technical Schools which we have now. It is to meet your needs that we have also established in Montreal a school of high commercial instruction. In that school—which I would suggest that you visit if you have not done so—in that school, you will find men—young men—with a grasp of world's conditions a knowledge, most useful for an industry like yours, which is destined to do business in all the markets of the world.

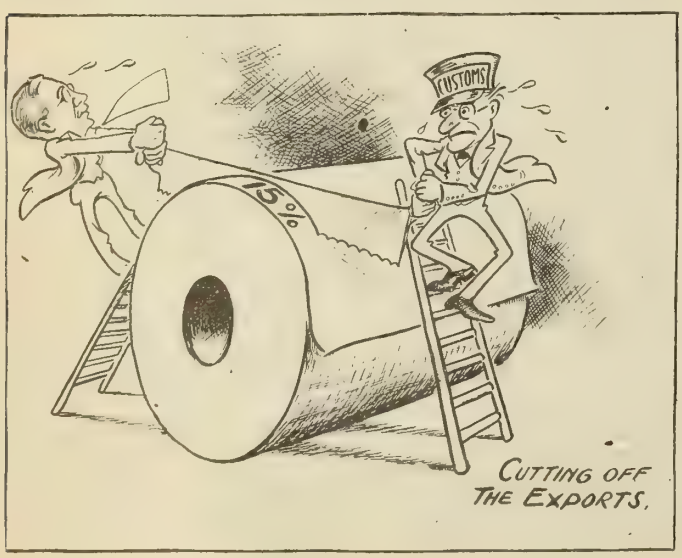
We have also established a Forestry School to give you engineers who will take charge of your woodlands. We have subsidized our Universities; our Polytechnic Schools, so as to give you the chemists and engineers which you need for the operation of your industry, and we are ready to do more, and if the day comes when we are petitioned to give, in this Province, a school for papermaking, I may tell you immediately, sir, that we are prepared to meet your demands.

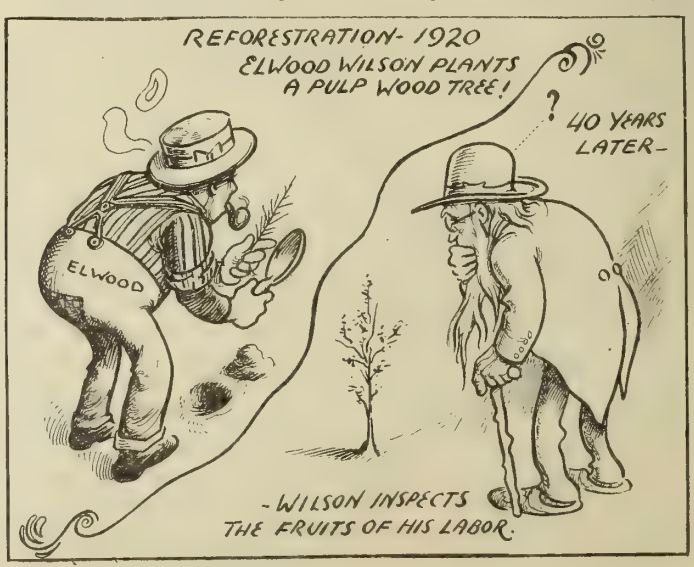
Forestry Will Assist Expansion

Our province has the forests and the necessary wood reserves to increase and increase very largely the pulp and paper production. Our water powers can supply our manufacturers with any quantity of power. We are at the door of the markets of Europe, of South Africa, of South America, and of the Eastern United States; we have, Mr. President—and you know we have—the best population on the Continent; a working class which believes in order, which is perfectly reliable, free of the obsession of Bolshevism, efficient and peaceful. We have all that. What more can you gentlemen ask? We do not need more to make of this good Province of Quebec the greatest centre of pulp and paper manufacturing in the world.

The position which we now occupy in that industry we intend to keep while we will continue to develop our mineral resources and our agricultural resources so as to place our good Province of Quebec in the foreground of the Canadian Dominion.

You were kind enough, Mr. President, to say during the course of your very eloquent remarks that our Government has done some little things to help your industry, and I also heard somebody say that no little measure of the success of your industry was due to the sym-





pathetic treatment and encouragement extended to you by the Government of Quebec. This is a great compliment; it is a good, true compliment, and I accept it, because I think we deserve a little of it, and for that compliment, Mr. President and Gentlemen, I ask you in return not to forget our good people of Quebec when you have a chance to give some of our boys the opportunity of reaching the top of the ladder. We have excellent schools. You can find in them men perfectly qualified for any special service that you may require. I ask you, Mr. President, to be friendly to them and to help them as much as you can. Be friendly to the men and be friendly to the Institutions. I would not like to appear before you in a begging attitude. I prefer to appear before you as an honest adviser, to ask you to make a good investment, and I would ask you to do for our schools—for our technical schools—what the great manufacturers of Europe have done when they created such schools with their own money and have maintained them with their own capital and are still doing it. I am not asking you for a contribution which would cover the whole expenditures. I repeat I am not here begging, but I am here advising for a good investment and I hope to see the day when you gentlemen, pulp manufacturers and papermakers, will think proper to give substantially toward the encouragement of our technical schools, and I think you will put yourselves in a still better light with our people when you do that. You will then contribute to the recruiting of superior artisans in this province, the engineers and technical men of high standard who will stand faithful and firm for the betterment of our great industry. Do this, Mr. President, and you will make it so that the future generations and historians will say and will write that you have been great manufacturers, and at the same time far-seeing captains of industry and public benefactors to your country.

. . . . .

Following Sir Lomer's address, Lieut. Rice sang in his effective way, his well-known song, "Dear Old Pal of Mine."

THE ESSENTIALS OF PEACE

In introducing Mr. Montgomery, Mr. Chahoon said: We had a party at Grand Mere on New Year's Eve for the employees and after twelve o'clock, after the clock had struck twelve, and everyone was going around wishing the Compliments of the Season to their friends, I went down into the dining room, and there I met one of our old machine tenders and his wife, having supper. As I approached, Johnny got up and met me and he said "Bon annee, Monsieur Chahoon; Happy New Year to you." "Happy New Year," said I to Johnny, "and A Happy New Year to Madame." Johnny said, "O, Monsieur, you kiss my wife." That was rather a novel request, but after it was all over I realized that Johnny had paid to me the highest mark of respect that was within his power, and so you men who are the guests tonight of the Canadian Pulp and Paper Association—I want you to realize when I introduce to you our friend George Montgomery, that, like Johnny, we have gone the limit.

. . . . . .

Mr. Geo. Montgomery replied: Mr. President and Gentlemen: This is not the first occasion upon which I have had the privilege of addressing you, and in fact I might almost perhaps assume to call you, "Dear Old Pals of Mine," but there is something unique about this occasion as far as anything I have to say is concerned, and that is that this is the first time that I have ever been called upon to speak before midnight. The President has always been kind to me and to him I owe my first introduction to the Pulp and paper industry and I am sure that he meant it in kindness in putting me forward at this early hour but it does not seem natural.

The three years I have been connected with the industry as a whole, though I have known some of you in the past, while somewhat strenuous years, have been on the whole exceedingly pleasant ones, because I have met in more intimate relation than perhaps it is our usual privilege to do, not only the captains of industry, speaking generally, but the captains of what I sincerely believe to be the greatest industry of our land.



GEO. H. MONTGOMERY,
Representative-at-large of the Pulp and Paper Industry in Canada

I am not going to give you statistics. You have listened to them for the past two days, and it cannot be otherwise than a source of great satisfaction to you, not only to the producers of pulp and paper in this country, but to every true Canadian, to realize that the pulp and paper industry and the pulp and paper exports upon which our country depends, have practically quadrupled in the last few years, and that last year we were practically exporting products to the value of one hundred million dollars at a time when this was greatly needed to balance the adverse exchange.

One thought has been particularly brought home to me in my connection with your industry, where I have been called upon to look perhaps more closely than some of the rest of you into the costs and profits which have been expressed in the past, and that is that the greatest resources which we have and which are our water powers and our timber lands, have been absolutely given away. The prices which we have received for our newsprint paper and various other produets of the forests, our other papers and pulps have realized nothing more than a bare manufacturing profit. The raw material which our country was giving has been given away. There has been absolutely not one dollar of profit taken into account in the manufacturing cost in the past for all these won-

derful acres of timber land that we have been cutting and turning into your product, or for the great resources which Heaven has placed with us in the way of water power to turn this into a manufactured product.

The prices in the past will show that all you have gained is at best but a large manufacturing profit in the conversion of your raw material, and that raw material has been given away.

These times are over when they start comparing the profit we are making and know what profits were made in the past. It is not profits for our own pockets only, it is that this Province and this country are at last obtaining something, some return for natural resources which Heaven has placed with us.

I am proud as a citizen of the Province of Quebec not only to have the Premier with us tonight, not only to listen to what he has said to you, but to be able to enjoy what he said—that the Province of Quebec has not only the largest natural resources in that connection, because that would be an accident, but we have something more than that. We have, we feel, the intelligent co-operation and sympathy of our provincial government and we say that with some degree of appreciation because we have not at all times felt that we had the sympathy of government to which we were entitled.

We have in this Province, as the Premier has remarked, the three great elements which make it our basic product. "Basic product" has become a familiar term when stocks take a rise on St. Francois Xavier St. and other forestry centres. We have the timber land to furnish the raw materials; we have the water power to give us cheap power for conversion, and we have here, as the Premier has already truly remarked, the employees.

We have a population whom I can say without fear of contradiction are the least affected by the troubles which are prevalent nearly all over than any place of which I know.

We have what is a necessary coincident to this, if we are to be developed to the best advantage, and utilized to the best advantage—we have the proper appreciation of these natural resources and of our employees on the part of the Government.

As regards the timber lands: Both your president and the Premier have told you of the intelligent interest which is being taken in the conservation of timber in the Province of Quebec.

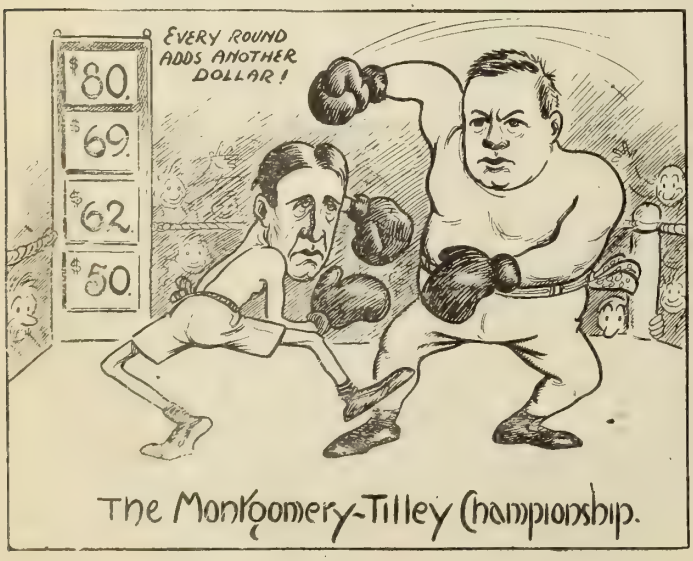
As regards our power; this Provincial Government has undertaken the storage of our water powers, and I am sure we will all be pleased that our greatest storage dam, a dam which serves and regulates the head-waters of the St. Maurice, has been very appropriately named the "Gouin Dam."

But there is something more than that in connection with this industry, and I am rather proud that I have been permitted to respond to the toast to "Our Industry." Of course, some of you may think that my friends and myself have profited so much that we should call it "our industry," but I think that, notwithstanding Mr. McIneney, who is only a publisher, that there is still something left.

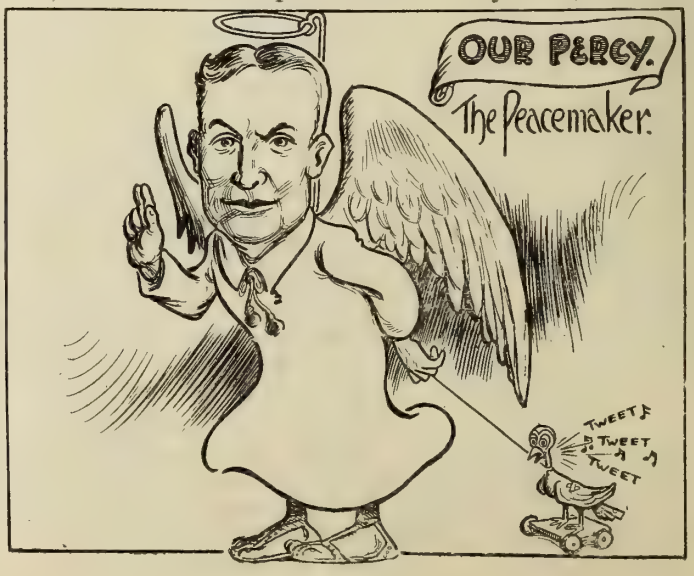
I can still say, with some pride, that our industry has not shown itself entirely insensible to the natural advantages which it is enjoying, and that it has done some creative work other than the mere destruction of the forests and their conversion into an article of profit.

I think we have afforded the greatest example which has been shown in this country of the community idea, an idea which is bound to prevail if relations are to improve between the various elements of society. This is, perhaps, due, to some extent, to circumstances. You go out into the wilds and you establish a town, and your manager lives there with the employees; they are all interested in the future of their town, and you work shoulder to shoulder as the men did in France, and you get the community idea, which is impossible in the larger centres, and is developing ideas even there.

I have not had the privilege of visiting all of the communities in which pulp and paper is manufactured. I have visited a few. I have visited Grand Mere, and I was struck with the spirit that exists there between the management and the operatives. I was proud to receive the other night a copy of the Spanish River News containing an account of their banquet. It was somewhat unique as banquets go in this industry. Not only was the management represented, but labor was represented and permitted to speak freely, and did speak freely, and they had there developed what really must be at the root of all progress in the way of peace and friendly relations between the different elements of society in this country, the respect for the elements of capital, management, labor and the community. I don't know whether they adopted that division of four from Mr. MacKenzie King or not. He made it Capital, Management, Labor and the Public, and I see in Spanish River they have reduced



The Montgomery-Tilley Championship.



that to "The community." Perhaps that is synonymous with "the public," and I do not know of any industry where the relations are more pleasant between those who own the industry, those who manage it, and the operatives who actually do the producing, than in the pulp and paper industry. In these times, that is not a factor which is to be lightly passed over.

Now, in the past, when I have had the privilege of speaking to you, I have rambled so much and uttered so many foamy nothings, that I thought tonight I would select a text and then preach a sermon, but the preliminaries we have had lasted so long that I don't know whether. I would be justified or not, but there is one thing I don't have to apologize for, and that is that I am going to read from the Scriptures, because you don't hear very much from them.

The Earliest Account of Lumbering.

The text that I am going to use was designed to teach you some of the moral lessons which should be studied with earnestness by the publishers in particular, and by your industry to a minor degree. It is intended to illustrate the earlier references to your logging industry, and the relations which should prevail between the producer and the consumer, and I have chosen it from the First Book of Kings. This is Friday night, nearing Saturday so you can treat this as Sunday morning.

The text I have chosen is from 1st Kings, verses eight to twelve:—

"And Hiram said to Solomon, saying, I have considered the things which thou sentest to me for, and I will do all thy desire concerning timber of cedar, and concerning timber of fir.

"My servants shall bring them down from Lebanon unto the sea; and I will convey them by sea in floats unto the place that thou shalt appoint me, and will cause them to be discharged there, and thou shalt receive them; and thou shalt accomplish my desire, in giving food for my household.

"So Hiram gave Solomon cedar trees and fir trees, according to all his desire.

And Solomon gave Hiram twenty thousand measures of wheat, for food for his household, and twenty measures of pure oil, thus gave Solomon to Hiram year by year.

"And the Lord gave Solomon wisdom, as he promised him; and there was peace between Hiram and Solomon, and they two made a league together."

That chapter is not only of interest in discussing the earliest description of the logging industry, including the drives, but it is of interest at this time in particular in discussing the relations which should prevail, and which have not prevailed in the past, between the consumer and the producer.

We have in the first instance, the element of a fair bargain. You see that Hiram stipulated that he was to receive in return for his product "that he should accomplish his desire in giving food for his household," including the pork and beans at their present increased cost, with due regard to the high cost of living, and not to be measured by pre-war prices or anything of that kind, so that everybody in this industry should get what was due them.

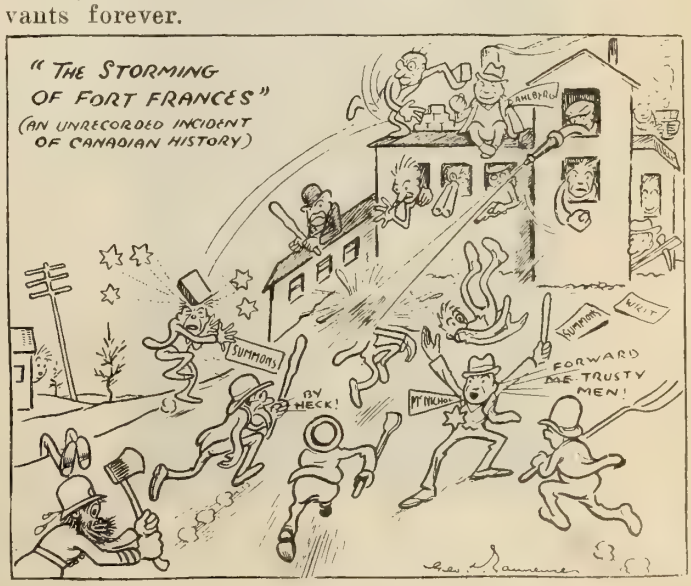
Now, the effect of all that was, that there was not any shortage at all. It was not necessary to put any embargo to get paper or anything of that kind, and Hiram gave Solomon all that he desired, just as the publishers today are getting all they desire. But Solomon wished to pay a fair and reasonable price for what they were obtaining. I know that twenty thousand bushels of wheat might appeal to you, but I don't know whether twenty measures of oil would go quite as strong, but I have heard that a little oil was an excellent thing to take before dinner.

You will notice that Hiram and Solomon gave this "year by year." There were prompt settlements in those days. Solomon learned wisdom, which I hope the publishers are learning, and a peace league was established between them.

Just by way of contrast let me tell you what happened in this industry. In the year nineteen hundred and ten—in October, nineteen hundred and ten—we went to the publishers and declared our willingness to give them all that they desired, but we found not Solomon on the Throne, but a little son of his, called Rehoboam, and he told us to depart and return again in three days, which we did. Now, when we came back to Reho he had been taking counsel in the meantime, and he had gone to some of the wiser heads in his business, and they had told him "Answer to them, and speak good words to them, and they will do your service forever." But the unifortunate Reho went to some of the lighter heads in the industry, and they said, "Go back to them and tell them that "My father chastised me with whips, I will chastise thee with scorpions,' " and they prevailed, and we were dragged before the Kadi. That may be an anachronism, but if it is, blame Victor Mitchell.—And for three years Hiram was learning bookkeeping instead of cutting wood. This three years was ended, Reho then was learning bookkeeping and Hiram cutting the wood

Manufacturers Should Use the Soft Pedal

Now, before leaving that text, because you know a good Presbyterian preacher (and I am not a good Presbyterian, but I have a great deal of respect for them, as I have for all the Scotch,) I want to say a word in the particular application of that text to the manufacturers, and that is, that while I fully endorse all that your President has said to-night, yet do not rest absolutely easy on your oars, because peace has been for the time being declared, but on the other hand I think you would make a tremendous mistake, if you adopted the role of Reho instead of Solomon. When the publishers feel that they have learned sufficient book-keeping and come to you, don't follow the advice to the young man in the industry and chastise them with scorpions, but answer them with good words, and I am satisfied that they will be your servants forever.



Donates $5000 to Paper Making School

At this point the President made an interesting announcement:

The remarks which Sir Lomer Gouin made have impressed me greatly—especially the remarks about his Technical Schools. I believe there is nothing that could happen to this industry that would do it more good than a sufficient number of technically educated men. I was wondering, however, whether he had impressed other people here as forcibly as he did me, and from what I have just heard I am sure that some of you had gone further than I had thought. I wish to state that the Royal Securities Company have suggested that it would be their pleasure to start the work on the Quebec Paper Making School with a donation of five thousand dollars, and I have no doubt that the men who are at the head of this industry will be imbued with a like feeling. It has been the custom in the past years—the years during the war—to talk about affairs that we felt at that time required attention.

I think, however, that this is a big question, a broad question, and it should not be handled to-night by this Association, or by your men, but it should be left to the Executive Committee of your Association, and undoubtedly during the course of the year you will hear from the Executive Committee on that very important and very interesting subject.

RE-ESTABLISH MAGNA CHARTA—AND GO TO WORK.

My Major HENRY A. WISE, New York.

One of the delightful features of the banquet was the happy manner in which Mr. Chahoon introduced the speakers. In presenting Mr. Wise, he said:—You remember the time when you were all boys, you were all interested in base ball—in the base ball team of your home town—the base ball team was out playing, and its one big game of the year came along. Everything worth having seemed to hinge on the outcome of that one game. You stood on the side lines,



HENRY A. WISE,
Representative-at-large of the Pulp and Paper Industry in the United States.

and your big heavy hitter was called to the bat, and you stood there shaking, and hollering as loud as you good, "Make 'em be good, Johnny, make 'em be good," and so it was with the boys of the Newsprint Industry, when we played our big game in Washington. Everything in the world seemed dark, and so much hung in the balance. We stood on the side lines and our big batter was called to the bat, and faced one of those "million-dollar" twirlers, and the twirler was afraid of the batter—afraid he would score on him, and he threw the first one wide, and he threw the second one high, and we stood on the side lines and we said "Make 'em be good," and the nicest part of it is that he did.

Gentlemen, I have much pleasure in introducing to you, our "heavy hitter," Major Wise.

Major Wise responded, saying:—My friends; I so address you because that indicates my attitude toward you, and I flatter myself that this feeling is reciprocated. You have honored me by your invitation to address you on this occasion. I have been vain enough to accept the invitation, and, then, having incurred the obligation, I have been at a loss as to a topic. On such occasions, and under such circumstances one hesitates to enter upon a serious discussion. Moreover, being in a sense a foreigner, how may one undertake to speak upon a subject with which you may be concerned without being guilty of trespass, and without risking the accusation of being impertinent? At the risk of both, however, I shall dare to say a few words.

I feel that we are friends, and I don't feel that I am really a foreigner. The imaginary boundary line that separates the States from the Dominion cannot obliterate the many common ties that exist between us. With common ancestry, traditions and ambitions there can be but little if anything, that is not of common interest to us. And so with these prefatory remarks I shall proceed to my topic.

Let us get back to common sense. Let's return to the old-time religion. Let's re-establish that form of Government guaranteed to us by Magna Charta, the Declaration of Independence, and the Bill of Rights. And if this be treason, make the most of it.

The men assembled here tonight are the representatives of one of the great industries on this Continent. Your experience in the past four years have been similar to those of men in every other industry. The Governments have so governed your business that you hardly knew who owned it. You have been inspected, suspected, examined and re-examined, indicted, prosecuted and regulated, informed, required, commanded, commandeered and questionaired, managed and mismanaged until you have hardly known where you were or where you were going.

Now that does all of this mean? My answer is that it is hysteria, pure and simple. Man is a curious animal. He thinks—he thinks. And confuses ideas and notions with thoughts. He is susceptible beyond understanding. When he is perfectly well he will accept the uncorroborated statement of another whom he does not know, to the effect that he is ill, and then permit that other to prescribe for and treat him without stopping to inquire as to what the cure is. Man's conceit is unlimited. He idealizes himself and measures all others by this false standard. Whenever anything goes wrong it is the other fellow's fault, and instantly he attacks the other fellow. Instantly the good follows the aggressor, and then the false prophet comes forward with the cure, and the crowd follows

the quack. Think over what I have said and see if it is not true.

Now let us apply this to what has been happening. Having been imposed upon to the point beyond which human endurance could stand no more, our ancestors rose up in arms, and by force of arms secured Magna Charta. This grant was not a string of regulatory laws. It was a charter of rights. It fixed and determined, not the rights of the government, it fixed the rights of the governed. It did not tell the people what they should do and what they shouldn't. It told the Government what it could do and what it couldn't. The only don'ts, the only "verboten" in this great charter are addressed to the sovereign. All of their old liberties and free customs are assured to the people, as well by land as by water. No constable or other bailiff could take the cow or other chattels of anyone except he straight way give money for them. Neither the King nor his servants could take any property of the freeman unless by the will of him to whom it belonged. No man might be put on trial, imprisoned, disseized, outlawed or exiled, except by lawful judgment of his peers. All merchants might safely and securely go out of England and come into England, and delay and pass through England, as well by land as by water, for the purpose of buying and selling, free from all evil taxes and subject to customs and rights—save in time of war. I recite these few provisions of the Great Charter.

Its whole spirit and purpose was to divest the Government of the right to deprive the citizen of his rights and to assure for all time to the citizen the rights to enjoy his life, liberty and pursuit of happiness free from unreasonable restraint—except in time of war—by the Government. And for 750 years every Englishman has recognized and cherished these as his inalienable rights. Some 300 years past some of our ancestors came to and settled this continent. Those of us to the South in time asserted our independence of the mother country. This independence was acknowledged. In our declaration we proclaimed "these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable rights, that among these are life, liberty and the pursuit of happiness. That to secure these rights governments are instituted among men, deriving their just powers from the consent of the governed." This was a mere reiteration of what had been granted by Magna Charta.

Among the grievances we complained of was, "Taking away our charters, abolishing our most valuable laws, and altering fundamentally the forms of our government." Pause to consider this now, and ask yourselves whether we are not again in much the same dilemna.

Following our independence. "We, the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquility, provide for the common defence, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity" ordained and established our Constitution. The people, you will note, were acting for themselves and their posterity, and the Government was instituted by the people and derived its just powers from the people. The Government that was so created was given certain very definite powers, and the powers not conferred upon the Government were expressly "reserved to the people." But notwithstanding this explicit reservation the people enunciated in no uncertain terms some of their rights reserved. These appear very clearly in our Bill of Rights.

The right of the people to be secure in their persons, houses, papers and effects, was guaranteed against unreasonable search and seizure. It was expressly provided that no person "shall be deprived of life, liberty or property, without due process of law; nor shall private property be taken for public use, without just compensation." And here again did the people safeguard themselves against the tyranny of Government. The wise and far-seeing men who participated in these triumphs for human liberty were not acting for themselves alone, but for posterity. And what they accomplished has stood the test for 750 years.

On this evidence I will rest my case with any jury, but of late the men from whom this jury would be drawn have been losing sight of fundamental truths. Not any years ago the pleasing pastime of mud-slinging became a very popular one. Irresponsible writers in the employ of irresponsible publishers inaugurated a campaign of villification, and through this wicked method the unthinking were taught to believe that we were sick. We still have this form of journalism, although fortunately in a less degree. Through this form of villification the good old public came to think itself ill. And then came the quack, the demagogue with his panacea. Joining in the cry of "Stop thief," this bunco steerer led the mob and legislation resulted.

One regulatory statute on top of another until business *was* sick. We were told that our railroads were mismanaged. We were told that they could transport passengers at two cents per mile. Forty odd States and the Federal Government prescribed cures, and the patient, well at the beginning, soon had sour stomach and gastritis from over-dosing. Then same a time when we needed the services of the railroads and needed them badly. They were over-regulated and under-nourished and threatened with a strike by their employees, who wanted shorter hours and more pay. The poor old invalid was still able to stand up and fight and was ready to do so. But again the demagogue, seeking favor at the hands of the few at the expense of the many, and utterly disregarding the rights of themselves and of posterity, as assured by Magna Charta and our Constitution, came forward with the most iniquitous legislation ever written upon a statute book.

And so the Adamson Law was enacted, and an autocracy—more wicked than John—more wicked than George III—trampled upon the rights wrested from John by Magna Charta and George by the Declaration of Independence and the rights of the owners of the railroads to manage their own affairs were pre-empted by "the Government." This frightful act of tyranny placed organized labor (2 per cent of our population) as a despot master over all. The right of the employer to negotiate the terms of employment was denied to him, and management by Government became supreme. This was no war measure. It was before we went into the war. And with this as an example, and as a warning, labor on the one hand stood threatening, while the employer stood in awe and confusion. Needless to say, demand upon demand for increased wages followed and was granted in all lines of industry. And the cost of living soared higher and higher, or the value of the dollar fell lower and lower. Result—When we went into the war our railroads, the very arteries of our existence, were paralyzed.

The poor old patient was sick indeed. It needed no medicine, it needed a friend—and it needed nourish-

ment. And this nourishment has cost the taxpayer, you, me, everybody, billions of dollars. All to our disadvantage, and to the enrichment of a favored few. But the end is not in sight. The railroad employees, safeguarded by this paternalistic concern as evidenced by this iniquitous legislation, now threaten another strike. And listen! Oh Lord of Love! But a short time since our coal miners went out on a strike. Then comes forward the mighty hand of the law and says: "Thou shall not strike." And the aid of our Courts is invoked and a body of citizens, who live under our Constitution, their Constitution, are told that their right to "life, liberty, and the pursuit of happiness" does not permit them to quit work. And so they, through paternalistic regulation are driven back to the mines.

But when the railroad employees threaten to strike there is another battle from which to draw their medicine. This great administrator of the law comes forward and solemnly says to Mr. Railroad Employee, "Please don't strike, wait a few months, and I will reduce the cost of living."

The war ended November 11th, 1918, for all intents and purposes, but in order to play their many parts, there must be laws. And so our Congress is appealed to to extend a war measure which enabled the Majesty of the law to prevent the coal strike. And so again in order to reduce the cost of living other laws, relating to food control, are extended and Government meddling with private business goes on. The poor people are full of hysteria. Evidence of general dissatisfaction is seen everywhere. Something is wrong, but the man in the street doesn't know what is the matter. He knows that his dollar is of but little purchasing value. True to type he does not pause for introspection. He is not a profiteer, it is the other fellow, and so the yawp of the quack falls upon sympathetic ears. And he sits and sees the faker hand out his remedies and stops not to measure the consequences.

Every line of business should be regulated but mine. This has been the general attitude. Let's correct all ills by legislation. Let's make the world virtuous by saying in some statute that it must be so. One year after the war is over, we pass a prohibition law in order to conserve our man power for carrying on the war, and the man who approved this law recommends its repeal because he says the war was over when he approved the law.

While we were at war, the large consumers of newspaper sought to regulate its production, distribution and selling price as a war measure. Pure fraud and hypocrisy. They got away with it, and almost succeeded in having this done by one of their own number. They pretended themselves to be public benefactors, and claimed that the manufacturers were swindlers.

Same old self-adulation on the one hand and detraction on the other. Willing to take all and give nothing, forgetting that he who sows the wind shall reap the whirlwind. We went before their impartial arbitrators, under an iniquitous agreement, which was in violation of every safeguard guaranteed by our Constitution, and had a judgment rendered by a publisher, under which this industry would have gone bankrupt.

Let me show you, gentlemen, the character of the man to whom this case was referred. Recently a man was tried and convicted in Chicago of conducting a swindle where, through the medium of advertising in the public press, the good old public was separated from four and a half million dollars. When the show-down came, there were five thousand dollars worth of assets on hand. When this man was brought up for sentence before Judge Landis, he, after reading the advertisement and the news articles in the "Minneapolis News" which went on to say that this concern had millions of dollars invested and the business was turning out from seven to ten automobiles a day, when as a matter of fact, there were no automobiles being turned out at all, the judge turned to counsel for the defence and said, "Who owns that newspaper?" The counsel for the defence said, "The President of the Federal Trade Commission is the President of that corporation." It goes on:—

"*The Court*: What is his name?

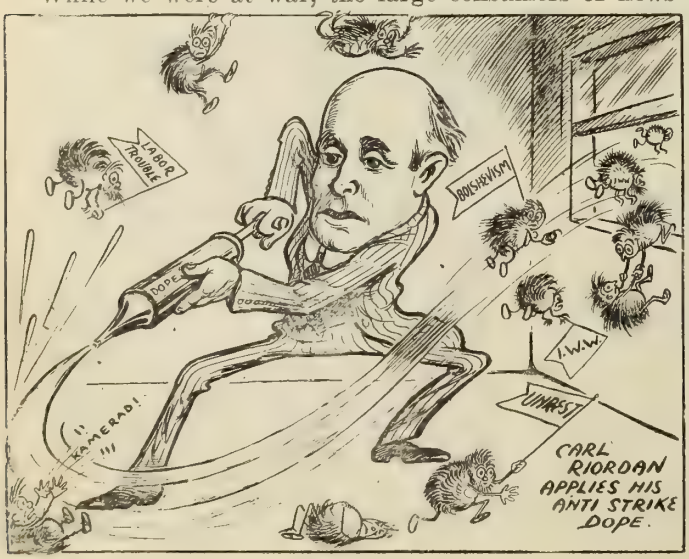
"*Counsel*: Caldwell.

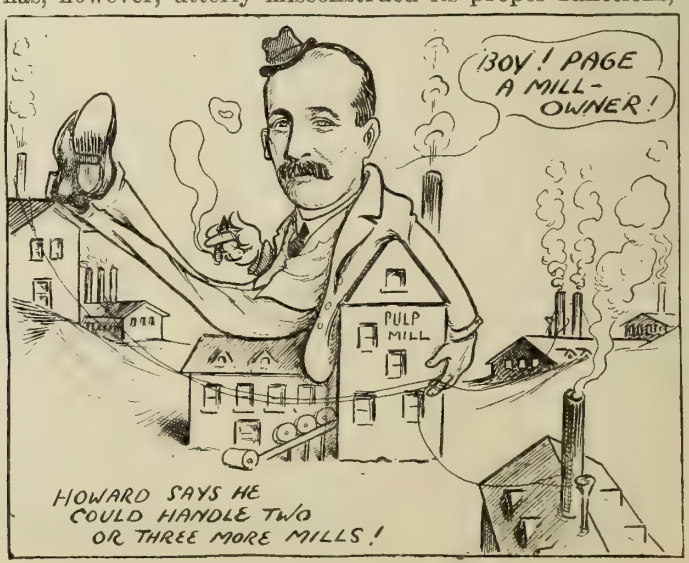
"*The Court*: If he is the owner of the "Minneapolis Daily News, he had better cut out being chairman of the Federal Trade Commission and reform his crooked paper."

And the counsel replied, "His position was his reward for supporting the Administration."

To show you the esteem in which that man is held I would like to read to you from a recent address which one of the most distinguished educators of the State gave.

He said: "We have at the present time a Federal Trade Commission appointed pursuant to the provisions of a statute which might easily be so administered as to do great good. The Federal Trade Commission has, however, utterly misconstrued its proper functions,





and has preferred to persecute business rather than to protect and develop it. The cheaply won applause which is sure to follow the violent denunciation of somebody or something for an alleged wrong has been preferred to the much more solid and lasting approval of an intelligent people that would follow upon constructive acts, which would indicate how the business of the country might be better and more wisely developed."

It is little short of pathetic after some of the best brains of the nation have organized and set on foot a great industrial undertaking which engages the co-operation of thousands of men and women, reduces the cost of production of some staple article and begins to extend American trade in the new land to find them summarily brought to book as criminals by the Attorney-General of the United States or by the United States District Attorney in some judicial district.

The course of wisdom and of progress would be for the Commission to hear the plan of those who propose to develop an undertaking of this sort; to point out and advance what would be considered unfair business practices and what would not; to indicate the line where monopoly would be held to begin and which therefore must not be crossed and then to send the new undertaking on its way with the full knowledge and co-operation of the Federal Trade Commission with which thereafter the undertaking should stand in the closest possible relation.

Fortunately we had a right of review. We went before an honorable Court of Justice composed of men whose training had taught them to reverence the rights of man as guaranteed by our Constitution, and there justice was done. But the harm of this iniquitous proceeding had sown its seed. One false step leads to another. The publishers who put the machinery of Government into motion to accomplish their selfish ends, reckoned without their hosts. Now we have the situation where the little publisher is being frozen out, and he in turn cries for Government interference.

In three months we have had introduced in Congress 57 varieties of proposed legislation. Some propose taking your business out of your hands, regulating the amount of paper to be produced, distributing it through some Governmental agency. Cancellation of your contracts. Prohibition of export and a dozen or more other cures. Then there are others that will take the paper away from one publisher and give it to another, or blackmail the big fellow into giving up what he has lawfully acquired under pain of being denied second class postal privileges.

I won't take up your time to read these proposed laws. They are too voluminous. Every one of them is contrary to the spirit of Magna Charta and of our Constitution. All are in line with iniquities committed in the name of the Government, and all in line with a generally distorted and false notion that laws can be enacted that will over-rise fundamental economic truths. Time will not permit me to trespass longer. What I have said will show you how careless we have become. How we have lost sight of the fact that it is dangerous to navigate without your compass. The old time religion, the Magna Charta, and the Constitution are the compass by which we should be guided. Hatred and mistrust of our fellowmen brings disaster. The Golden Rule will bring happiness. And the moral of all of this is, "Let us stop calling the other fellow a thief." When something seems to go wrong, let's overhaul our own machinery rather than try to produce results by throwing a monkey wrench into the other fellow's gears. Let us get down to common sense. Let us cure ourselves of hysteria, and try to cure the other fellow by an appeal to his reason. Let us discharge the Legislature as our medical attendant and apply a little Christian Science.

The world is full of hysteria. Some call it Bolshevism. And the cures heretofore attempted in the form of foolish legislation I call "Bullshevism." Let us give up "Bullshevism." The unchecked development of the present tendency will, in time, completely alter our form of Government and revolutionize our business.

It is perfectly easy, by following such a course to transform a democracy into an autocracy of office holders and inspectors. Nominally, it would represent and carry out the wish of the people, but actually it would be a tyranny of an office-holding class, made up of malcontents and men who had failed in business.

And stop talking Bolshevism. The manhood of the Dominion of Canada, and of the United States, by and large, is all right. We are fundamentally sound. And there is nothing in our future of which we need entertain any fear. Just now we are suffering from the High Cost of Loafing. The result is hysteria.

But this can be cured. Not by legislation. The Russian Soviets are ordaining a twelve-hour working day. Legislation by the Soviets will not accomplish the desired results. And we want no such legislation. The Labor Unions which are behind the iniquitous Adamson Law, now see the danger of their false step. They now acclaim against anti-strike legislation. I agree with them. Samuel Gompers, in referring to the Red's legislation, to which I have referred, says: "We know all about it, and we condemn it completely, finally and for all time." I am with him. I object to legislation fixing or attempting to fix or regulate private business. We want none of it. What we need is to be let alone. And when let alone, we need to use good hard common sense, mixed with charity, and good will for our employees and for our customers.

Get down to business on this basis. Start a campaign of education. Take these figures, for instance. In 1913 there was in circulation three billion, three hundred and ninety million dollars; with bank deposits of twelve billion six hundred and seventy-eight millions; in 1910 there was, in circulation five billion seven hundred and nine million dollars, with bank deposits of twenty-five billion seven hundred and thirty-one million dollars. A sixty-eight per cent increase in cash in circulation, and one hundred and three per cent in bank deposits. Estimates based on production and transportation figures show an increase in production in 1919 over 1913 less than ten per cent. No war production was involved. Thus the increase in production covering six years is hardly a normal increase, in fact, less than normal.

Our exports are enormous. So today, we are getting less goods for twice the money. This illustrates what has been the cost of loafing. Today thousands upon the sands of useful hands sit idle, in moving picture shows, during normal working hours. Thousands upon thousands of hands are idly rushing around in automobiles. And all the time, production is away below the demand. All the legislation that can be conceived of by legislators cannot correct this condition. Public opinion, founded upon sound agreement will cure the situation.

Let us go forth and teach this lesson, always remembering that the other fellow is just as good as we are, and the old world will continue to be a good place to live in.

Combined Forestry Conventions a Success

The idea of holding joint conventions of the Associations interested in forestry work has proved so successful in the past that the same practice has been carried out again this year when the four Forest Protective Associations of the Province of Quebec and the Woodlands Section of the Canadian Pulp and Paper Association met in Montreal Jan. 28-29. It is possible at this time only to mention a few of the more striking items of business that were considered. Among these should be mentioned the movement for placing supervision of fire protection on government railways under the Railway Commission, the discussion on the burning of slash, an address on Aerial Photography and a paper on the Damage Done by the Bud Worm.

Readers of the Pulp and Paper Magaine will also be interested in the election of officers which resulted in the selection of Brig.-Gen. J. B. White as president, S. H. DeCarteret, vice-president and Frank Ritchie, Ellwood Wilson and T. F. Kenny as members of the Council.



BRIG.-GEN. J. B. WHITE,
Chairman of the Woodlands Section for 1920.

The agitation for placing the fire protection measures of the National Railways under the direction and control of the Railway Commission is not new. The Canadian Forestry Association and every other organization that has at heart the best interests of Canada's forests have for a long time protested against the absolutely ridiculous situation where every railway is responsible to authority except those which are operated by the Government itself. A resolution was again unanimously passed by the 150 delegates in attendance at the convention asking for a change in the situation. It is certainly to be hoped that there will be something accomplished in this matter before the next fire season is upon us. While it does not appear to have been mentioned the Pulp and Paper Magazine would like to point out that with the taking over of the Grand Trunk by the government there is a possibility that this great railway system will side-step its obligations to the public by slipping its present responsibility for fire protection along its right-of-way.

The disposal of slash started a fine discussion and the reports of actual experiments were of great interest and value to the members of the Association. Mr. W. R. Brown of the Brown Corporation said that his company had made an extensive demonstration of the method of lopping the tops so as to cause them to lie flat on the ground and thus facilitate decay. He stated that after seven years there was little result to be observed. Mr. Angus McLean of the Bathurst Lumber Company remarked that the natural debris caused by windfalls of the brittle and early decaying balsam, caused far more difficulty that the slash resulting from lumbering operations. General White described the operations connected with the clearing of a fire-break around the new site of the Kipawa Fibre Company at Temiskaming. In that case not only was the logging slash taken care of but the natural debris cleared up as well. Figures were given by other speakers on the clearing and burning of slash on demonstration operations and the actual time devoted solely to this particular effort amounted to from $2.50 to $4.50 per 1000 feet. The figures cannot be taken as a perfectly satisfactory basis of calculation as some items of overhead were not included.

The proposition to put the fire protection of the railways in the province in the care of the associations organized for the purpose met with very emphatic opposition on the part of the foresters of the railways and was not entirely supported by some delegates at the convention.

The subject of insect and fungus destruction of forest timber has come very much to the fore in the last few years and provided a topic for an interesting paper and discussion. It is evident that there will be a large amount of work done along this line in the near future and it is confidently expected that the efforts which are being made and which should be extended along this line will result in a very substantial return to the people of Canada.

An interesting report was brought in by a joint committee of the Woodands Section of the Canadian Pulp and Paper Association and other interested organizations on improvements in logging operations and it is to be expected that interesting developments will take place along this line, particularly in view of experiments that are being made and practices that in some cases have now passed the experimental stage in the design and operation of new types of logging machinery and improved methods of operating woodlands.

Perhaps the most interesting item on the program, at least from the point of view of the public, was the paper prepared by Ellwood Wilson of the Laurentide Company and read by Mr. Graham on the Aerial Photography in forestry work. It was shown that this method of obtaining information in regard to forest lands is entirely feasible and that maps taken at

5000 feet give an excellent basis for the study of the lands under inspection. From such a photograph which is on a scale of approximately 400 feet to the inch, it is possible to make complete maps at a cost of not more than $25.00 per square mile. In addition to this a forester can get a better idea of 50 square miles of territory in two hours flying than he can in two weeks on the ground. It is evident that the experiment carried on in the St. Maurice last summer was a complete success and that this method of patrol and investigation will be greatly extended in the future.

All together the meeting was a most interesting one and the Montreal Forestry Conference, as the annual convention has come to be called, will be looked forward to each year with more and more interest both by the foresters and the pubilc. No better means of arousing a much needed interest in our forests on the part of the public could be devised.

BRITAIN'S PULP AND PAPER TRADE IN 1919

(From Our Own Correspondent.)

Notwithstanding deterrent elements British trade in pulp and paper during 1919 made a remarkable recovery. For the twelve months ending December, the returns of which were isued a couple of weeks ago, one can see that a determined effort was made to bring the markets back to their pre-war days and though prices are on a considerably higher level when compared with 1913—an average year—the volume of business done with the Dominion and other countries is indicative of progress, as well as giving a feeling of security for the future. Needless to say, in 1919 pulp and paper men passed through many vicissitudes. Strikes, labor and railroad troubles, the financial rates of exchange, and the wheeling of Europe into line after a most damaging five years' war, not to mention shipping difficulties, handicapped trade and business in many directions. These elements were, combined with the increased cost of production, faced with considerable pluck and the issue now remains vividly advertised in the year's figures to the effect that notwithstanding high costs there is a keen public demand for paper of all kinds and it must be supplied.

Pulps

In 1919 Canada had a fair share in supplying pulps to the British mills and it is to be hoped that during the coming year no effort will be spared to increase business. The following were the supplies of groundwood (moist) from all sources:—

	Tons	£
Sweden	80,965	673,237
Norway	293,025	2,434,899
Canada	98,576	900,492
Other Countries	21,721	180,108

The totals are 494,287 tons (compared with 109,048 tons in 1918 and 174,551 tons in 1917) valued at £4,188,-736 compared with £1,346,035 in 1918 and £1,689,976 in 1917). When the figures from Norway are being considered it must not be overlooked that British money is invested in some Norwegian mills and consequently purchases are made direct. Canada's rise in the pulp supplies is considerable and very satisfactory. A market buying twenty odd million dollars worth of groundwood in a year should not be turned down, but studied and fought for and Canadians should remember the fact, the present being the opportune moment.

Mechanical pulp (groundwood) dry, was imported to the extent of 33,735 tons (as against 72,970 tons in 1918 and 41,206 tons in 1917) valued at £729,964 (as against £2,248,103 in 1918 and £977,625 in 1917). Scandinavia and Finland have most of this trade.

The total of groundwood of all kinds imported in the year 1919 reached 528,022 tons valued at £4,918,-700; for 1918, 182,018 tons valued at £3,594,138; for 1917, 215,757 tons valued at £2,667,601.

Sulphite

In common with other raw materials sulpites show a large increase in the returns, but unfortunately the Canadian supplies are not given separately until the Fall of 1920. On the Canadian side these figures can only be obtained.

Sulphite and Sulphate pulps were imported to the extent of 409,898 tons (237,535 tons in 1918 and 171,-200 tons in 1917), valued at £10,484,237 (£9,188,893 in 1918 and £6,852,422 in 1917).

Bleached sulphite was supplied from the following sources:—

	Tons	£
Russia	95	3,350
Sweden	4,255	148,052
Norway	11,288	437,973
Canada and other places	4,605	149,692

Making a total of 20,183 tons (16,007 ton in 1918 and 20,742 in 1917), valued at £739,067 (£764,619 in 1918 and £890,277 in 1917.)

Unbleached sulphite was greatly in demand and the prices can nearly be gauged by reference to the supplies from the following countries:—

	Tons	£
Russia	6,668	150,137
Sweden	269,946	6,622,723
Norway	64,449	1,734,327
Canada and other places	44,834	1,187,225

A total of 385,897 tons (220,755 tons in 1918 and 142,108 in 1917), valued at £9,694,412 (£8,414,457 in 1918 and £5,767,689 in 1917). Here we see a material increase and a market that is worthy of consideration.

Paper Imports—Newsprint

The rise in the paper imports shows how the demand in the United Kingdom developed itself and the part that Newfoundland and Canada played in supplying what Germany and Austria could not recover.

The total imports of paper of all kinds reached 381,076 tons in 1919 valued at £13,019,708, compared with 104,574 tons in 1918 valued at £5,131,810, and 139,578½ tons at £4,189,314 in 1917. Never in the history of the British paper industry or trade, have the values of the imports reached such financial figures and I believe a record has been reached because 1920 may see the Germans competing in the market and values reduced. The supplies of newsprint were received from the following countries:—

	cwts.	£
Sweden	295,544	488,552
Norway	278,607	478,188
U. S. A.	68,610	102,192
Newfoundland	943,961	1,487,993
Canada and other places	667,282	928,297

A total of 112,700 tons of newsprint, valued at £3,-485,222 compared with 13,528½ tons in 1918, valued at £694,175 and 25,550 tons valued at £891,809 in 1917. Here we see the supremacy of Newfoundland's newsprint supply in the British market. The other principal supplies arrived from Canada, so that practically over 4 millions worth was exported from New-

foundland and over 4 millions' worth from Canada. These constitute records and it is to be hoped that in the 1920 return these figures will stand out more pre-eminently as a sign of trading within the Empire. It will be noticed that U. S. A. have also been exporting newsprint in 1919 but in December last they exported nothing to England.

Unreeled Paper

Printing and writing paper unreeled, was imported to the extent of 283,188 cwts valued at £850,984, a substantial increase when compared with 1918 and 1917, the figures respectively being 198,032 cwts at £660,197 and 216,988 cwts at £505,345. The U. S. A. shipped 1644½ tons of this paper in 1919.

Of paper hangings, wall paper, etc., supplies were received from Belgium, America and Canada—but they were exceptionally small. Canadians should not neglect this section of the market. It wants immediate attention. Coated papers imported show an increase from 10,403 cwts in 1918 to 31,158 cwts in 1919, and kraft packing and wrapping papers jumped from 709,293 cwts in 1919 to 1,745,613 cwts in 1919 valued at £4,427,306. Scandinavia holds sway in this class of imports, but Canada and Newfoundland take a small part. It is an important branch of the market as will be seen from 20 million dollars worth imported. The imports of strawboard and wood pulp board were as follows: —Strawboard: 114,128 tons valued at £1,877,175, as against 29,569 tons valued at £637,652 in 1918; Wood Pulp Board: 47,661½ tons valued at £1,510,055 in 1919, compared with 14,438½ tons valued at £439,174 in 1918. In the wood pulp board imports Canada enjoys a good share of the trade. During pre-war days the supplies from the Dominion were substantial and now that peace is proclaimed the question of suplying the market might be given more attention on the Canadian side.

Exports of British Mills

With the exception of playing cards, paper bags, and boards, all the exports from the British Mills increased considerably during 1919—even to Canada there is a rise in the figures. France and India were among the best customers, because they materially felt the effects of war. The exports were as follows:

	cwts	£
Writing Paper.	136,509	917,396
Printing "	365,771	1,440,932
Packing "	225,734	427,529
Wall "	58,728	380,127
Coated and Photo Paper	16,658	256,590
Boards	38,695	122,708
Playing Cards (Dozen)	59,845	32,786
Envelopes	22,280	189,187
Paper Bags	12,969	60,304
Other Paper	40,912	299,386

Taking all the exports including manufactures of pasteboards not included in above figures, the total exports were as follows:—935,919 cwts valued at £4,233,933 in 1919; 565,316 cwts at £3,202,660 in 1918 and 914,797 cwts at £3,194,672 in 1917. These figures show an increase of £1,031,273 worth of business recovered over the 1918 trade, which after all is not much when one considers the enormous imports. For comparison I will give the imports and exports for 1919:—

	Tons	£
Imports	381,076	13,019,708
Exports	46,795	4,233,933

The imports it will be observed have increased the exports by eight millions odd. Undoubtedly, the results of strikes and labor troubles can be seen in the export figures. British trade, however, wants a greater stimulus.

Printing Paper Exports

The printing paper exports—which are mostly of a good quality and above newsprint—were to the following countries in 1919 which I quote specially, because printing paper is the principal export of interest to Canada and comes next to Kraft packing and wrapping paper:—

	cwts	£
France	85,297	360,949
U. S. A.	5,106	39,255
Other countries.	142,327	540,738
South Africa.	25,965	115,686
India	44,411	132,670
Straits Settlements	5,330	21,764
Ceylon	2,902	17,071
Australia.	16,747	74,224
New Zealand.	8,030	31,109
Canada	640	3,391
Other Possessions.	29,017	104,075

Totals: 365,771 cwts at £1,440,932. Compared with other years the exports to Canada show a material increase. For instance in 1917, about 414 tons of printing paper valued at £23,081 was sent to Canada whereas in 1919 only 34 tons valued at £3,391 was shipped.

To give an idea what the Dominion is receiving from British mills I give a short summary of the figures in quantities of cwts:—

	1917	1919
Writing Paper	1,416	242
Printing Paper	8,280	640
Other Papers	2,530	1,189

It will be seen that British trade in Canada has not recovered itself and that the Dominion is providing with more success its own domestic supply.

Conclusions

Summing up these figures one can see the remarkable trade in the British market, and too much stress cannot be placed on the fact that the market is an important one, but must be studied, (see report of Secretary of Canadian Pulp and Paper Association). Canadian trade is given every encouragement now and added to this the shipping question must be taken up and handled firmly.

Considering the many difficulties placed in the way of the British mill men, the exports are encouraging, but the ratio of 46,795 tons of paper exports to 381,076 tons of imports is large. Of course imports always exceed exports, but 1919 constitutes a record in values. The figures speak for themselves and for British trade.

Newsprint supplies from America are now stopped It is a remarkable fact that Canadian newsprint has found its way through America into England. America was always a good supplier of newsprint here, but their domestic troubles have killed their English export trade, notwithstanding census taken and paper mill returns made.

We are now at Peace with Germany (except U. S. A.) and in 1920 we may see this great paper rival in the market. I wonder what they have up their sleeve for us!

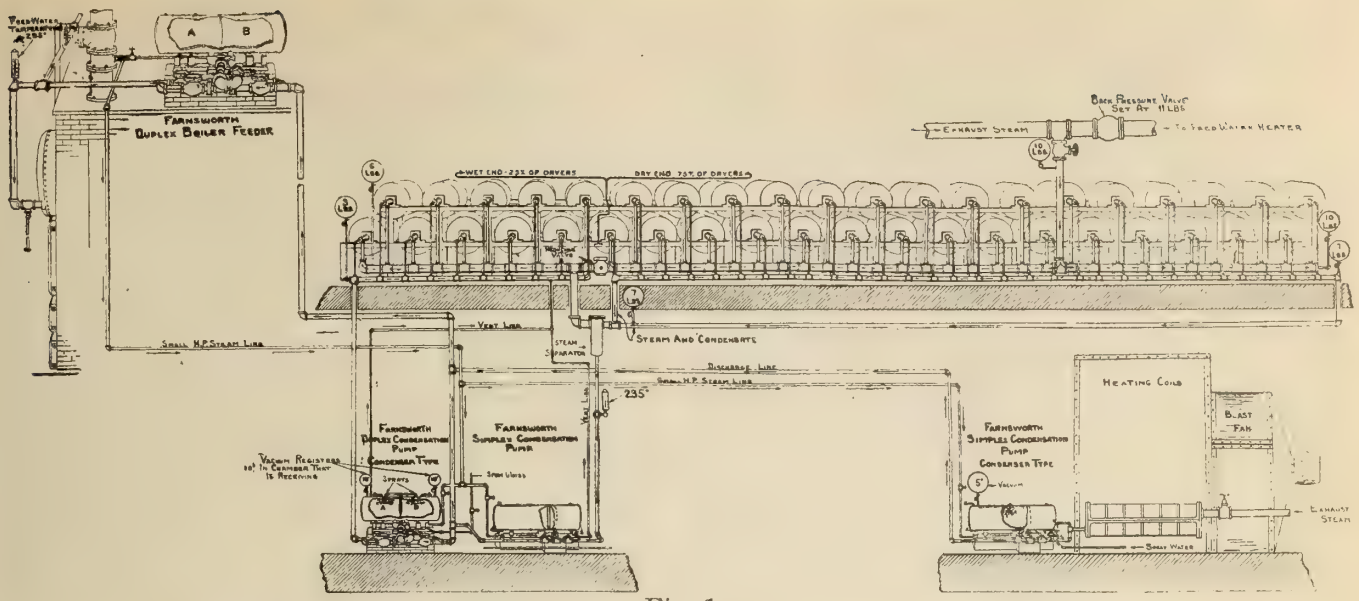


Fig. 1.

A FORCED STEAM CIRCULATION AND CLOSED LOOP BOILER FEEDING SYSTEM FOR PAPER MILLS.

Paper manufacturers have experienced considerable difficulty in removing from their dryers the water and air which prevents the circulation of steam through the dryers and causes uneven drying. This subject has been given considerable study and a new system has been developed by the Farnsworth Company of Conshohocken, Pennsylvania, which overcomes the difficulty and has many advantages claimed by the inventor.

A high steam velocity through the dryers is effected by the Forced Steam Circulation System which eliminates all water and air and provides a constant, even, known temperature throughout the dryers at all times, which decreases the pressure necessary to dry the paper and permits the speeding up of the machines so as to increase production anywhere from 5 to 10 per cent.

By means of a Closed Loop Boiler Feeding S... the condensation from the paper machine and all other heating apparatus and make up water as well is held under pressure and returned directly into the boilers at a high temperature, thereby saving anywhere from 10 to 30% of the coal. These systems eliminate individual traps on the dryers, vacuum pumps, receiving tanks, hot wells, boiler feed pumps, much piping and maintenance cost.

Figure 1 shows the systems applied to a paper machine having a basement underneath it. This system is explained as follows:—

The paper machine is divided into two sections, one of these sections to have 75% of the dryers and the other section the remaining 25%. The steam and return headers between the two sections are cut, and a steam separator is placed on the end of the return header for the dry end section which separates the condensation from the steam which has blown out into this portion of the return header. This steam is passed over to supply the steam header for the remaining dryers on the wet end. On the end of the return header for the wet end dryers is placed a duplex condensation pump, condenser vacuum type. This machine has cold water sprays in the top of the tank. The spray water condenses the vapors in the return line producing a Forced Steam Circulation.

In other words exhaust steam enters the dry end of the paper machine and passes through dryers on the dry end at the high velocity due to the condensing of the steam in the wet end section assisted by the vacuum produced by the condensing sprays in the duplex condensation pump on the end of the return line for the wet end section. This also produces a high velocity of steam through the wet end section with the result that water and air are eliminated from both sections and a constant, even, known temperature at all times is produced.

The dryers on the dry end are hottest with a gradual decrease in temperature as the wet end is approached.

If for any reason insufficient steam should pass through the steam separator to maintain the required pressure in the wet end section, steam is by-passed through a reducing valve and the proper amount is supplied.

Summing up, therefore, the steam supply line for the paper machine is connected at or near the beginning of the dry end. Steam is allowed to blow through all the dryers in the dry end section and out into the return line carrying with it all the water and air in these dryers. These dryers are, therefore, nothing more than the steam supply line for dryers on the wet end.

The condensation is then separated from the steam that has blown through and this steam is passed over to supply the dryers on the wet end section. The condensation that collects in the separator is drained into a simplex condensation pump. The air which enters the receiving chamber of each machine escapes through the vent.

In the closed loop boilerf feeding system the condensation which is collected in the simplex condensation pump and in the duplex condensation pump, is pumped automatically during the operation of the machine to the receiving chamber of the duplex boiler feeder located from 3 to 10 feet above the high water line of the boilers.

The duplex boiler feeder has two chambers—one of which is always receiving while the other is delivering the condensation with all its latent heat directly into the boilers giving a high feed water temperature and saving anywhere from 10 to 30% of the coal. The duplex boiler feeder and the condensation pumps require only one-tenth to one-fourth the amount of steam used by the common pump because in these machines

steam is applied directly in the surface of the water instead of behind a piston.

The condensation from all high pressure traps and from low pressure heating systems, fan coils, etc., is discharged directly into the line leading to the receiving chamber of the duplex boiler feeder. The condensation is drained into simplex or duplex condensation pump and is forced up to the receiving chamber of the duplex boiler feeder by the application of live steam on the surface of the condensate in the tank while it is in the receiving position.

The Closed Loop Boiler Feeding system is the most efficient method for handling condensation because the pressure is never relieved from the surface which would lower the temperature to correspond with the decreased pressure.

Figure 2 shows the systems applied to a board mill using live steam in the dry end containing one-third of the total number of dryers; the remainder of the dryers are supplied with exhaust steam. In this case the machines which drain the paper machine are set in pits, there being no basement underneath the paper machine.

Under these conditions the live steam division of the paper machine and the exhaust steam division are each divided as in the case of Figure 1. That is to say each division is sub-divided into two sections, one section to have 75% of the dryers, and the remaining section 25%.

With this arrangement live steam blows through the first section on the dry end and out into the return line at a high velocity. It passes through a steam separator and over into the second section of the dry end where it is condensed, and this condensing effect assisted by the simplex condensation pump, condenser vacuum type, on the end of the return line produces a Forced Steam Circulation System through both sections.

The exhaust steam division of this paper machine is handled exactly as described for Figure 1.

The dryers on the dry end are hottest with a gradual decrease in temperature as the wet end is approached. The hot dryers on the dry end set the paper as it leaves the paper machine. The condensation which is drained into the separator on the live steam dryers is forced to the receiving chamber of the duplex boiler feeder by the pressure carried on the dryers.

The other three machines pump the condensate to the receiving chamber of the duplex boiler feeder, and, as previously stated, all the condensation with its valuable heat units is delivered directly into the boilers.

PRICE BROS. WILL RESIST ORDER.

Price Bros. & Co., Limited, of Quebec, it is stated, have decided to resist the order of the Board of Commerce, requiring them to supply paper at a Government-fixed price to the Montreal Daily Star, the Montreal Herald and Poirier, Bessette & Co., of Montreal, and to do or not to do various other things. The order required the company to begin delivering paper to the parties named on February 10, but no deliveries have been made and, it is stated on its behalf that the company does not contemplate making any. This puts the next move up to the Board of Commerce. The board has various means at hand for enforcing its orders, including the imposition of fines and imprisonment for those refusing to obey. In its capacity of paper controller, the board, furthermore, has power to call upon the customs department to stop the export of paper from Price Bros. & Company's mill.

It is doubted, however, by those in touch with the developments, if the board will employ physical means against the company. Instead, it is expected the board will summon the company to appear and show cause why it should not be held to be in contempt. If this is done, it will open another door to test out the board's constitutional status, as well as to afford an opportunity of bringing the whole subject of paper control in peace times under judicial review.

The company, it is stated, will be represented by Chas. Lanctot, K.C., deputy attorney-general of Quebec; Aime Geoffrion, K.C., and Eugene Lafleur, K.C., of Montreal. It is said the company is prepared, if necessary to carry its case to the Privy Council.

Among the issues involved is that of provincial rights, legal opinion having held that paper control, as carried on under the several orders-in-council issued by the Dominion Government, is *ultra vires* and an invasion of provincial autonomy. It is stated in Quebec that the sympathies of the provincial Government are with the contesting company.

Capt. W. S. Montefiore, M. C. is now a partner in Spielman Agencies, Montreal. Capt. Montefiore was associated with this firm before he went overseas early in 1915. In the meantime, he has been with the Imperial Army on the Western Front, Egypt and Palestine.

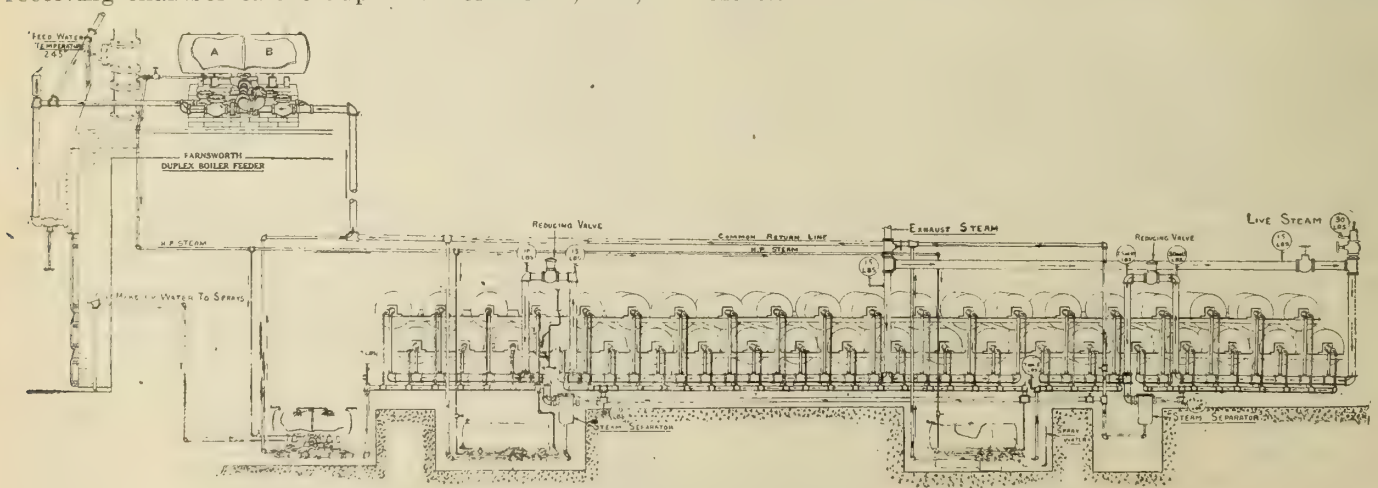


Fig. 2.

NEWSPRINT REGULATION

Hon. W. S. FIELDING, in the Journal of Commerce.

With the change in values that has come about during the last few years, several Canadian products which enjoy a large export market have reached much higher prices than their producers ever obtained in the old times or probably ever expected to obtain at any time. The domestic consumer is naturally compelled to meet the export price or do without the commodity. He is doing so, for the most part, with resignation if not with enthusiasm, realizing that increased profits for the exporting industries mean increased economic strength for the country and a greater capacity to bear the burdens of taxation.

To this there is one exception. The newspaper publishers, consumers of newsprint, which is one of Canada's chief export commodities and which has risen to prices far in excess of pre-war levels, have succeeded in convincing the Government of the Dominion that they should be provided with newsprint at a less-than-market price by an exercise of the sovereign power of the State. Possibly the argument which induced the authorities to adopt this conviction was less connected with the principles involved than with the notable influence upon public opinion wielded by the newspapers themselves. Certain it is that butter, wheat, lumber and many other staples, quite as necessary to the maintenance of life as newspapers are allowed to cost the consumer exactly what the foreign buyer is willing to offer for them, while newsprint alone is subjected to price regulation.

This artificial fostering of one particular class of consumers, while all others have to take their chance on prices fixed by the world's demands, cannot possibly be permanent. The newspapers of Canada, and their readers, will ultimately have to pay for their raw material in just the same way as all other consumers. Neither the State nor the paper-makers can be expected to supply that raw material on anything but a business basis. The sooner we get back to that business basis, the sooner will one of our greatest national assets, the newsprint industry, be relieved of an incubus which has retarded its development and exposed it to unjustified hostility in foreign markets.

AMERICAN EXCHANGE RATE FOSTERS TRADE WITH BRITAIN

The advantage gained by Great Britain through the high price of American funds is exemplified by a study of the Canadian trade situation. In the eight months ending November (during over half of which period New York Funds were almost constantly above 4 per cent.) imports into Canada from the United States have fallen off $23,800,000, while imports from Great Britain have increased $11,500,000. This change is entirely beneficial both as tending to provide two-way cargoes for direct shipping services between Canada and Great Britain and as tending to amend the Exchange situation between the United States, Canada and Great Britain. The continuance of the American dollar at its present unenviable height above the currencies of nearly all other countries is having the inevitable effect of compelling the United States to abandon all hopes of an increased export trade, for few can afford to pay for American goods, except absolute necessities, in American money.—Investment Items.

DOLLARS AND PULPWOOD.

Under the title "Dollars and Pulpwood," the Quebec Telegraph makes vigorous reply to U.S. Senator Underwood:—

Everybody is supposed to want dollars at all times. Yet though the acquisition of dollars is supposed to be peculiarly gratifying to American palms, their itching just now is apparently rather for pulpwood than for dollars,—that is for the Canadian variety. The Canadian dollar is not good enough for the American at present unless obtained at a very heavy discount; and the Canadian who parts with his good government dollar for less than one hundred cents is not a good business man. If he were, he would do altogether without American goods rather than suffer a depreciation of his own currency and the payment of a premium to obtain them. We can not only do without American dollars while we do our buying in our own country, but we can do also without those of their own dollars which they would gladly pour into this Province in exchange for the right to cut and ship away out of our forests the raw material for pulp and paper to feed their own mills and their own mill operatives. We have mills and we have operatives of our own to feed, and we intend to feed our own before we feed those on the other side of the line. Our dollars are worth par in our own country, and if we are wise we shall keep them here and spend them here, as in fact the great majority of us are doing and intend to do. Our pulpwood is worth much more to us here than its actual value on the American market. It is worth to this country in wages and profit and machinery and a score of other things, the full price of the finished manufactured product. And so we do not pine just now, thank you, for the American dollar, in payment for pulpwood. Senator Underwood and his colleagues may howl as loudly as they wish and negotiate with the Government of Canada as much as they like on the pulpwood question, but only the Government of the Province of Quebec is in a position to reply to the American demand for our raw material, and we happen to know what Sir Lomer Gouin will say,—the statesman who has the last and the only say in the matter. He will say as he has already said: We will keep our own pulpwood in our own country, and we will manufacture it here; and then if you want it we will sell it to you. We can utilize equally well in our own country the Canadian dollar which the Americans do not want, and the Canadian pulpwood that they do want, but that they cannot have until manufactured into the finished product.

PAPER FOR SOUTH AFRICA.

That better freight conditions would allow of greater use of Canadian-made newsprint and book papers in South Africa is the claim of Mr. Robert Muir, manager of the Argus Printing and Paper Co., of Capetown, South Africa, who recently waited upon the Canadian Trade Commission to ask assistance in the matter. The Trade Commission is taking the matter up.

WILL NOT IMPOSE EXPORT TAX.

The Minister of Finance has flatly denied the rumor that an export tax, said to be $10.00 per ton, is contemplated on shipments of newsprint. It is unfortunate that these crazy ideas get into circulation.

With lumber prices going up there may be a reaction on prices of pulpwood.

Technical Section

ABSTRACTS.

F-2, F-5. Treatment of wood with alkaline waste liquors and the acids produced in the steaming of wood. C. Franck. Papierfabrikant, 17, 1019-20 (1919). J. Soc. Chem. Ind. **38**, 814A (1919). The black liquors discharged from the digestion of wood by the alkaline process always contain an excess of free alkali, which may be utilized by steeping a fresh charge of wood chips in the hot waste liquor. On a large scale it should be possible, by a preliminary steeping a black liquor, to effect the saving of 1/4 or even 1/3 of the fresh alkaline liquor.—J.S.

E-0. Heat requirements of the sulphite process. Lecture by Dr. Arthur Klein; Papier-Fabrikant, **17**, 133-5 (1919). Calculations of heat requirements for steam power, cooking and drying are presented.—J.S.

K-12. The influence of temperature on the speed with which water drains from paper pulp. Sigurd Smith. Papier-Fabrikant, **17**, 1121-3 (1919). The speed with which water drains from pulp is directly proportional to the viscosity and indirectly proportional to the head of water and to the specific gravity of the water. Experiments were conducted using fine and course gravel and it was found that the temperaure had practically the same effect on the speed of draining in both cases. The effect of hydration of cellulose fibres is also discussed and it was pointed out that this is by far the most important factor to be considered.—J.S.

F-2. The recovery of sulfur from the black liquor of the sulfate process. Wilhelm Lenz Wochenbl. Papierfabr., **49**, 962-3; Chem. Zentr. 1918, II, 322. L. discusses briefly the recovery of the valuable by-products from this waste liquor, especially of the sulphur as calcium sulphide by fusion of the evaporated liquor with lime and carbon and leaching of the melt, after precipitation of the organic materials with sodium acid sulphate whereby a cooking liquor of suitable composition is obtained, while the calcium sulphide remains for further application.—J. S.

K-18. Glazed cardboard manufacture. K. A. Weniger Papierfabrikant, **17**, 949-950 (1919). A brief discussion of the manufacture of glazed cardboard. The furnish usually consists of 50 per cent. of medium grade rags and 50 per cent. of unbleached pulp, although if a high grade board is made only linen rags are used. With a machine of 150 mm. deckle. and 750 mm. cylinder diameter from 1200 to 1500 kg. of board are produced in 24 hours.—J. S.

K-18. Coming Industry for Canada. (Strawboard). W. A. Bell, Amer. Straw Board Co. Pulp and Paper **17**, 973 (1919). Discusses the operations of making and handling strawboard.—R. C.

K-23. Sulphate pulp and the making of paper for use as a textile fiber. Dr. A. Klein, Papier-Fabrikant, **17**, 69-72, 89-93 (1919). The sulphate process for the production of kraft pulp is reviewed in detail with particular reference to the suitability of the material for textiles. In a typical case the pulp, with a consistency of 5 per cent, containing 1 per cent rosin size, is beaten for 3 hours in a Wagner Hollander. The beater roll is 1200 mm. in diameter by 1060 mm. wide and has 87 knives, each 8 mm. thick. The bedplate consists of 60 knives, 4-5 mm. thick, which are placed at an angle of 26° with the center line of the roll. The speed of the roll is 7.6 m-sec. and the beating is controlled by a Schopper-Riegler sedimentation tester. Sulphite pulp is also discussed and compared with sulphate but it has been found to be inferior to the latter for use in textiles.—J. S.

P-0. Unsafe practices in paper mills; Their cost in money and men. H. H. Matthieson, Crown Willam ette, Paper Co. Pulp and Paper **17**, 930 (1919). Classifies accidents under physical and mental conditions of the workmen. Discusses ways of selling safety and the cost of accidents in men and money.—R. C.

New Patents

L-5. Cellulose acetate solutions; Production of— Cellon, Ltd., T. Tyrer & Co., Ltd., and T. Tyrer, Eng. Pat. 130, 402, 15. 2. 18 (Appl. 2754-18.) To solutions of cellulose acetate in the usual mixtures of volatile solvents and diluents, a small proportion of cyclobexanone or other cylic ketone is added in quantities less than the amount of cellulose acetate present.—J.S.

L-5. Acetylcellulose, W. J. Stevenson, Eng. Pat. 130,029, 30.11.17 (Appl. 19,049-17.) Bleached sulphite wood pulp is used as the cellulose basis in the manufacture of acetylcellulose. A mixture of sulphite cellulose, 1 part; glacial acetic acid 2.8; acetic anhydride, 4.0; and zinc chloride, 0.2 parts is digested at 60°-70° C. for 7-8 hours.—J. S.

L-5. Cellulose; Process for the production of new derivatives of— P. E. C. Goissedet. Eng. Pat. 130,277, 6.2.19 (Appl. 2911-19. Cellulose such as cotton, preferably in the dry condition or cellulose derivatives containing hydroxyl-groups, is made to react with an aliphatic or aromatic isocyanic ester, with or without the addition of a tertiary base or bases, to produce carbamic esters, which can be used for the same purpose as other cellulose esters.—J. S.

L-7. Cellulose textiles; Process for treating. M. Cunningham, and C. F. Cross. Eng. Pat. 131,212, 21.11.18 (Appl. 19,144-18.) Cotton textile or spinners raw cotton materials are treated with caustic alkali of strength below that which produces the effects of mercerization, whereby the material is improved in elasticity and extensibility.—J. S.

K-5. Paper pulp; Apparatus for opening up and removing undesirable matter therefrom. J. White and F. W. Gray. Eng. Pat. 131,418 (Appl. 13,034, 12.8.18, and 17,130, 21.10.18.) The apparatus comprises a vat divided into compartments by one or more sluices so arranged that the path of flow through the vat is alternately upward and downward.—J.S.

K-0. Paper; Manufacture of a heat-insulating material and a fuel from—also applicable to other purposes. L. A. Edwards, Eng. Pat. 131,446, 20.8.18, (Appl. 13,531-18)

L-0. Paper mass (papier mache;) Process of preparing. M. Rosenthal. Ger. Pat. 311,828, 2.10.17. Waste lyes from the digestion of vegetable substances with alkalies; Process of utilizing—F. Bergins and E. Hagglund. Ger. Pat. 311,933, 10.10.17.—J.S.

PULP AND PAPER NEWS

The Clyde River Pulp and Paper Company's property near Shelburne, N. S. has been acquired by the Becker Company of America and England, the name of the local concern being changed to "The Clyde Pulp Company," with head office in Halifax, and H. I. Mathers as managing director. A great deal of development work has been done, and the capacity of the mill has been brought up to thirty tons of "wet" per day. The company has 40 employees engaged in cutting pulp logs for the spring drive and it is expected that by the spring there will be 4,000 tons of cords of pulpwood available for the commencement of grinding operations. Frank Ouelette formerly of the MacLeod Pulp Company, is manager of the plant.

Toronto newspaper circles were shocked on Saturday to hear of the death of Sydney Hood, assistant financial and commercial editor of the Toronto Globe. Death followed an illness of eight days and was due to pneumonia which developed from influenza. Deceased was only thirty years of age and in his newspaper career had been connected with several Toronto papers. A wife and four small children survive.

It is understood that the interests associated with the Provincial Paper Mills, Limited, Toronto, are closely connected with the newly-formed Valleyfield Coated Paper Mills Co. of which P. L. Colbert is manager. Extensions have been completed to the buildings and the equipment, and the industry is very busy at the present time. As before stated, the new company takes over the business of the National Paper Company, at Valleyfield, which has been operated for some years in the manufacture of coated paper and cardboard.

The Victory Paper Box Co., Limited, is the name of a new company which has been incorporated with a capital stock of $30,000 and is empowered to carry on business of making paper boxes and other like products. The company will take over the business now conducted by the Victory Paper Box Co., 260 Spadina Avenue, Toronto. Among those associated with the enterprise are A Feuerstadt, S. Sturman and Jacob Feuerstadt.

Victor Ross, a well-known Toronto newspaper man and an authority on financial subjects, has been elected a member of the Council of the Toronto Board of Trade.

One of the largest paper mills in Ontario has sent out a circular to its customers stating that on and after February 1st on all papers, including bonds, writing papers, envelopes (both book and boards) packed in crates or cases, there will be a charge of 20c per 100 lbs. for crates and 40c per 100 lbs. for cases, the same to be shown separately on invoices. Should it be convenient for the customers to return the standard sized crates or cases in good condition, freight paid, the customer's account will be credited with the full amount of the extra charge.

H. T. Ganier, Toronto, publisher of Saturday Night, bought the printing plant of Brown-Searle Printing Company, Pearl Street, Toronto, and will operate it.

Professor D. R. Keyes was the guest of honor at a meeting of the Women's Press Club in Toronto, this week. He delivered an interesting address on the subject of folk lore.

Visitors to Toronto this week were Miss E. Cora Hind, Agricultural Editor of the Manitoba Free Press and Miss Graham, Business Manager and Associate Editor of The Market Examiner of Calgary.

J. G. Gibson, secretary of the Spanish River Pulp and Paper Mills with office in Toronto, has been advised by his company that the sixth machine is now in operation at the Espanola mill of the company, bringing the firm's total capacity up to 600 tons a day No. 5 machine was delivered in June and its installation was completed in October, constituting a record. The installation of the sixth machine was started last autumn.

Lieut.-Colonel T. Gibson, Vice-President of the Spanish River Pulp and Paper Mills, and General Counsel for the Lake Superior Corporation has gone on a six weeks business trip to England.

The Eastern Canada Saw-mills, Limited, head office Montreal, has been incorporated with power to manufacture and deal in lumber paper, pulp and pulpwood. Among the incorporators are K. C. McNab, H. R. Smyth, J. H. Egan and H. O. Peterson, of Montreal.

The Canadian Weekly Newspaper Association is making good headway in its endeavors to get the weekly newspaper publishers to raise their subscription rates from $1.50 to $2.00 a year. It is argued that both newsprint and ready print have reached such a price that the weekly publishers can no longer afford to sell their papers at less than $2 a year. The head office in Toronto has been notified that several of the papers have increased their price in accordance with the movement for an advance in rates.

The advertising committee of the Canadian Weekly Newspaper Association met in Toronto on Saturday and formulated the policy of the Association in regard to the advertising agencies and other matters.

The Niagara-On-The-Lake Advance, formerly owned by Melville Miller, has been sold to E. H. Brebnin.

The Drayton, Ont. Advance has been sold, the new owner being J. B. Garbutt.

The many friends in the paper trade, of T. J. Mansell, of the Toronto office of the Howard Smith Paper Company, will regret to learn that he is in hospital suffering from the effects of an operation on his leg. Mr. Mansell is doing nicely and expects to be out shortly.

A notice has been sent out from the general office in Toronto of Ritchie and Ramsay, Limited, to their employees inviting them to invest in the capital stock of the company and thus become associated with the proprietors in the business. There has been a new issue of second preference shares and the shares taken up by the employees will go into the business as additional working capital. Employees are given the

privilege of paying for their one dollar shares in two years time, by weekly or monthly instalments. When the shares subscribed for are paid up, certificates will be issued and in the meantime interim receipts for payments on account will be given. The subscribing shareholders, not in default, will have the right to vote their shares at any general meeting of shareholders, the same as if the shares were fully paid up. The scheme promises to be a popular one with the employees.

Provincial Paper Mills, Ltd., has increased its dividend on $2,481,300 common stock from 4 to 6 per cent. Besides its own mills manufacturing high grade printing and coated papers, the company controls the Port Arthur Pulp and Paper Co., manufacturers of bleached sulphite pulp.

It is reported that the $1,500,000 cumulative participating preferred stock of the Howard Smith Paper Mills, Ltd., was over subscribed. The offering was made at 103 by Greenshields & Co. and Nesbitt, Thomson & Co. $475,000 will be used to retire old preferred stock outstanding and the rest for the purchase of the entire capital stock of the Toronto Paper Manufacturing Co., recently taken over by the Howard Smith Paper Mills.

McKinnon-Holmes Co., of Sherbrooke, has been awarded the contract for the steel super-structure of the Batiscan Bridge, on which work is to be done this summer.

Hon. N. M. Jones, Manager of the Nashwaak Pulp & Paper Co., of St. John, N.B., has gone to California with Mrs. Jones. He will return via the C. P. R. in the spring. During his absence the mill is in charge of his son, Sidney M. Jones, who has been associated with the industry since graduating in 1911 from the University of Maine.

The Raymond Concrete Pile Co. have been awarded the contract for grading and piling for the addition to shipways for the National Shipbuilding Corporation, Three Rivers, Que.

R. B. WOLF, MANAGEMENT EXPERT.

R. B. Wolf, M.E.,, who is well known to the readers of the Pulp and Paper Magazine through his contributions to the literature and his connection with the Spanish River Pulp & Paper Mills, the Burgess Sulphite Co., etc., has opened an office at 33 West 42nd St., New York. He is doing consulting work, with particular reference to management problems in the pulp and paper industry. The abbreviation of his college degree, originally Mechanical Engineer, may now be interpreted Management Expert.

LAURENTIDE SELLS 200,000 TONS TO NEW YORK TIMES.

What is regarded as the record newsprint contract has been concluded between the Laurentide Company and the New York "Times" for a supply of 40,000 tons of newsprint per year for the next five years. This would make a total of 200,000 tons, and under the present rate of $90 a ton would amount to $18,000,000. The delivery will be made through the Canadian Export Paper Company, the selling agents of Laurentide. It is understood that no fixed price is made to cover the 5-year period, but that the price is subject to adjustment every six months, the basis being the regular contract rates that are concluded by the Canadian Export Paper Company for their other United States customers. The arrangement in itself implies more than usual good faith imposed in the selling parties by the big New York paper.

Delivery of this paper will probably not start before the end of the present year, when the Laurentide Company will have completed the installation of the two new paper machines which are being made for it by the Dominion Bridge Company. The supply of 40,000 tons a year represents roughly 130 tons a day, which is slightly more than the capacity of the new paper machines. The extent of this order may be judged when it is stated that the present output of Laurentide is running between 215 and 220 tons a day, so that the new contract will represent about 60 per cent of the present output of the Laurentide Company. The price of newsprint, insofar as the mill men can figure it now, seems likely to run a shade higher than $90 a ton for the last six months of 1919, and may also continue at a higher price for 1921 and one or two years further.

The New York "Times" has a mill of its own at the present time and will continue to operate this, so that the Laurentide supply will supplement the other. The present consumption of the New York paper runs about 55,000 tons a year, and its mill capacity is about 35,000 tons.

25,863 EMPLOYED IN PULP AND PAPER MILLS

A preliminary report on the pulp and paper industry in Canada has been compiled by the Dominion Bureau of Statistics for the calendar year 1918. The statistics are presented for each class by number of mills as follows: Pulp mills 37, paper mills 31, pulp and paper mills 26, or a total of 94 mills.

The total capital invested in the industry was $241,344,704, of which $12,520,765 was invested in paper mills, $71,708,223 in pulp mills and $157,115,716 in pulp and paper mills. Classified by items of capital land, buildings and fixtures amounted to $118,805,581, machinery and tools to $60,627,266, materials on hand, stocks in process, etc., $39,652,078, and cash, trading and operating accounts and bills receivable to $22,259,779. By Provinces, the amount invested was: British Columbia, $42,705,988; Ontario, $88,576,807; Quebec, $101,456,296; New Brunswick, $7,852,225, and Nova Scotia, $753,388.

The number of persons employed, male and female, by classes of employment, and the amount paid to each were, as shown in the following tabular statement:—

	Male	Female	Amount
Officers, superintendents and managers	462	2	$1,807,450
Clerks, stenographers and other salaried employees	1,164	301	1,888,151
Employees on wages, average number	23,086	848	23,278,606
Totals	24,712	1,151	26,974,226

The number of persons employed in paper mills was 1,775 males and 531 females, with payments of $2,050,615; in pulp mills the number was 7,328 males and 105 females, with payment of $7,508,834, and in pulp and paper mills 15,609 males and 516 females, with payment of $17,414,776.

"If a man empties his purse into his head, no one can take it away from him," says Franklin. "An investment in knowledge always pays the best interest."

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Feb. 7.—Withdrawal of price lists and their replacement by new quotations continue to be the order in the paper trade while the past week has shown no change in the situation as far as the disparity between supply and demand in all lines of paper is concerned. Enquiry among the representatives of the mills and among the dealers who pass on the commodity to the consumer reveals the fact that there is a real shortage in most lines of paper and rising tendency of prices keeps up as is shown by the new and short-lived price lists. This week saw another half cent a pound added to coated book, the ruling price now being 12¼c f.o.b. mill, plus 40c per hundred pounds for cases and orders on this basis are taken subject to the price that will prevail at the time the shipment is made. There is a scarcity of this line and the mills and dealers are a long way from being able to meet the demand, although in bonds prices are firm and a little freer in delivery. Kraft paper is up half a cent a pound in carload lots for both glazed and unglazed and the re-sale price has advanced accordingly. No orders are being booked for this line of goods, the mills being approximately nine months behind now, with no prospect of the situation easing up for some months to come.

Shortage of newsprint continues to feature market conditions and the situation hasn't been improved any by the loss of tonnage consequent upon the temporary shut-down of some of the mills through loss of power. January was an unusually severe month and a number of the mills which depended on power generated from water had to cease operations for days at a time owing to the unusual depth to which the water was frozen. This was responsible for a considerable reduction of tonnage during the month, but it is thought that the worst of these conditions is now over. At the present time it is taxing most of the mills to keep up with the home demand, and a lot of very profitable export business is necessarily going by the board. One Toronto paper dealer this week was in receipt of a definite order for one hundred tons of newsprint from the States at ten cents and the reply was sent that at double the price it would be impossible to assemble that quantity of paper for shipment out of the country. Similar offers for other lines of Canadian made papers are coming in almost daily from Great Britain, Australia and New Zealand at prices considerably in advance of home trade prices and the reply invariably is that the mills are being taxed to look after the domestic trade. The stocks of all lines of paper in the Toronto warehouses are low and in many instances shipments from the mills are re-loaded almost as soon as they are received and shipped out to meet long-standing orders.

There is a continued shortage of book papers and the situation in this respect, as far as the cheaper grades are concerned, is not likely to be improved by some changes now being effected at the Kinleith Paper Company's mill where the company are dropping the cheaper grade and changing one of their machines to their water leaf stock. This will naturally affect the tonnage of cheap book.

Although hampered through inability to get sufficient paper stock, the stationery and specialty manufacturers are all busy and report an increased demand for their product. Specialty manufacturers and envelope makers complain of a shortage of skilled help, particularly female labor, and are anxiously looking for immigration to open with a view to getting more help. Some firms are anxious to secure girl help in line with their policy to train them into skilled workers.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$55.00 to $65.00
Sulphite, news grade	$75.00
Sulphite, easy bleaching	$90.00
Sulphite bleached	$130.00
Sulphate	$85.00 to $90.00

Paper.

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) at mill, in carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload), No. 1	11½c
xBook papers (ton lots) No. 1	12c
xBook papers (carload), No. 2	10½c
xBook papers (ton lots), No. 2	11c
xBook papers (carload), No. 3	10c
xBook papers (ton lots) No. 3	10½c

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, **NEW YORK**

Write us when you have any surplus of **Ground Wood** Bleached or Unbleached. We are always in the market.

Ledgers	19c
Sulphite bonds	14c
Light tinted bonds	15c
Dark tinted bonds	16½c
White Wrappings	$5.25
Writings No. 2 (M.F.)	12½c. up
Coated book and litho, No. 1	$12.75
Coated book and litho, No. 2	$12.50
Coated book and litho, No. 3	$11.00
Coated book and litho, colored	$12.50 to $14.00
Grey Browns	$5.75
Writing No. 1 (S.C.)	14½c
Fibre	$8.00
Manila, No. 1	$8.00
Manila B	$6.25
TagManila	$7.50
Unglazed kraft	$10.00
Glazed kraft	$10.00
Tissues, bleached	$1.35
Tissue (unbleached sulphite)	$1.20
Tissues, cap	$1.00
Tissues, manila	90c.
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.
Paper bags, manila (discount)	30—35 per cent
Paper bags (kraft)	40—45 per cent
Confectionery bags (manila)	34—35 per cent
Straw board	$80.00
Chip board	$80.00
Vat lined chip board	$87.50
Filled wood board	$90.00
News board	$87.50
Double manila lined board	$150.00
Manila lined folding board, chip back	$95.00
Pulp folding board	$103.00
Jute board, No. 3	$80.00
White patent coated board	$130.00
Grey folding board	$115.00
Pasted board	$95.00

*Government fixed price to Canadian publishers.

xThese prices are for machine finish, super-calender one-half cent higher.

NEW YORK MARKETS

New York, February 10.—Strength continues to characterize the market for paper and demand shows no let-up for any grade. All reports from manufacturing centers tell of mills operating at maximum capacity or at as near full production as prevailing conditions will permit, and of making but little headway in catching up with orders. Buyers continue to make heavy demands upon manufacturers and jobbers, and more and more of the demand is going unfilled simply because there isn't the paper available to cover the gap created by the excessive requirements of consumers.

An insight is obtained into the low level of paper stocks in New York by the fact that practically every newspaper in this city was obliged yesterday to cut its size almost in half from the usual Friday issue owing to the holding up of shipments of newsprint from mills by the storm which has affected almost the entire eastern section of the country this week. One paper, as an example, which ordinarily prints 32 to 36 pages on Fridays, was of but 20 pages, and carried an announcement stating that it was compelled to omit 100 columns of display advertising. This would appear to indicate that local publishers have permitted their stocks to get down to near the vanishing point, and that they are now wholly dependent on prompt deliveries from mills.

The market situation in newsprint is steadily acquiring a stronger tone. Available supplies for spot shipment are practically non-existent for mills are so far sold up that they scarcely have a pound of their product to dispose of other than to contract customers. Prices on spot lots of roll news are now at a minimum of 8 cents per pound, while more often 9 and 10 cents are asked by sellers whenever they are fortunate enough to have paper to offer. It is understood that quite some quantities of newsprint are being imported into this market from Sweden, but they are having no influence on the situation. These supplies, which of course meet with a ready sale, are priced at the same levels named on domestic newsprint, and are being purchased chiefly by the transient trade, who are up against it in getting paper from domestic sources.

The book paper market is exceedingly firm. Prices are becoming more or less nominal owing to the absence of available supplies for trade purposes, and it is therefore difficult to state just what actual market values are. Mills producing this class of paper in most cases have their entire output sold on contract for some months ahead, some as far as a year, and lucky indeed is the consumer who has his entire needs taken care of by contract supplies. The situation in book papers is about this: The great majority of publishers have contracted for tonnages representing about enough to see them through nine or ten months of this year. Where the supply for the remaining two or three months is coming from, no one will venture to guess. In other words, the potential requirements of the country over the period of the current year are approximately twenty per cent in excess of indicated production, and signs are that there are likely to be some drastic developments in the book paper market before the year is over, or when consumers, finding that they are getting close to an actual famine in paper, redouble their efforts to acquire needed supplies. Consumers who buy on the basis of a month's supply at a time are being fairly well taken care of by manufacturers, but buyers of this character are having to pay advances in price almost every month.

Fine papers rule strong in price and are sought in increasing quantities. Wrappings and tissues are moving actively and at firm quotations. The market for boards is strong and demand brisk. Boards, in fact, are running a close race with newsprint and book papers as regards tightness of supplies. Mills are sold out for the next three or four months and are definitely discouraging additional buying by marking up prices to very high levels whenever they receive inquiries from consumers. The latter nevertheless are meeting the stiff figures asked whenever assured of deliveries within reasonable time limits, and are frequently paying $75 per ton for plain chip board. $80 and more for news board and proportionately high prices for other grades.

GROUND WOOD.—Severe weather in most manufacturing sections has further curtailed the production of ground wood, and available supplies are lighter than ever. Producers have given up trying to

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

fill the wants of other than regular dyed-in-the-wool customers, and are, in fact, experiencing trouble in satisfying the requirements even of these buyers. Prices are strong and on the ascendency. Reports have been heard of sales of spot lots of prime spruce pulp at $62.50 per ton at grinding mills, and it is more than likely that even this figure has been exceeded in some transactions. Stored ground wood, which is constantly becoming scarcer, is selling at $50 and more, and is being readily absorbed whenever offered, consumers being in a position making them willing to take any quality of pulp so long as it is pulp.

CHEMICAL PULP.—Offerings of chemical wood pulps are light and such supplies as are placed on the market are quickly taken up by buyers, who, however, are operating on a reserved scale presumably with a view of keeping from exciting the market. The situation therefore is not accompanied by as much excitement as prevails in other kinds of raw material used by paper manufacturers. Most pulp consumers have their major requirements provided for by contract supplies and are stretching out these supplies so as to keep out of the market as much as possible. Then, too, indications are that consumers in numerous cases are letting the future take care of itself apparently in the hope that when the Baltic opens up for spring navigation larger supplies of Swedish pulps will come to the American market. Importers say that those consumers, depending on this outcome are due to be sadly disappointed. Emphasis is laid on the great difficulties Scandinavian manufacturers are laboring under at present, on the high prices prevailing on pulps on the other side of the Atlantic, and also on the active and voluminous demands being made upon Swedish and Norwegian producers of pulp by consumers in countries other than the United States. Quotations lately received from Scandinavia indicate that there is small likelihood of foreign pulp prices falling off for a long time. The figures asked for first open water shipments are beyond a parity with values ruling in this market, and sellers on the other side are said to have already contracted for nearly all the supply they will have for shipment at that time and for several months thereafter.

RAGS.—The rag market is firm and active, and prices on most grades continue to advance. The snowfall this week—the heaviest in six years, totalling more than nine inches in New York—has further retarded the gathering of supplies, and offerings by packers are fewer in number and of lighter volume. One of the principal reasons why prices are not rising with greater rapidity, it is said, is that dealers are unable to offer sizable tonnages. Ordinarily mills pay a premium for large amounts of rags, which eliminates the bother and extra expense incurred in buying piecemeal in various directions, and which automatically establishes prices on higher levels. As conditions now are, sellers are obliged to confine transactions to quantities of several carloads at a time, for which mills refuse to grant other than recognized market prices, so that while there is an uninterrupted uptrend in values, the movement of prices is slow. Sales of No. 1 white shirt cuttings have been reported at 19 cents per pound at shipping points, while old white rags are selling freely at 11 to 12 cents, and more for choice packing, for No. 1 repacked whites, and at 10.50 cents for miscellaneous packing. Old thirds and blues readily command 5.50 cents for average quality packing, and roofing rags are moving in a consistent way at a price basis of 3.60 to 3.75 cents a pound f.o.b. shipping points for No. 1 stock.

PAPER STOCK.—Weather conditions also have been creative of a stronger tone in the old paper market this week, and sales have been reported placing market values on most grades on new high levels. Flat stock is possibly the most actively sought class of paper at the moment. Book paper mills are eagerly inquiring for supplies and are paying stiff prices to obtain material. Old heavy books and magazines have sold at 3.50 cents f.o.b. New York, while soft white shavings of No. 1 quality have fetched 5.25 cents New York. Newspapers are in pointed demand and are quotable at very high prices, flat folded news bringing close to 2 cents per pound at shipping points, overissue newspapers from 2.25 cents upward, and white news cuttings 3.25 cents and more. Mixed paper is firm and moving freely whenever offered at a quotable range of 1.35 to 1.50 cents f.o.b. New York for No. 1 packing.

OLD BAGGING AND ROPE.—A steady demand prevails for old Manila rope and quotations are firmly established at a basis of 7 cents per pound at shipping points for No. 1 quality rope. Dealers lay much stress on the difficulty encountered in obtaining all the rope needed to fill commitments and are cautious about accepting new orders. Scrap bagging is in fairly active demand and held at prices ranging around 3.50 cents New York.

WHALEN COMPANY'S CAR FERRY.

Sir George Bury, President of the Whalen Pulp and Paper Mills, Ltd., with Mr. E. I. Madigan, the general auditor, spent the week ending February 7th in a tour of the company's mills in the northern part of British Columbia.

During this tour the new car ferry service from the Swanson Bay mill to Prince Rupert was inaugurated by the Grand Trunk Pacific. This car ferry will take nine cars each time and the run from Swanson Bay to Prince Rupert will occupy about twenty-four hours. The Whalen Company is now endeavouring to have this ferry service such that they will be able to ship carloads every day. This service mean that the company will be able to load pulp, lumber and shingles for railway carriage to the East direct from the mills without any transfer at Prince Rupert. By this arrangement a great saving in time and money will be made. Under previous arrangements merchandise had to be handled two or three times before the final landing in the cars.

Under the system which is now being inaugurated there will be the one handling. A great many of these car load shipments will consist of lumber and shingles as the large part of the pulp output from the different mills is destined for the Orient, principally Japan.

By the inauguration of the car ferry it will be seen that both the Whalen Company and the Grand Trunk Pacific Railway are alive to the conditions which should obtain in up-to-date transportation, that is, the saving of time, labor and money, wherever it is possible for merchandise of any kind or description to be handled most expeditiously.

The Alberta Government has decided to make a grant of $5,000 for the entertainment of the British newspapers publishers and editors who are to visit Canada next August in connection with the imperial press conference. A state luncheon by the Government is one of the proposed items on the program.



·TRADE·MARK·
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SOLE AGENTS in the United States, Canada, Mexico and Cuba for

Finnish Cellulose Association, Helsingfors, Finland

and

Finnish Wood Pulp Union, Helsingfors, Finland

comprising all and every Sulphite, Sulphate, Kraft and Ground Wood Pulp and Board Mill in independent Finland, whether ready or under erection, manufacturers of superior grades of Bleached and Unbleached Sulphites, Easy Bleaching Sulphates and Kraft Pulps, also dry and wet brown and white Mechanical Wood Pulp and Wood Pulp Boards, reknown the world over.

Total tonnage aggregating 600,000 tons yearly.

Get the most for your money by getting next to our qualities and prices!

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CORRESPONDENCE SOLICITED.

FOREST PRODUCTION IN BRITISH COLUMBIA

As regards the reproduction of the forests in British Columbia with the exception of one season's work, conducted by Dr. C. D. Howe, for the Commission of Conservation, no concrete information has been secured concerning the extent or nature of the young growth which is replacing the original stands removed by logging or destroyed by fire. In this investigation typical areas were carefully studied, and the results obtained are of great practical value in establishing the following facts:

1. On about one-half of the area logged and burned in the past 20 years, the forest reproductinon is not sufficiently abundant to ensure the re-establishment of the commercial forest. The other half, however, is well stocked with young trees and, if not burned, a forest yielding saw-logs is assured.

2. It is evident that light burning of the slash and dense undergrowth gives the best production of Douglas fir

3. Better protection of the reproduction of Douglas fir already established is imperative, since second and subsequent fires have already destroyed about one-half of the reproduction originally established.

The continuation of this work in other forest regions, and in connection with other species of trees, is necessary, in order that methods of exploration and protection may be adopted which will encourage reproduction.

The rate of growth of the various species of trees in British Columbia is a subject concerning which no information is available. To conduct investigations along these lines, permanent experiment stations should be established in the forests, where all the conditions affecting the forest, from the seed to the mature stand, can be observed and controlled for a sufficient time to secure reliable conclusions.—R. D. Craig, in "Conservation."

WHERE THE DOLLAR GOES.

The U. S. National Industrial Conference Board has made a very exhaustive research to determine what part of every dollar spent by the average family is used for food, rent and various other items. They state that the average dollar is spent about as follows:

For food 43 cents.
For rent 18 cents.
For heat and light 6 cents.
For clothing 13 cents.
For sundries 20 cents.

It will be noticed that food, rent, heat and light form the bulk of the average expenses. However, as more money is earned by the family, the proportion which goes into these items becomes smaller. For instance, no matter how much money a man has, he can only eat a certain amount.

The result is that increases in pay are usually spent largely for clothing and sundries, consisting mainly of luxuries. This fact is testified to by clothing dealers and dealers in luxuries such as victrolas and pianos. They report an abnormally large demand for such things which would indicate that the average man has a larger surplus income than he had a few years ago.

This is, in fact, the case as shown by further studies of the National Industrial Conference Board. In the fourteen leading industries of the country—paper being one—investigation showed that wages have increased from 74 to 112 per cent since 1914. Against this, the cost of living has increased only a little more than 60 per cent. In-as-much as wages have increased faster than the cost of living, the average man has more surplus for clothing, luxuries, education, amusement—and last, but not least, saving. This indicates that most of us are better off today than we were before the war in spite of the high cost of living.

CANADIAN INGERSOLL RAND REPRESENT AMERICAN CONCERNS.

American manufacturers of pulp and paper machinery are tending to recognize the growing market for their equipment and realizing the advantage of having such material constructed in the country where it is to be used are constantly associating themselves with Canadian manufacturers who are prepared to give satisfactory service to their Canadian customers. Among the recent ones to move in this direction are the Bird Machine Company of East Walpole, Mass., and the Ryther & Pringle Company of Carthage, N.Y., who have made arrangements with the Canadian Ingersoll Rand Company of Sherbrooke, Que., for the manufacture of their screens, save-alls, etc., of the former and the slashers, pulp screens and other wood preparing and logging equipment of the latter. The Ingersoll Rand Company have also concluded arrangements with the Wellman-Seaver-Morgan Co., of Cleveland, Ohio, for the manufacture and sale of their hydraulic turbines and other lines in Canada.

By the will of the late W. J. Blackburn, who was president of the Free Press Printing Company, London, Ont., his widow, Margaret Blackburn, gets everything but one oil painting of his grand-father, which goes to his brother, Arthur S. Blackburn. The total estate is valued at $37,585.

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Instal Mono Control in your boiler house

Sole Canadian Selling Agents:

Pulp & Paper Mill Accessories Limited, Montreal

"MEAD-MORRISON"

CANADIAN MM C

HOISTING MACHINERY
LABOR SAVING PLANTS

CANADIAN MM C

Ashes Handling Machinery
Hoisting Towers
Cranes, Gantry
Cable Ways
Boiler House Equipment
Coal Crushers
Conveyors—McCastin Gravity Bucket
Cable Railway Systems
Bridges—Man Trolley and Rope Operated, Material Handling
Cars—Automatic, Cable and Electric
Coal Pockets
Coal Handling Machinery
Coal Screening Plants
Ship Bunkering Equipment
Ore Handling Equipment
Electric Transfer Cars
Transporters—Electric Monorail
Ship Loaders
Car Dumpers

HAVING recently purchased the manufacturing plant of M. Beatty & Sons at Welland, Ont., and the Canadian business of the Mead-Morrison Mfg. Co. of Boston, New York and Chicago, we take pleasure in announcing our new organization—

CANADIAN MEAD-MORRISON CO., Limited.

We are MANUFACTURING IN CANADA the well known Mead-Morrison Products as well as the Beatty line of Dredges, Derricks, Hoists, etc.

Steam Hoisting Engines
Electric Hoists
Gasoline Hoists
Belt Hoists
Engines—Hoisting, Pile Driving Bridge Erecting, Mining
Contractors' Centrifugal Pumps
Grab Buckets—Clam Shell and Orange Peel
Weighing Lorries
Winches—Power Driven
Swinging Engines—Steam and Electric
Winches—Motor Truck
Car Pullers
Dredges
Quarry Hoists
Derrick Hoists
Derricks and Derrick Irons
Cargo Hoists
Trawler Winches
Ship Winches

Contractors for Complete Labor Saving Plants

We will be pleased to assist you in your hoisting and material handling problems.

CANADIAN MEAD-MORRISON CO.
LIMITED

ENGINEERS MANUFACTURERS & CONTRACTORS

Works
WELLAND, ONTARIO

General Sales Offices
285 BEAVER HALL HILL, MONTREAL

THE "WEEKLY BULLETIN" IS WORTH KEEPING

In connection with the mailing lists of the Weekly Bulletin, issued by the Department of Trade and Commerce, Ottawa, the superintendent of the Commercial Intelligence Branch, in a letter to present recipients, says:

"We wish to make the mailing list of the Weekly Bulletin of the Department of Trade and Commerce strictly a business man's list. We would like every name on the list to represent a business man who actually reads the Weekly Bulletin. It is important in the interest of Canadian trade that it should be widely read, but we do not wish to waste public money by sending it to those who will throw it into a waste paper basket.

The Weekly Bulletin contains a great deal of information of value to every business man.

We have now twenty Canadian Trade Commissioners and four Canadian Commercial Agents in overseas countries, all of whom are constantly sending information about commercial conditions and trade opportunities for publication in the Weekly Bulletin. We also get a great deal of information from British Consuls in countries where we have no Canadian Trade Commissioners.

In addition to the original information secured through Canadian Trade Commissioners and British Consuls we reproduce in the Weekly Bulletin extracts from the Board of Trade Journal of the British Department of Overseas Trade, the United States Commerce Reports and various other publications of the United Kingdom, the United States and foreign countries devoted to trade information.

The size of the Weekly Bulletin is convenient for reference and many business men are carefully preserving every copy of it and having it bound in half yearly volumes for reference purposes. The business man who has the Weekly Bulletin bound will in a few years have a valuable library of commercial information covering the whole world.

Among other features of the Weekly Bulletin is the Trade Inquiry Department. During the present year we have published inquiries for Canadian products from nearly four thousand overseas merchants."

We should like to add that the Bulletin is all that Mr. Griffin says of it.

RE-INSTATEMENT OF UNITED STATES WAR RISK INSURANCE.

The insurance division of the Bureau of War Risk Insurance at Washington is prepared to reinstate the insurance of ex-service men within eighteen months after discharge from the service by filling out and sending with a proper remittance a form which will be sent on application. If the application is made within three months after the month of discharge no written application or statement as to health is necessary, but only the remittance of two months' premiums. It is possible also to convert the character of the original policy so that part or all of this may be on the ordinary life plan or on the term insurance plan.

As a large number of men who were in the service in the United States military forces in one capacity or another and who well deserve the low rates of insurance arranged for by the United States Government, have allowed their policies to lapse and especially as those in Canada may feel out of touch with the United States authorities, the Pulp & Paper Magazine is glad to bring this matter to the attention of such men, and earnestly urges them to take advantage of this opportunity. Never in the history of life insurance has there been such a generous proposition made, and it would be unfortunate to allow the chance to slip.

The Bureau have, horeover, made some important changes in compensation for temporary or permanent disability, making the awards much more generous than the provisions under the original act.

Further information and necessary forms may be had by corresponding with the address given above.

WHAT THE ONTARIO SAFETY LEAGUE DID.

This is merely a synopsis of the 1919 campaign of Ontario Safety League.

Carried on voluminous correspondence with manufacturers, motorists, street-car men and others, asking co-operation in prevention of needless accidents and fires.

Showed safety motion pictures to thousands of school children, workers in industry and the public generally.

Distributed bulletins and other safety literature in 100 towns and cities in Ontario.

Placed safety signs in street cars and elsewhere.

Issued a special "Letter to Parents" asking for their help in educating children.

Conducted essay competition in the schools of Ontario.

Conducted Cartoon Contest and Essay Contest in the industries.

Issued over one hundred thousand cards to motorists.

Issued nearly 200,000 pay envelops slips on fire prevention.

Distributed the following literature:

135,000 Cards to Motorists.
150,000 Letters to Parents.
116,000 School Bulletins.
101,000 Industrial Bulletins.
89,000 Special Bulletins.
34,800 Health Bulletins.
8,200 Traffic Bulletins.
14,000 Electric Railway Bulletins.
28,100 News Letters.
355,000 Gummed Seals.
183,600 Pay Envelops Slips.
5,900 Cards in Street Cars.
20,600 Form Letters.
18,650 Special Leaflets, Copies of Address. Reports, etc.
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Royal Bank Building — — Toronto.
J. F. H. WYSE, Organizer and Engineer.
R. B. MORELEY, General Manager.

C. P. T. A. SAYS "TRADE AT HOME."

At a meeting of The Canadian Paper Trade Association, held at Toronto, last Friday, the following resolution was passed by its members:—

"Owing to the extremely adverse rate of Exchange existing against Canada we strongly recommend that the members of our Association refrain from purchasing in the United States (wherever possible) until the rate of exchange becomes more normal."

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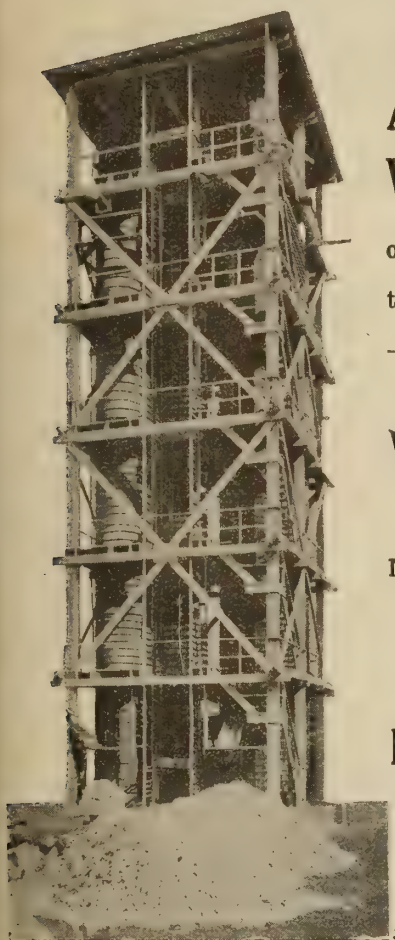
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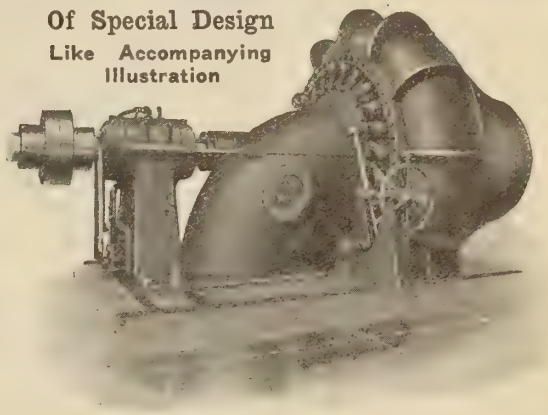
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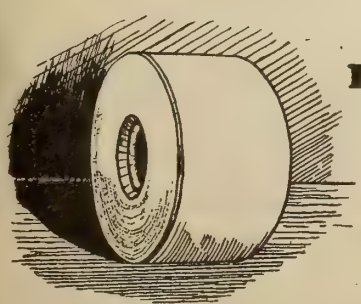
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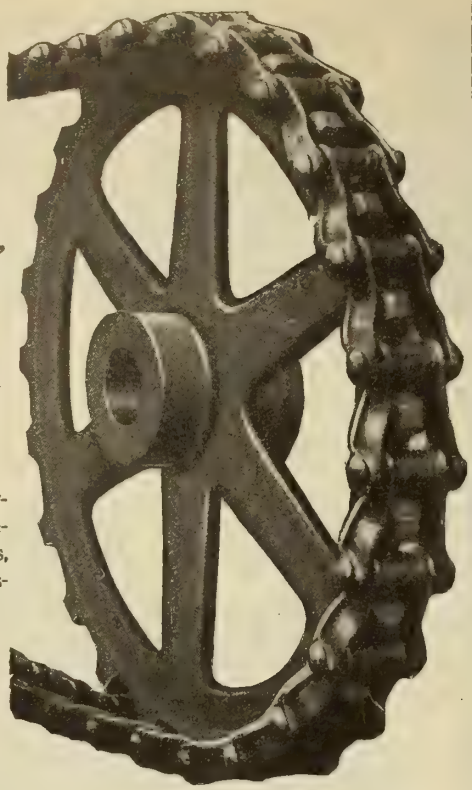
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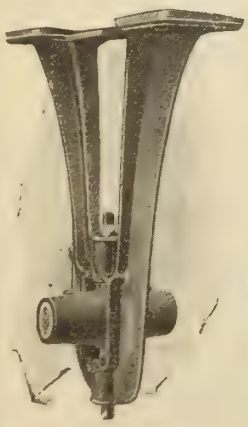
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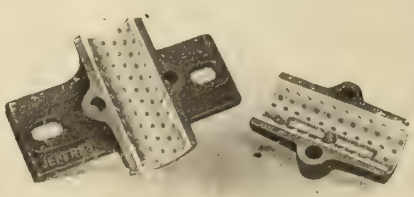
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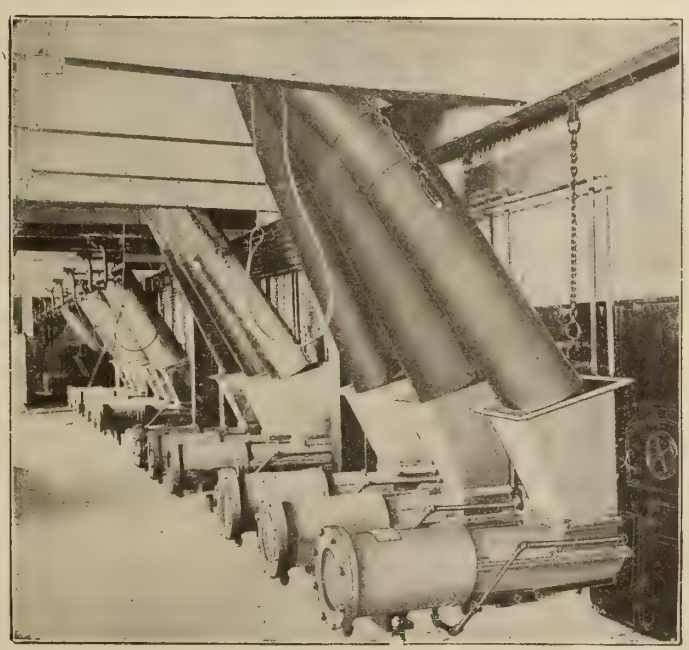
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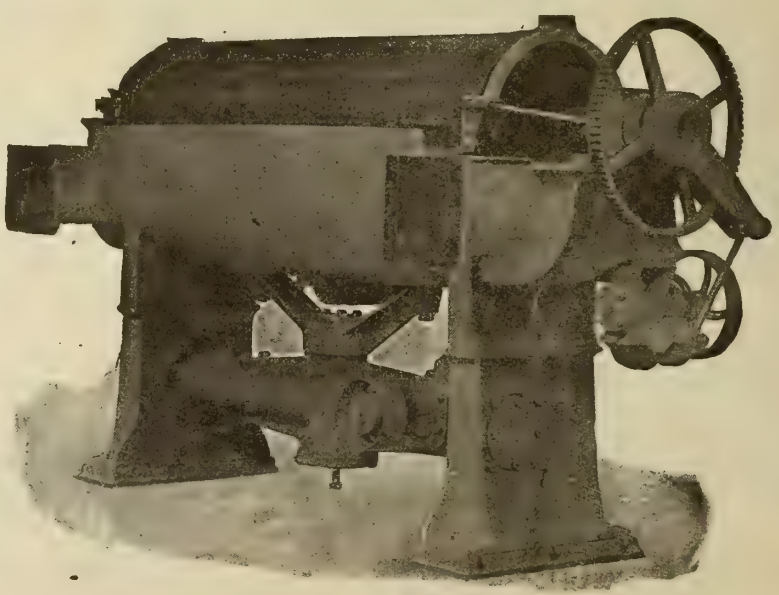
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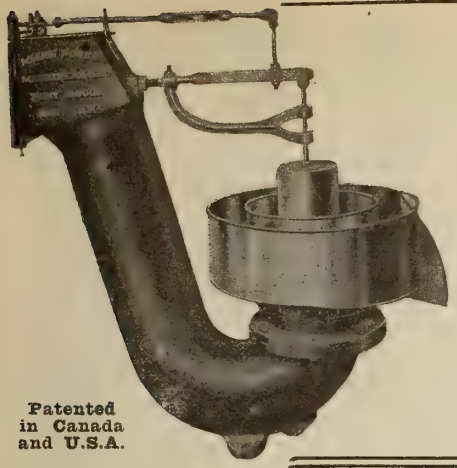
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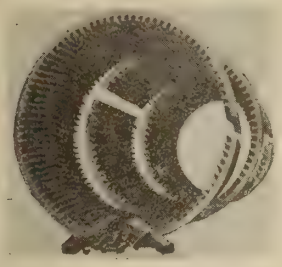
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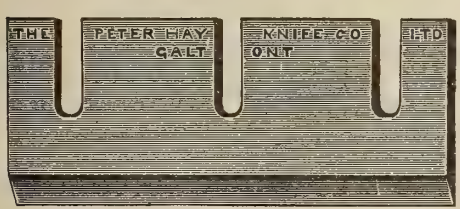


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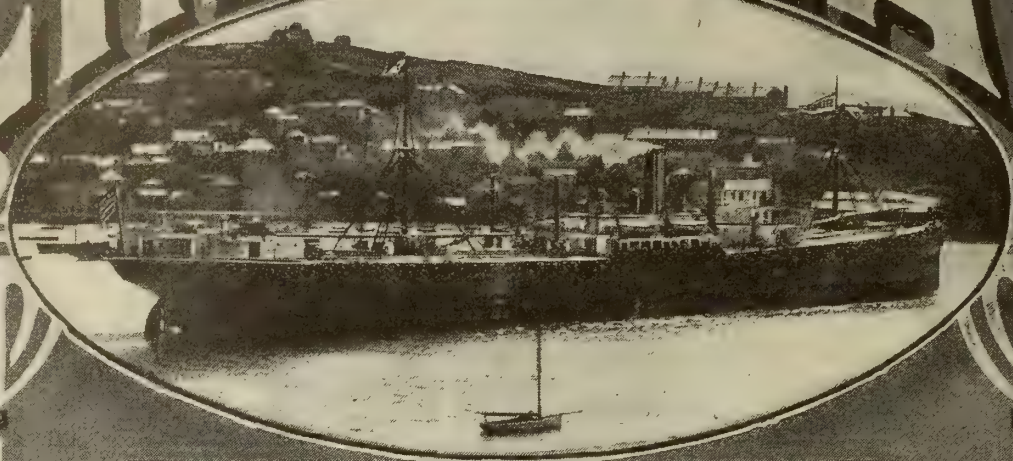
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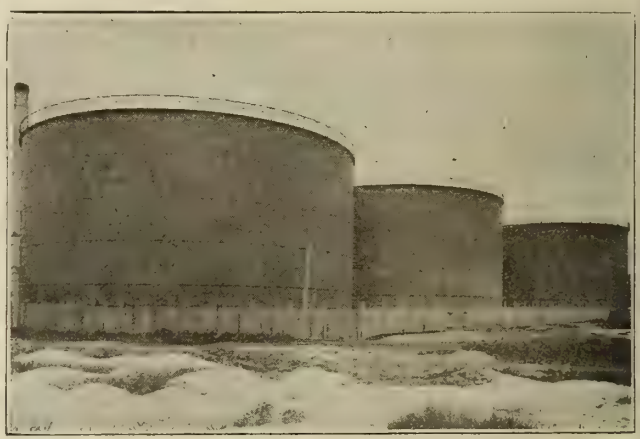
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Changes in advertisements should be in the Publishers' hands ten days before the date of issue.

VOL. XVIII. **GARDEN CITY PRESS, Ste. Anne de Bellevue, Que.** **No. 8**

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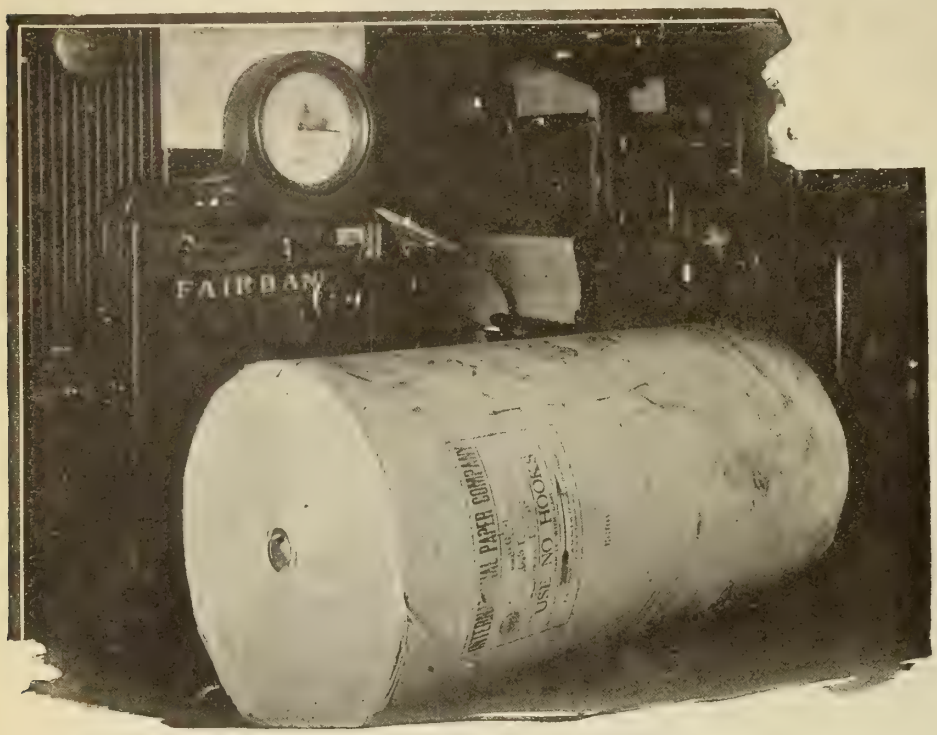
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EDITORIAL

A FRANK DISCUSSION.

At the annual meeting of the Technical Section Jan. 29th, there took place one of the most interesting discussions that the section has had. Instead of beginning with a formal address, Mr. R. A. McInnis, manager of the Abitibi mill read a brief memorandum of the facts relating to the operation of paper machines wider than 200 inches. Mr. John Ball, superintendent of Price Brothers & Company followed with statements in regard to the operation of machines of medium width and made some comparisons with figures on the operation of wider machines. The very brief remarks of these two gentlemen precipitated a general discusion on the advantages and otherwise of the narrow machine as against the wide machine and incidentally brought in the advisability of getting equivalent production from medium width machines running at high speed. Mr. Ball's comments were more or less a summary of the experience of the majority of paper makers who are most familiar with the medium width machine. Mr. McInnis' remarks were a bit out of the ordinary in that they gave information on a comparatively new development in newsprint production and the manner in which he presented the matter excited not only the interest of the section but very favorable comment on the generosity of his information and his manner of treating the subject. A full report of the discussion will appear under the Technical Section department of the magazine when the speakers have had an opportunity to check up the report of their remarks, but it may be mentioned here that the discussion fully substantiated the feasibility of manufacturing and operating machines up to at least 232 inches in width. Such a machine will make three rolls 73″ wide which seems to have been adopted as almost a standard size for the daily newspapers.

The discussion naturally turned to the possibility of getting equivalent production from a narrower machine running at higher speed and it was expected that representatives of the Laurentide Company would have something to say on this matter. They did have something to say but owing to the fact that at the present time no machines have been observed running at higher than 840 feet it was not possible to present such a complete discussion of the subject as was possible for machines with which the speakers were actually familiar. The Laurentide engineers told all they actually knew on the subject and could not well have gone much further without either guessing at what they thought they could do or appearing conceited as to their ability to achieve results by methods in which they have faith of success. As Mr. Mason remarked, they believe that they can make paper at 1000 feet a minute and are prepared to spend a considerable amount of money in making necessary experiments to demonstrate their faith in the idea and in their ability to design and operate such a machine. As suggested at the meeting they intend to start the new machine at 650 feet and speed it up as rapidly as conditions permit. It would have been pleasing to have heard more about the mechanical means of operating such a machine as will certainly be necessary on excessive speeds but such were not forthcoming and we must therefore let the matter rest at this point with the hope that in another year the machine will have been in operation and the Section will have the pleasure of hearing a report on actual accomplishment and experiences in connection with operating a machine at high speed. A record of such experiences will certainly be very interesting and a discussion of them will add very much to our knowledge of paper making and the design of paper making machinery.

One of the interesting features of the discussion was Mr. Stadler's criticism of introducing comments on a situation which is not normal nor typical. This referred particularly to the comparison of the performance of a certain wide machine with other machines of medium width also his recommendation that financiers refrain from mixing up in the design or arrangement of machinery in a paper mill should be seriously considered by the men of means who make our paper mills possible. If an engineer cannot be given responsibility for doing the engineering work of his concern it would be better not to have him at all because then such mistakes as Mr. Stadler referred to would not be saddled on the engineering profession. His remarks further emphasize the need of taking local conditions into account in making statements and comparisons.

From the success of this first attempt at an open discussion of this character by the Technical Section it is quite likely that future meetings will see the idea carried out even more extensively and it is to be hoped that subjects of equal interest can be found for the consideration of the meetings.

The report of the business session begins on page 187. The publication of the paper has been delayed by the flu, and other unavoidable causes. It will begin in the next issue.

THE FORWARD MOVEMENT.

It may have been unexpected for a technical man to pay the tribute to the industrial and scientific value of religion that Mr. Carruth did in addressing the Technical Section or that Mr. Babson did in addressing a gathering of business men in Montreal, but it is not unusual for the leaders of men to think along such lines in these days. Mr. Babson said, in effect, that the need of the times is not for more mechanical contrivances but more religion, and Mr. Carruth added: "The men who are doing most for their religion today are these technical men; not in churches and Sunday schools, but in factory and office, the store and the bank." Now it may be a coincidence, but it is a fact, that the development of the technical idea in industry and the honesty idea in business is largely the work of men who appreciate that religion is the actual foundation on which progress is made and that the doctrines of Christianity (perhaps better, the precepts of Christ) are the safest and surest guide to industrial peace.

On these teachings and their practical application rests the sense of mutual responsibility between employer and employee, of obligations of citizens and neighbors and even of adherence to the truth in scientific investigations and technical reports.

We do not agree that technical men are doing the most for their religion, though many of them are doing much. The palm goes to those who gave the technical and business men what religion they have, what conception of God's laws they have, and who are giving this also to the men who are to carry on the important industrial work so well begun and which will require abler leaders and a larger number of keen, straight-thinking, truth-seeking minds in the future. The future is bright, but not without clouds which now and again threaten to shut off the light. And the light that persists in piercing the mists is none other than the Christian religion.

It may seem strange to some readers that a technical magazine should feel called upon to draw attention to these things. But who will deny that the need of the present and the need of the future is for a greater development and a more active evidence of Christian character in business and industrial relations. Growth cannot continue if religious activity is limited to the application in store, office or laboratory of laws already discovered. We can't have honest employers, dependable employees or responsible citizens without the services of church and Sunday school, the inspiration of education and all its benefits.

Canada must be an educated, Christian country if it to survive the struggles and "growing pains" of the times. The Protestant churches of Canada are united in a Forward Movement for sacrifice and service which will be the greatest force of our day for keeping the nation on the straight course. The stability of our industries and our domestic plans and prosperity, as well as our spiritual welfare depend on its success. Largely an outcome of war and the problems created by it, the Forward Movement may easily become the most important event of this generation. On its effects, the future character of Canadian citizenship largely depends. Get in and help it move!

INTER-PROVINCIAL EMBARGO A MISTAKE.

The idea of restricting the shipment of pulpwood from Quebec to other provinces, which was introduced in the legislature last week, is going a bit too far. Such a move would be unwise psychologically if it were not impossible legally and difficult politically. There is no balance of trade or rate of exchange to consider in this case. While the present restrictions are the action of the province, we believe the effect should be considered from a national point of view. There should be the closest possible co-operation and mutual help among the provinces. Ontario will soon have efficient measures for the proper care of her forests and may be called upon to furnish some wood to Quebec mills. There is a chance here for reciprocation in kind. The pulp and paper industry is so distinctly national and so spread out and yet interwoven, that any attempt to segregate a portion of it would be, as we see it, a great mistake.

PARTNERS IN CRIME.

The Pulp and Paper Magazine unwittingly was partly instrumental in getting our good friend, Mr. A. L. Dawe, "in bad" with a paper house in England! We printed Mr. Dawe's excellent report on conditions in England last fall. We hope the printing of the following letter, at Mr. Dawe's request, will help make amends in case any injustice has been done.

"Felber Jucker Co., Ltd.,
29 St. Peter Street, Manchester, Eng.

Dear Sirs,—I am in receipt of your letter of December 19th, complaining that an injustice was done to your firm in a review of the British pulp and paper markets published under my name in "The World's Paper Trade Review."

The statement complained of was incorporated in my report on what I believed to be facts based upon good authority and was intended merely to call attention to existing conditions, and not with a view to reflecting upon your firm. You state that the information on which my statement was based was incorrect. In that case, I am of course, pleased to withdraw the statement and regret that I should have been misled by erroneous information into making it.

I may say that the review in question was not printed in the "World's Paper Trade Review" or in any other trade publication at my request or at my solicitation. I am pleased to know, however, that you have taken the matter up with the editor of the Review and that he is making the necessary correction.

Yours truly,

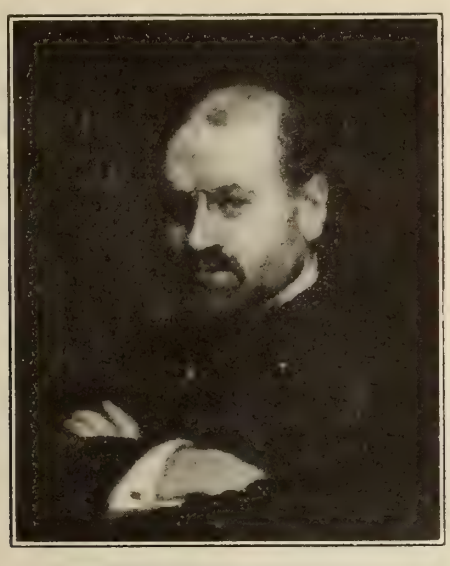
A. L. DAWE, Secretary."

Cost of Lumbering Menace to the Industry

By SIR ANDREW McPHAIL, "Fighter, Doctor, Journalist."

(Address at the luncheon of the Canadian Pulp and Paper Association, Ritz Carlton Hotel, Montreal, Jan. 30, 1920, slightly abbreviated.)

I am sure that you will acquit me of the charge of imprudence when addressing you as men whose lives are bound up in the forests, when I tell you that I myself am the owner of a forest, not the stumpage rights nor the other rights, but I own the land upon which those trees grow, and I have observed that our problems are the same problems; that the problems which face me are precisely the problems which face you, and the first step towards any solution of the problem is to reduce it to the smallest terms in precisely the same way as a physician does who wishes to master an epidemic. He must study the cause, as I have always studied the trees, because it may not have occurred to you that the forest is made of individual trees.



SIR ANDREW McPHAIL,
From a Portrait taken previous to the war.

Now, there is only one problem before you as foresters. That problem might be divided into two heads. the first is whether you select your trees for cutting or whether you shall cut the trees as they come. That, then, is the simple problem, and upon that problem we are not without experience. The Europeans faced this problem long ago, and are facing it today. In the last forest in which I had the privilege of walking, that forest, which is in the bridge-head known as the bridge-head of Cologne, one had a chance to contrast their methods with ours. As one walked up through the forest, or as one rode through upon his horse, or in his motor car, one could go cleanly through this forest and see these methods of forestation, where you could pass through two-year trees, and three-year trees, and four-year trees, and up to thirty-year trees, and then into the virgin forest. They practice a method of selection. We, in this country, also practice a method of selection, but the principles are different. They select the ripe and the dying tree. We, in this country practice exactly the contrary; we select and cut the young and the living tree. While then our processes are the same, our principles are different.

Now the next question which arises is this: Having followed this course is there anything to be done? I don't think there is. I think in this country, we are bound to proceed—having committed ourselves to this course, it is not easy to turn back.

About a year ago, after five years' absence, when I came back and looked upon the trees in my forest, I found that what had happened was precisely what had happened throughout the whole of Canada, that the wood had been decaying, and into the holes caused by this decay had come disease, because that is the law. That is the law of human pathology, as well as the law of the forests, that wherever you have age, and wherever you have sickness, and wherever you have age and weakness, disease will follow in its train.

In addition to the information which I have acquired from experience and by your books and your records, which have been opened to me, I am bound to say, sir, that in coming to a study of this question, I have never found more complete, more sincere, and more perfect information. It is quite clear to me that you have nothing to conceal, everything is on your records, the reports of your meetings, and the reports of your experts and all the commissions, and indeed I was much struck by the remarks which the Minister of Forests in the Province of Quebec had made in his report, in which he characterized you as men sincere and honest, men who wished to take the most and get the most out of your material, but who wished to avoid waste as much as possible, and who dealt with the Government as persons who are vitally interested. It is not to be wondered at then if it is not difficult to arrive at a settlement of your problems.

Now, the problem which really faces you is the problem which I call that of "spare time," and it is upon this that the industry of lumbering has broken, because the most unsafe place in the world for the trees is in the forest, and the only really safe place for a tree is in a man's own farm, or in his garden.

Trees in reality are like ordinary animals. Only one of two courses is open to them. Either you can replant them or destroy them. You can kill them off a little at a time, and eventually they are driven back into the wilderness, so that if you would save the trees, you must re-plant them. Now, let us look closely at these re-planted trees, and what you are going to do with them. You have heard a great deal about the natural resources of Canada, but you have heard very little about the natural losses. That is very large already, because the tree is of not the slightest value; the only value is that which it incurs from human hands, and upon your limits up the St. Maurice, you have observed in deep reverence, the great pine trees which would appear to be priceless, but when you attempt to take them out, you found that the production was just about that; it was not really worth the human labor involved.

Now this problem is not a stranger to me. To revert to my own little woods. This last spring I was determined to bring out the trees, and I engaged five or six young men at excellent wages—as much as you pay them—and made an allowance for everything, and laid out an admirable plan, and was doing very well until one Friday evening when the newspapers arrived, there was an advertisement to the effect that for the small sum of fourteen dollars, you could go all the way to Winnipeg. Saturday night they all came to me for their money, and on Tuesday they were gone, like a

flock of wild geese. What does that mean? The labor problem in this country is not new. It means that people will not stay where they are put, and that, of course, is in the nature of the case, obvious, because we are all immigrants, and the truth is that we will always migrate.

This is precisely your case, you will get out this pulpwood of yours, just so long as it is profitable, and no longer.

I say, then, that your problem, large as it is, is one that you have to face and face unflinchingly, as a business in itself and as part of the general life of the community, and in the present difficulties in which we are. However, the unit of wealth is no longer on the lines it was once; it is no longer the earning power of a silver dollar, but it has now grown to be the complete ration for one day for one grown man.

Of the population in Canada, more than one-half of us live in cities, and the reason we live in cities is because it is easier to live there, and easier to live here, because people, rightly or wrongly, think they get higher wages, and because they have shorter hours. How can you expect a man to work upon a farm all his days and the best part of his nights, when he hears continuously that in the city you have a day of eight hours, and all of Saturday and all of Sunday off, and what is still more important, he hears you complaining about the cost of the things that he supplies you with. His answer is "That is right." He says, "If you think the price of milk and of bacon and of eggs is too high, it is quite simple. All you have to do is to keep a cow, or a pig or some hens of your own." And there is no answer to that, because that is the legitimate economic theory.

A Problem of Food

The problem that really faces you is not the pulpwood, and the paper, it is really a question of food. Therefore, we need not take the difficulties of the forests too seriously, nor need we lay too much stress upon the remedies which are proposed, and the remedy which I find is in everybody's mouth is that an embargo be placed upon the export of pulpwood and pulp itself, and the argument is so specious. They say that pulpwood is worth four dollars, or twenty dollars in the form of the log, But in the form of paper it is worth eighty dollars. Why then should you not retain this thing in your own country? I would recommend to you not to jump too quickly at conclusions, nor speak too openly about such political dangers. Those are the things which are as far-reaching as business itself. The business man looks only at his business, without considering the amplifications of the things which he does.

Now, in casual conversation which I have had with members of this Association, I have found one great principle to the front, and that is, how long will this pulpwood last? I find this in all of your publications. It runs right straight through all of your deliberations. Indeed, I have often heard the same question asked in that centre of forestry, Saint Francois Xavier Street. "How long will this pulpwood last?" The answer to that is obvious, too. Nobody knows. You don't know. Nobody can tell. It all depends upon the future and the future no man can tell. It will last just so long—I will tell you how long it will last—it will last just so long as it is profitable, and it is getting less profitable every year, as you have to go further up your streams and spend increased money on fire patrols, it



Luncheon of the Canadian Pulp and Paper Association, at the Ritz-Carlton Hotel, Montreal, Jan. 29th, 1920. This picture is said to be the best photograph of a gathering in the Ritz-Carlton ball-room. Many of those in attendance ordered prints of it. Unfortunately the Rice Studio was burned a few days after the meeting and the plate, together with part of the records, destroyed. A new plate has been made from the print used in making the half-tone used in this issue, and prints are being made. Any persons who ordered prints and have not yet received them are asked to write to Mr. A. L. Dawe, 701 Drummond Bdg, Montreal.

becomes more expensive, and ultimately it will not be worth while. That is the answer to that. I should not be as bold as the Department of Forestry was in the Province of Quebec, some twelve years ago, when they said the probable date was in three hundred and thirty-four years. I understand they have dropped off the "three hundred" and now are considering what division to make of the "thirty-four."

In times gone by the danger from disease was not so great because the transportation was not so rapid. You are quite well aware that when transportation was slower, disease and pestilence would remain in one part of the country, sometimes for centuries before they began to be disseminated, but with the rapid transportation of today, disease spreads as rapidly as the railway trains.

Use the Wood or It Will Perish

If you are disposed to ask advice, the advice that one would give you would be to continue in your work, get rid of all the pulpwood that exists as quickly as possible, for this reason, that if you don't, it will only perish, and we of this generation might just as well get what we can out of it. So, sir, count all that you make as just that much to the good, and when it is finished, whether it be in six years or in three hundred years—what then will come? Observe this. There are two things which you have never seen. One thing that is as good as it looks, and another thing that is as bad as it looks. That is true of the pulp and paper industry, and if it would all disappear the situation would not be as calamitous as you might suppose. So you must not be too disconsolate and think too much of the end and when that end will come, and I have no doubt, whenever that end does come that you will be able to put your mills and your plants to other good purposes.

Nor need we of this generation concern ourselves too much. We have done our part in the world, and let those who come after us do their share, and if they look into your records, they will find that you tortured and tormented yourselves into finding a solution.

The conclusion of the whole matter is in the words of Mr. Wilson that "there is no solution." The solution which you offer is the practice of re-planting. I don't think there is anything in it, but there is nothing certainly in it for you. What possible inducement is there for you to plant trees which, in sixty-five years, may have grown into something But the effect is good. You are convincing the people, and convincing the Government that you are doing all in your power to solve this question for those who come after us.

PROPER GLOVES MAKE ELECTRIC WORK SAFE.

The rubber gloves worn by line men working on live wires are made according to rigid specifications. completely standardized and no purchasing agent dares buy rubber gloves until he has thoroughly tested them. No glove can be marketed with the manufacturer's name or with the size in such a manner as to injure it in any way. Every glove must be more than 14 inches long and the average thickness not less than 60 mils. They must have a tensile strength of 1200 pounds per square inch and bear having two inches of their surface stretched to twelve without a rupture. The gloves shall be capable of withstanding the application of 1800 volts without puncturing.

ANOTHER $5000 FROM C.P. & P.A. FOR TEXT BOOK FUND

At the business meeting of the Canadian Pulp and Paper Association the Chairman invited Mr. Geo. Carruthers as international chairman of the Text Book Committee to advise the meeting as to progress made and at the conclusion of his remarks a motion was made by Mr. Geo. McKee, seconded by Mr. G. A. Davidson, that:—

"The Executive is hereby instructed to appropriate $5000 for the work of continuing the preparation of text book for the industry during 1920 and that the text book for the industry during 1920 and that the members of the Association be assessed accordingly."

Mr. Geo.Carruthers then introduced the following resolution seconded by Mr. Carl Riordon, and unanimously carried, which was :—

"Resolved that the Joint Educational Committee or their successors be authorized on behalf of the Canadian Pulp and Paper Association to hold in trust the copyright of the text-books now in preparation and that they be further authorized to collect from the publishers all commissions and royalties which accrue on the sale of the text books, such funds to be applied towards future revisions and for any expenses which may be necessary for the advancement of vocational education in the pulp and paper industry."

Mr. F. J. Campbell moved that a hearty vote of thanks be tendered to Mr. George Carruthers for his work on behalf of the Association in connection with the text books now in preparation. This was seconded by Mr. C. H. Smith and heartily voted.

Thus the work begun in a small way by the Committee on Education of the Technical Section in 1915 has been steadily growing. T. L. Crossley, who has been chairman since the beginning is the only original member still on the committee although all who have been associated with him continue to be interested in the work and to give assistance. The foundation of the present work is due very largely to Mr. Crossley's devoted labors and the recent important developments to the inspiring and energetic efforts of Mr. Carruthers, as the vote of this Association very properly acknowledges.

FORM OF PRAYER TO BE USED WHEN ORDERING GOODS FROM CANADIAN MILLS

O, Omnipotent, Arrogant and Unholy Monopoly: Thou who holdest the weak and long-suffering manufacturer in the hollow of Thine Almighty Hand, and dost crush out his very heart, nor yet carest so much as a Tinker's Dam for his sufferings: Vouchsafe to draw near, with as little scorn as possible, and attend to the pleadings of thy most unworthy servant, who now approacheth thine exalted Footstool with his miserable order.

Do not "turn it down" we beseech thee: we do not even dare to hope that it will be accepted in its entirety: but O Great Potentate, we plead with thee for at least 25 per cent of it; we request delivery in June but O, thou King of the Ananias Bunch, if thou wilt but ship it six months after, in December, we shall wash thy holy feet with our joyful tears, and for our children shall rise up and call thee blessed. Amen.

Editor's note:—We don't know the author of the above, but recommend giving it a trial. If this faileth, the only thing to do is get an Order-in-Council.

HATS OFF TO THIS OFFICE BOY

The following gem was sent by R. S. Kellogg, secretary of the Newsprint Service Bureau. It sums up a real office boy's conception of his duties, including a memorandum left for the guidance of the boy who takes his place. This was done entirely free from anybody's suggestion. His conception of the obligations of a position might be seriously considered by many in higher offices. May his tribe increase! We give it as it came.

"To my successor: First of all let me extend my congratulations. You have obtained a "position."

As to Your Duties.

Upon your arrival you will open the windows using your own judgment (I am giving you credit for normal intelligence,) dust off the desks and see that Mr. Kellogg's pencils are sharpened. You will untie the mail and stack it on Miss Rosen's desk in three piles. That addressed to the News Print Service Bureau in one, R. S. Kellogg in another and all second class mail in the third. All other mail you will place on the desks of the persons to whom it is addressed. Then you will take down the number of pages in the papers(it is not neccesary to read them all) and enter them on both sheets, weekly and monthly. These are your routine duties every morning. Miss Rosen will then tell you what there is to be done.

A Word About the Machines

The typewriter I presume you will have little difficulty with. The Mullen Pop Tester (that queer looking machine on the end of the table nearest the door) does not concern you so there remains only the addressograph. It is an extremely simple machine to operate and you will find the various stencil lists in the drawer in good condition. To operate it place the stencils in the right hand rack with the weight on top of them, slip a piece of paper under the roller and turn the handle one complete revolution to the right. Now the first stencil is in position. Place the envelope underneath it and turn the handle. That's all there is to it. Every Wednesday you will run off the sample list, on Columbia Clasp envelopes and on Friday the weekly report on Manila envelopes and be careful not to get the two separate bunches of stencils on the weekly copy mixed up. Keep the envelopes separate too. Every now and then you will run off the Members Mailing List. The first time you do, run them thru slowly as they are new and have not been properly inked yet.

At night your routine duties consist of sending out the mail, closing the windows and covering all the machines. Another one of your duties is the filing of all the magazines. Check them neatly on the chart as they come in and put them on the shelves or in the cabinet wherever they belong.

A Few Dont's

DON'T take more than an hour for your lunch. It is annoying as well as unbusinesslike.
" forget your "Sir" when addressing Mr. Kellogg.
" forget to say "Good Morning." It creates a good impression.
" leave by your watch. There is an office clock. P. S. Don't watch it.
" argue about your work.
" feel hurt if Mr. Ware asks you to do some ruling for him.
" get "Lost" when sent on an errand. I used to but I want to start you right.

REMEMBER. You are not the boss; You are being paid to work; Jump when anyone asks you to do anything. Especially Miss Branigan. Be energetic and do your work well. In short be everything that I have not been and you will give untold satisfaction."

WALK FRONTWARDS



One truckman is pulling a heavy truck, walking backwards



He backs into another truck coming around corner



Look where you're going. Keep to the right.
—National Safety Council

Live Discussions by Technical Section

The annual meeting of the Technical Section of the Canadian Pulp and Paper Association was held in the ball room of the Ritz-Carlton Hotel, Montreal, Quebec, Thursday, January 29th, 1920.

In opening the 6th annual business meeting of the Technical Section of the Canadian Pulp and Paper Association Mr. John Stadler, the chairman, said:

"The Technical Section in general has made satisfactory progress; in fact, I might say it has made very good progress; during the year; if you take into consideration the peculiar position the paper industry was in, and with your co-operation, we believe that we will do very much better this coming year.

I will make my remarks very short, in order that we may go over to some of the very important papers which we have for this morning, and at the same time, not be too much delayed at our luncheon. Therefore, I will be glad to have the minutes of the last meeting read.

The minutes of the previous meeting were read by Secretary Dawe.

The chairman then called for the report of the Treasurer.

The Treasurer's report was read by Treasurer Dawe, and showed a very satisfactory financial condition.

Mr. Dawe replying to a question, stated that the membership at the present time is one hundred and forty-two, an increase of over forty from last year. There are one hundred and twenty-seven members, and fifteen associate members. The one hundred and twenty-seven is made up of full members to the extent of eighty-nine; associate members to the extent of twenty, and junior members to the extent of eighteen.

On motion of Mr. Crossley, the report of the Secretary-Treasurer was adopted.

The Chairman: I think, before going any further there is one matter I would like to comment on in our Secretary-Treasurer's report, and that is, where he says that we should promote a spirit of fellowship as much as possible, and that the Section should endeavor to bring in outsiders as much as possible. He said if we do that we have accomplished a good deal. I fully support his opinion, and I am sure you all support me in that. The more we get together and the more we become acquainted, the less mysterious our doings will be, and I sincerely hope we will keep up this movement and get more people from the industry together as time passes on. It is in itself a very important thing for this Association.

We have now the reports of the various committees The first is the report of the Committee on Program, by Mr. O. Rolland.

REPORT ON PROGRAM COMMITTEE

(By O. ROLLAND, Rolland Paper Co., Chairman)

Your Committee on Program has organized for the last summer meeting a trip up the Saguenay to Kenogami and Chicoutini, after the invitation of Messrs. Price Bros. This visit proved interesting to the members who joined. On board the boat, lectures, discussions and reports of committees were heard. Not very many however were able to be present, as the trip meant an absence of a week from the mills, which were at that time, as they are now, very busy.

For this reason also, we have cancelled the fall meeting, and this winter meeting occupies only one day.

Your Committee has already received an invitation to hold the next summer meeting at Berthier, where the chief of the Government Forest Service would show our members the work done for the conservation of our forests, the source of supply of our pulp and paper industry.

It must not be forgotten that members are always invited to forward to the program committee before the meetings, any work or observations on technical researches which they may have done during the year and have their fellow technical members of the pulp and paper industry benefit through our association.

The firms are also urged to have as many members as they possibly can, attend our meetings. These meetings, lectures and intercourse, are intended solely for the benefit of our industries.

PRELIMINARY REPORT FROM COMMITTEE ON MECHANICAL STANDARDS.

(By JOHN STADLER, Chairman.)

Your Committee has investigated various matters during the year and before finally reporting on some of these deemed it advisable to send out a questionnaire to all of the members of the Technical Section. Unfortunately more time was consumed in getting out the questionnaire than was at first anticipated and therefore not as many replies have been received in time as were expected. This report therefore must be considered as somewhat preliminary. A further report will be issued after all the questionnaires have received due consideration. Your Committee however recommends free discussion on the subjects covered, as this will aid considerably in bringing the subjects to a conclusion.

The questionnaire is printed for the consideration of readers who may not have received a copy, so that they may cooperate with the Committee, and also to better understand the comments of the Committee.

The Questionnaire

This was sent out to all members of the Technical Section, but some of the other readers will be interested in the subjects referred to, and may be able to give some information.

1—ACID RESISTING METALS.

A—Specifications.

BRONZE.

1—What is the composition of your acid resisting bronze used for the following purpose?—(a)—Valves and fittings, percentage of copper, tin, lead, phosphorus; (b)—Impellers for pumps, same items as (a); (c)—Sleeves and castings for shafts, same items as (a).

2—What are your specifications in regard to zinc and other impurities?

3—If other specifications are made, please state which.

4—In your opinion, how does an increased percentage of lead affect the tensile strength of a casting? Please give data if available.

ALUMINUM BRONZE.

1—Do you use aluminum bronze in your Sulphite Mill? If so, what is your experience in regard to its acid resisting qualities?

2—State composition:— Percentage of copper; aluminum.

3—If other specifications are made, please state them.

LEAD.

1—What is the composition of your lead used for: —(a) Pipes; percentage of lead; antimony; (b) Castings; percentage of lead; antimony?

2—What is the maximum allowance percentage of impurities in your lead?

3—If other specifications are made, please state them.

Application.

1—Do you use bronze at a temperature of 160 deg. C and a pressure of 80 pounds per square inch? If so, what is your experience in regard to its wearing qualities? And what do you consider the best composition?

2—Do you use lead at a temperature of 100 deg. C and a pressure of 20 pounds per square inch? If so, what is your experience in regard to its wearing qualities, and what do you consider the best composition?

3—Do you use swinging check valves on your digester steam lines? If so, what is your experience in regard to the durability of the discs?

4—Have you any experience with aluminum alloy discs?

5—Have you any trouble with sagging, tearing or creeping of drawn lead pipes used on digester relief line?

6—If so, what have you done to avoid this trouble?

7—Do you use cast lead pipes? If so, what is the composition of the metals used in same?

8—Have you any trouble with sagging, tearing and creeping of cast lead pipes used on digester relief line?

9—If so, what have you done to avoid this trouble?

10—Which of the following methods do you use in connecting lead pipes? (a) Welding without flanges; (b)Cast iron clamp flange with pipe flanged outward; (c) Cast iron clamp flange and small lead flange welded to pipe; (d) Solid lead flange welded to pipe.

II—BEARING METALS.

Specifications.

1—Do you purchase metals by trade names or specifications?

2—If purchased by specifications, do you make regular analysis of the bearing metals?

3—What is the composition of your bearing metals used as follows:—

JOURNAL BEARINGS—(a) Heavy load — high speed; percentage of: tin, lead, zinc, antimony, copper, bismuth; (b) Light lead—High speed, see (a); (c) Heavy load—low speed—see (a); (d)—Light load—Low speed, see (a).

THRUST BEARINGS—(a) Heavy load—High speed percentage of: tin, lead, zinc, antimony, copper, bismuth; (b) Light lead—High speed, see (a); (b) Heavy load—Low speed, see (a); (d) Light load—Low speed see (a).

4—What are your specifications in regard to impurities in the bearing metals?

5—If other specifications are made, state them.

Application.

1—What do you consider the principal qualities that a good bearing metal should have?

2—Where do you use bearing metal with antimony as the base? State reason therefore.

3—Where do you use bearing metal with tin as the base? State reason therefore.

4—Where do you use bearing metal with lead as the base? State reason therefore.

SET SCREWS.

1—Of the following types of set screws, please state which you use and for which purpose? Type: (a) Headless, oval point; (b) Headless, conical point; (c) Square head, flat point; (d) Square head, pivot-dog point; (e) Square head, cup point; What purpose?

2—Do you use hollow set screws? If so, state advantage from view-point of safety.

3—If you use hollow set screws, which do you prefer, square or hexagonal holes?

4—If you use any other types of set screws, state which.

SCREW THREADS.

1—Of the following types of screw threads, please state which you use, and for what purpose? Type:— (a) United States Standard; (b) Sharp V-thread; (c) Whitworth Standard; (d) A.S.M.E. thread.

2—Which type of thread would you consider best? (a) For steam tight joints; (b) Where heavy vibration is encountered.

3—If you use any other types of screw threads, state which.

PULP WOOD CONVEYING.

1—Which of the following materials do you use in your conveyor cables? (a) Crucible steel; (b) Plow steel.

2—If you use any other kinds of steel, state which.

3—What sizes cables do you use? What size wires in the strand? Number of wires per strand? Number of strands in the cable?

4—What material do you use for the core? (a) Hemp; (b) Wire strand.

5—Which of the following methods do you use for the twist of your cables? (a) Wires in strands and strands in cable twisted in the same direction; (b) Wires in strands and strands in cable twisted in the opposite direction.

6—What is the longest single strand of cable you use? Size of cable?

7—How do you couple the cable?

8—If socket coupling is used, what is the depth of the socket?

9—What metal do you use in the socket for making the joint?

10—Have you experienced troubles with the cable pulling out of the socket? If so, state probable cause.

11—Please give the following data:—Maximum diameter of sprocket wheel; Size of cable; Number of gaps per sprocket.

12—What size attachments do you use? Diameter; Length; Number of belts; Size of belts.

13—Do you use attachmens with one or two flanges?

14—Where do the cables show first sign of rupture?

15—Do you round off the corners of the flanges on the attachments?

16—Have you experienced trouble with attachments slipping?

17—How do you line the conveyor trough in the places where the attachments come in touch with same?

If channel iron is used, give size and thickness. If flat iron is used, give size and thickness.

18—At what speed do you operate your cables?

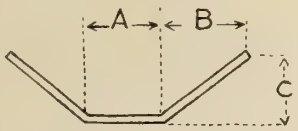
19—What is the life of the lining in working hours?

20—On removal of the lining, what percentage is left of the original quantity? (estimate only).

21—How many pounds of conveyor lining do you use a year? (Estimate.)

22—The Committee on Mechanical Standards recommends a section for conveyor linings, as per attached sketches. We would like to have your suggestions as to modifications to suit your particular requirements. Please mark these plainly on sketch.

23—What do you consider the best shape of a conveyor trough? Please give dimensions as used by you on sketch given below. Legend: (a) Bottom width, inches; (b) Base of side, inches; (c) Height of side, inches.



24—Have you observed whether the power consumption, when conveying wood, increases with the increased inclination of the side of the trough? If so, what percentage?

25—Do you use any lubricants in your conveyors? If so, what kinds?

26—What do you consider the power requirements per 100 feet cable conveyor of a given size and speed, running at no load?

BEARINGS.

1—Of the following types of bearings, state which you prefer and the reason therefore? (a) Solid bearings, rigid type; (b) Horizontally split, rigid type; (c) Rough swivel type; (d) Machined swivel, ball and socket; (e) Babbit lined bearings; (f) Renewable iron shell, babbit lined; (g) Renewable bronze shell.

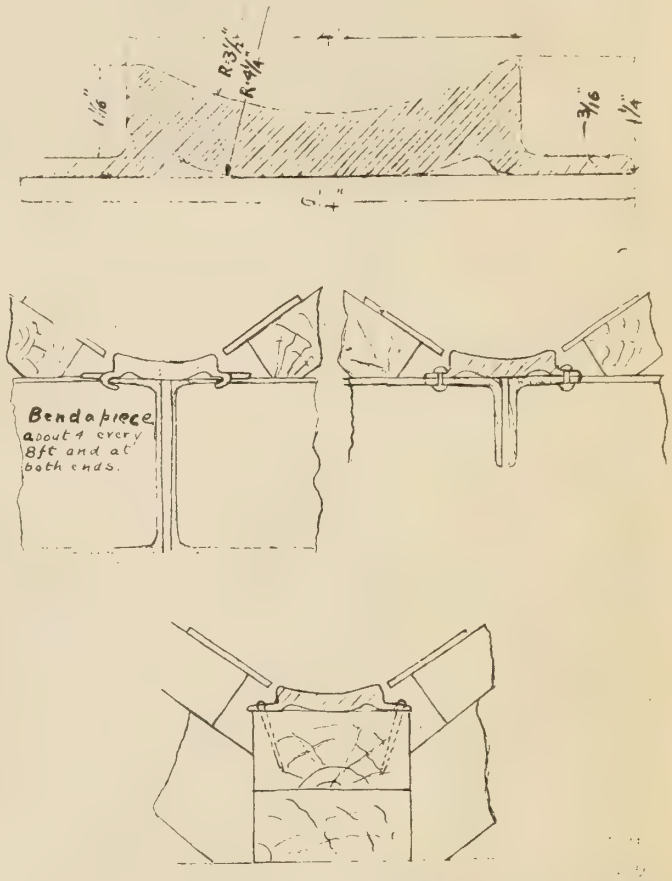
2—Of the following lubricating methods, which do you prefer for journal bearings in: Wet places; Dry places; Very hot places; Places subject to freezing. Oil as lubricant.—(a) Capillary wick oiling bearing with reservoir underneath shaft; (b) Capillary wick oiling bearing with reservoir above shaft; (c) Ring oiling; (d) Collar oiling; (e) Sight feed drip oiling. Grease as lubricant.—(a) Plain compression grease cup; (b) Spring pressure grease cup; (c) Open bearing with receptacle for grease above journal and plain grease in contact with journal; (d) Open bearing with receptacle for grease above journal and grease mixed with fibre in contact with journal.

3—If you use any other lubricating methods, please state which.

4—On bearing lubricated with oil, which do you consider as the most effective means for preventing oil creeping along shaft, on:—High speed; Medium speed; Low speed?—(a) Fine edge revolving rings on journal; (b) Stationary felt rings around journals acting as wipers; (c) Metallic scrapers on underside of shaft.

5—If other means are used, please state which.

6—For bearings used as given below, please state which methods, in your opinion, are the most satisfactory in regard to the following:—Kind of lubricant (oil or grease); Method of lubricating; Kind of bearing metal? (a) Conveyor drive in open air or building not heated in winter; (b) Conveyor drive in open air or in heated places; (c) On barking drums located outside the water trough; (d) On chippers; (e) On pulp grinders; (f) On wet machine couch; (g) On wet machine felt rolls; (h) On paper machine Fourdrinier rolls; (k) On paper machine couch roll; (l) On paper machine press rolls; (m) On paper machine wet felt rolls; (n) On paper machine dryers; (o) On paper machine dryer felt rolls; (p) On paper machine calenders.



Proposed Sections for Pulpwood Conveyors

BALL AND ROLLER BEARINGS.

1—For journal bearing surface or thrust bearing surface—(a) Please state for what purposes you are using ball bearings; (b) Have you found ball bearings as stated satisfactory? (c) To what percentage of maker's rating do you load the bearings? (d) Do you use ordinary ball bearings or do you prefer the self aligning type?

2—(a) Please state for what purpose you are using roller bearings; (b) Have you found roller bearings as stated satisfactory? (c) To what percentage of makers rating do you load the bearings?

3—Do you consider roller bearings give better service on very heavy load than ball bearings if used as follows; journal bearing surface; thrust bearing surface.

4—It is evident that roller and ball bearings, in order to work satisfactorily, must be properly mounted to prevent impurities, including water, getting into same. Have you found it difficult to prevent water entering bearings in wet places?

5—What is your experience with these types of bearings in hot places?

6—In case that you have adopted the use of ball or roller bearings extensively, are your reasons therefore

in regard to any or all of the following?—(a) Saving in power; (b) Saving in attendance and lubricant; (c) Compactness; (d) If special conditions state which.

PAPER MACHINE BEARINGS.

1—When changing wire on machine, do you remove the rolls from the bearing or are the roll journals made in such a manner that the bearing remains on the roll when removing same?

2—When changing felts, are rolls lifted from bearings, or are the bearings removed with the rolls?

3—Have you experienced trouble; (a) With hot bearing after changing wires and felts, caused by improper rolls being placed in the bearings? (b) By dirt having come into bearing while changing felts or wires?

DISCUSSION

The discussion at the meeting was opened by the reading by Mr. Stadler of the following data and recommendations.

1. **Acid Resisting Bronze:** The percentage of copper varies from 84 per cent .to 90 per cent. Most mills seem to use about 9 per cent tin; one mill uses only 4 per cent. The lead varies from 0 to 6.5 per cent. One mill uses no lead, but substitutes instead 6 per cent antimony. Most mills do not allow zinc. One mill allows as much as 2½ per cent zinc. No reference is made in any of the specifications as to impurities allowed. It is evident that castings cannot be produced without some impurities, and therefore specifications for bronze should state the maximum fractional percentage of impurities allowed. Considering that there exists such a large diversity in the composition, your Committe recommends further investigation on this subject, and for your guidance, we give the following observations of various bronze compositions. These figures speak for themselves, and show the necessity for further investigation.

BRONZE COMPOSITION

Sample No.	Copper	Composition Tin	Lead	Points Hardness	Tensile Strength Lbs. per sq. in.
1	85	10	5	69	28706
2	85	5	10	50	20427
3	80	10	10	59	28150
4	80	5	15	50	22810
5	70	15	15	73	24630
6	70	10	20	58	22985

Test samples were machined from 2″ diameter bars. In spite of the large diameter of the bars cast poor Foundry practice apparently has influenced the characteristics of the material of high copper content.

2. **Aluminum Bronze:** Very few mills seem to use aluminum bronze although this alloy, consisting of about 92 per cent aluminum and 8 per cent copper, seems to form a very desirable metal for use in places where lightness is of importance. One mill has found it a very desirable material for check valve discs on steam lines to digesters.

3. **Lead:** The general composition of lead pipes seems to be 95 per cent lead and 5 per cent antimony. Some mills use as low as 2 per cent antimony. In castings the percentage of antimony in general seems to be 10 per cent. An exception to this however is one mill that uses only 2 per cent antimony. Your Committee is of the opinion that 2 per cent antimony does not produce sufficient hardness, especially in lead castings, and actual observations made on such castings seem to indicate that, at moderate temperatures, deformation sets in very readily. The connecting of lead pipes in general seems to be done by means of flanging out the pipe and using cast or wrought iron clamp flanges. Observation made of some pipe installed showed the first failure to piping at the flanges. Your Committe desires to bring to your attention the method of welding small flanges to the end of the pipe. This proceeding is not any more costly and apparently has eliminated the breakage of pipes at the connection.

4. **Bearing Metals.** Your Committee is very much surprised to find out that only a few mills are purchasing their bearing metal to specification. Although a few plants make a practice of purchasing to specification, regular analyses are not made of shipments received. Others purchase by trade name only. Your Committee is of the opinion that standardization of bearing metal is very necessary, and whereas some mills have already adopted standards and apply such compositions economically, others seem entirely to disregard the application. Your Committee recommends that bearings submitted to heavy pressure and high speed should have a high percentage of tin, although ordinary bearings will work quite satisfactorily with Babbitt having a high base of lead. Although a good deal of information is available on the subject of bearing metals (Babbitt's) yet your Committee considers it is essential that more investigation be made with special reference to application in this industry.

5. .Set Screws: .It is pleasing to note that the general tendency is to replace projecting head set screws on all revolving machinery, and we therefore desire to emphasize strongly that you insist, when purchasing new machinery, that wherever a projecting set screw could be of any danger, considered from a safety point of view, only concealed set screws must be used.

The Committe's observations also seem to indicate that, of the hollow type set screws, the one with hexagonal holes seems to be the strongest, yet at places where set screws have to be moved frequently, the square hole set screws seems to last longest.

6. **Screw Threads** The Whitworth and U. S. Standard Threads seem to most in use. The U. S. Standard probably is the most used. Some mills however still use sharp V threads. We believe that the use of sharp V threads for general work should be abandoned as it reduces too greatly the net section of the material. Pipe threads in use are the U. S. Standard (Briggs) and Whitworth. Your Committee however could not find out whether the Whitworth Thread used on pipes in this country has the same number of threads as the American standard or whether the thread used is actually the British standard. Your Committee considers that it is probably hard to standardize the threads all through the industry, but this seems nevertheless very desirable.

7. **Pulp Wood Conveying:** .The 1-1/8″ cable is used mostly in connection with pulp wood conveying and the hemp core is used in most cases, although some mills have abandoned the use of hemp cores and substituted a steel centre, which, they claim, reduces considerably the stretch of the cable. The wires of the strands and the strands of the cable are now generally twisted in opposite directions. The method previously in use by some builders of twisting wires of strands and strands in cable in the same

direction seems to have been abandoned. For coupling the cables, socket couplings are universally used, the depth of the socket varying from 2¼" to 4". The attachments to the cable vary in diameter from 5" to 8". Attachments with 1 and 2 flanges seem to be used. For conveyor trough lining, channel iron and flat iron seem to be in general use. Only one comment has been received on the proposed section submitted by your Committee, the substitute for this being a cast iron section, but this substitute is also made to the radius of the attachment. Your Committee desires that you give the proposed section your full consideration, for your present practice of using flat iron with a round attachment can only result in excessive wear on both the attachment and the lining, and the lining which is worn round in the centre has to be discarded after only a small percentage of same is used.

Conveyor trough sides in general seem to be on a 1 to 1 slope. Observation made shows the the power required to operate conveyors heavily loaded is considerably reduced when the trough is flattened out. Trials made show that incliations of as much as 2 to 3 work quite satisfactorily.

8. **Bearings:** Such a diversity of opinion exists about bearings that it is very hard to make a recommendation except in a very general way, and this is as follows:

That wherever possible the bearings should have a renewable shell, whether this shell be made of bronze or cast iron, Babbitt lined. The renewable shell should be made to template and machined at the point of contact with the bearing housing so as to facilitate quick replacement when desired, and always assuring proper alignment.

That all bearings of rolls, which are removable, be made in such a manner that the bearing itself adheres to the roll so as to avoid misplacement.

For lubrication oil is recommended wherever possible, exception to this being very wet places where it seems impossible to prevent water entering the bearing. This has special reference to the small rolls on the wet part of the Paper Machines and the Wet Machines.

Roller and ball bearings seem to be used to a small extent. The general opinion is that such bearings must not be rated to more than 50% of the rating given by the makers in order to have any satisfaction. Your Committee desires to add that it is preferable even to load the bearing to less than 50% of makers' rating.

Concentrated Investigation on Three Items.

The discussion of this report was opened thus, by the chairman of the Committee on Mechanical Standards, Mr. J. Stadler:

If you look over this report, you will find that there is a great deal of work that has to be done on acid resisting bronze, in fact, as regards the manufacturers of this commodity here in Canada, I believe I am quite just in saying that they know very little about it, and I know very little too, so there is no jealousy or hard feelings on either side, but something ought to be done.

The next matter is the one on bearing metal. I believe the industry, as a whole, is losing a good deal of money. Some of the mills are still buying bearing metal by its trade name, as though there might be something in there which is of a very mysterious character, which causes the bearing to keep cool.

I believe that these two things are matters on which we should have very detailed information. Probably the bearing metal is quite well established, and probably a little more free investigation, and the co-ordinating of the information, and a few scientific tests would be in order. We want to have a certain basis.

Now, in both of these instances, either in acid-resisting bronze and bearing metal, it is necessary that in order to have the proper information, a great deal of work be done by parties who have a chance to do it, and for the doing of it, it is necessary that a certain amount of money be appropriated from the main association. This has been taken care of some three years ago, when a certain Resolution was passed, and I believe if the Section here today wishes that this work shall be carried on, that we should then, through the Council, approach the main Association to get a certain amount of money. This is for these two items alone.

For the third item which is not at all covered by this report, but which I think is of very great importance to the industry, but upon which no information exists at all, is the resistance of pipe-line under various circumstances when stock is being pumped through it, and that is one of the items which is also suggested for investigation. Perhaps this will not involve much expenditure. We may require special apparatus, and so on, and I would suggest that these three items be taken into consideration for financial appropriation.

Now, what is the wish of the members of this Section on this point on the subjects of bearing metal, acid-resisting bronze and the resistance of stock of various concentrations in pipe lines?

I wish you would express yourselves, and when you have done so, I would like to submit to you also for your consideration, the question of conveyor linings, although not outlined in this report, provided that the Association agrees to it. Some steel mills have expressed their willingness to roll such a section and sell it to you at the price of structural steel material, or something like that.

Now, in order to make the thing sure, will you please express your opinion, first of all, about a financial appropriation towards this development and additional research on bearing metal, and acid-resisting bronze, and to find out what the resistance of stock in the pipes is?

MR. MASON: How would that information be compiled? How would it be gotten out?

THE CHAIRMAN: It would be compiled by having additional test samples made, to have additional samples cast by various concerns, submitted to parties who make a speciality of reporting on the characteristics of metal. Take, for example, the Babbitt metal. A number of mills have their own specifications, which by practical experience they have found to be satisfactory. Another man will say "That metal is no good." He says, "It is too soft" or "It is too hard." But when you ask the man who actually uses the metal about its hardness or its strength, he will tell you frankly that he does not know. Some mills do know, but would it not be best if samples were made up and submitted for a test, so that we could get some specific figures on which to work, which would help us in deciding whether such metals are of the right characteristics? That is the way I think it could be worked. Just to get the basic information

as to what we actually have. At the present time, we have nothing.

Dr. J. S. BATES: I think the Chairman of this Committee has some very good ideas. Some of them are my own. He mentioned three subjects, one of them was the acid-resisting bronze, and which, to my mind, is one of the most important things we should take up. The second subject was Babbitts. My opinion is that all we know about it is what we get from various societies, mechanical journals. It does not appear that there is anything special on this subject, so far as this industry is concerned.

The third subject the Chairman spoke of was the flow of stock in pipes. I do not see that that is within the scope of your Committee, so I would like to see the Committee center its efforts on acid-resisting bronze and endeavor to accomplish something. I think the Committee might well get an appropriation from the main Association for a scientific study of the strength and corrosive nature of the different compositions of acid-resisting bronze. We have worked out a little scheme along these lines, and I think the Committee could undertake before the next meeting, to give a very good report on this subject.

For all I know, if we could gather up the information from all the mills, there might be enough data to give us all the information we require, but I doubt if we will be able to get the detailed information from the mills here and there, and I would suggest, that the Committee work longer on this subject of acid-resisting bronze.

THE CHAIRMAN: I very much appreciate the remarks of Doctor Bates, but after you have looked through the questionnaires received and see that some mills allow two and one-half percent zinc, whereas others consider zinc as an impurity, it shows the necessity of careful study of this subject, more than I have realized. Now, centering the work on one point is all right. Doctor Bates mentioned the bearing metal. We might get the information as to what all other Associations have done but from the information we have got, we have found that certain factors have been omitted, that is, as to how brittle the metal is, which would be shown by the hardness test, and the strength of the metal is invariably omitted. For that reason, I think work along that line would also help us.

Now, I am quite willing to say that we shall conduct our investigations, either on one subject or on the two. The study of the acid-resisting bronze will require more money than the study of the Babbitt metal, but I am ready to accede to whatever you wish. If, on the other hand, you think this is without the scope of your Committee we shall drop it out.

MR. STEPHENSON: There is a considerable amount of Dominion money floating around at the disposal of scientific researchers; perhaps it is in order to suggest that the Committee get in touch with the authorities and endeavor to have them appropriate some of that money for the investigations of one or more of these subjects. The chances are that this work would be done at one or more of the mills which are equipped to do it in the proper fashion, possibly by engaging the services of a researcher of ability, and letting him work the thing out in the mill under the mill conditions which in some cases might be different than those which might be assumed in case of college research work.

THE CHAIRMAN: I don't think it necessary to carry it that far. At the present time the pulp industry is in a very good state of health, and they could easily convert five hundred or a thousand dollars without asking their neighbors for help to do this work. Anyhow I would suggest that we relieve them of this thousand dollars and put it to the credit of the Technical Section for such technical work as they propose to do.

MR. HAZEN: I had some experience in trying to get actual information with regard to the physical properties of acid-resisting bronze and bearing metals. Now, I think I can fully substantiate what your Chairman has said with regard to the scarcity of accurate information regarding these physical properties. Our specifications vary, as I find from the various mechanical journals and when you ask why, and what their properties are, about the hardness, the resisting qualities, nobody knows definitely. Invariably you get the reply, "Well, it works well in my plant." I am very well aware, for instance, in the question of Babbitt, that many mills are paying a fancy price for Babbitt containing anywhere from seventy-five to eighty-five per cent of tin, while they might buy Babbitt of an entirely different composition, and much cheaper, that answers the purpose well, and would have actually the same bearing qualities. So far as I am aware, we have the files of the Society for the Testing Materials and all these scientific files in our office but there is a great scarcity of just the information which your Committee desires. If the Committee decides to go ahead, I am sure that we shall be delighted to co-operate in furnishing any information that is possible and may also say that your Chairman's very liberal allowance, I am sure is more than sufficient to cover the expense.

THE CHAIRMAN: I think in spite of the fact that some information exists, just the information which we want is not available, and under the circumstances, I will put a point blank question, and that is, are you in favor of getting such information and if you are in favor of it, I think the Committee on Mechanical Standards will get it. How to get it, I think is something that is up to them. If, as I said before, they get a little money out of the industry that simplifies it, because they feel that the industry at the present time is in such a position that for the general benefit of all of us they can do a little work of that nature. Therefore, I would suggest that somebody put the motion to that effect that the Committee on Mechanical Standards should investigate certain items and that this information is to be available to the industry, and that any expense involved is to be borne by the industry. There is no obligation whatever. It is up to the Committee, and they will take care of the rest. That means acid-resisting bronze and bearing metal, and the resistance in the pipes.

The recommendation of the Committee was approved.

(Reports of Committees and Discussions will be continued.)

Regina, Sask.—The provincial government proposes to spend $100,000 a year for the next ten years to further vocational and industrial training in the high schools of the province. Saskatchewan will receive about $50,0000 of the federal government's grant for this purpose.

The Varkaus Cellulose Factory, Varkaus, Finland

From "The Finnish Paper & Wood Industry," Oct. 31, 1919—Translated for the Pulp and Paper Magazine by the Lageroef Trading Co., New York

The cellulose factory at Varaus, belonging to the firm of A. Ahlstrom Co., Helsingfors, made its trial run at the end of April last year, and is now in full swing. Some facts about the first cellulose plant to start in Finland among all those now being built may be of interest to our readers.

The construction of the factory was begun in March, 1915, and it has been erected and equipped during the World War and the Finnish War of Liberation. It is obvious that under these circumstances the project has met with many difficulties. For instance, the bricks for the digesters were twice sent to the sea-bottom, and the third consignment was the first to arrive.



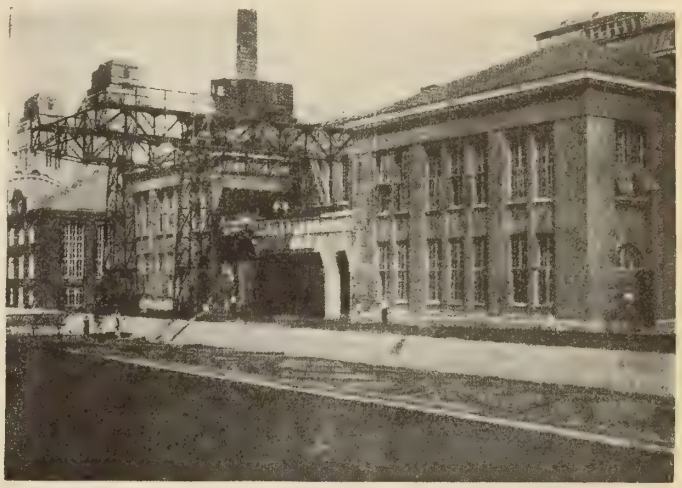
Building containing screens and dryers.

The different departments of the plant are housed in three separate buildings. The first building contains the acid house and wood room, both for the sulphite and ground wood mills. In the second are the digesters and pulp-pits, and in the third the separators, sand catchers, screens and drying machines.

The pulpwood, which is brought in on cars from the wood-yards, is raised by a 14-ton traverse crane to the wood room situated on one of the upper floors of the factory. The wood is first put to soak, whereupon a conveyor carries it over a crosscut saw (for the cutting of long logs) to a table where two slowgoing chains feed it to the barkers. Three such machines have been installed of the Bezner type. The barked wood is conveyed upon rollers directly into the chippers. The latter have been supplied by the Karlstad Engineering Works, and the knifeplates have a diameter of of 2.8 meters. The chips are automatically thrown from the chippers into the disintegrator, also furnished by the Karlstad Engineering Works. From the disintegrator the chips are conveyed to two Bezner oscillating screens, which separate them into three sizes: Sawdust, blown down into the boiler room; pulp chips, carried by conveyors to containers above the digesters, and knots, which are lifted by an elevator to a crusher (made at Gotaverken), from which the crushed knots pass anew into the chip screens.

Two digesters of 250 cubic meters net volume have been installed. They came from the Thune Engineering Works, where a third is being made. The wood is cooked by direct-pressure steam, and when ready the pulp is blown at a pressure of 1½ to 2 kg. into the blow-pits, which are rectangular in shape, 18 x 5.4 meters. A Nygren scoop carries the pulp from there to a conveyor, which brings it to the separators.

These Nygren system separators co-operate with two Nygren knot-removers. The entire system was made by the Engineering Works at Karlstad and works most satisfactorily. The pulp then passes from the knot-removers over a sand-catcher and thence to the screens. These screens are of the Spangenberg type, with three fore-screens and one hind-screen of the same system. The work with the Spangenberg screens presented difficulties at the beginning, due principally to ignorance of their exact use, but now they meet all requirements. The screened pulp is thickened in two drainers, which came from the Tammerfors Linen and Iron Manufacturing Company, and runs from there



View of the acid house, the wood sorting house with crane and vats.

to the stuff-chests of the drying machine. This machine which has a working width of 3 meters and 44 dryers, was built by the Engineering Works at Karhula, and is a credit to the Finnish domestic industry. From the start the machine has given great satisfaction. Exhaust steam at a pressure of only 1.5 atmosphere is used for the dryers, but at present only about 0.1 atmosphere is needed. The result is that the cellulose does not get burned on the machine, but keeps its white color. Partly on this account, and partly for other reasons, the factory is producing an intensely white unbleached cellulose.

For the purposes of packing and baling, whereby the pulp can be compressed to the size of no more than 1.15 cubic meters to the ton, a high pressure hydraulic press from the Karlstad Engineering Works has been installed.

The factory was designed for a daily production of 40 tons with two digesters and 60 tons with three. Because of the impossibility of getting certain machinery and instruments, the production has so far only reached about 30 tons per day. The manufacturing process and up-keep of the buildings require a force of 57 men and 24 women and only a few more are needed when the production is increased to 60

tons a day. The completion of the Varkaus sulphite mill is one great step of the plan to make that place a center for the wood industry.

The grinding department with its eight immense storage grinders was started in 1916. The great saw mill, burned down in the course of the war, has risen like Phoenix larger and handsomer out of the ashes, and will start with six of its eight frames early in 1920.

For the paper mills, planned for two high-speed news machines, one machine has already been ordered.

All these Varkaus factories are equipped with machines filling the highest requirements of modern technique. But technique alone has not so completely engrossed the builder's mind, as often happens in the erecting of factory buildings, that the claims of the esthetic sense have been ignored. The facades of the water and steam power houses, and the cellulose factory were designed by the architectural concern of Walter and Ivar Thomé, and for the new saw mill by architent K. Lindahl. These architects have succeeded admirably in giving the buildings, by using simple and pure lines and well-balanced proportions, an attractiveness of appearance that is literally astounding.

Signed: JAC. KAUSTINEN.

Varkaus, October 2, 1919.

ONTARIO TO CONSIDER PULPWOOD EXPORT.

Toronto, Feb. 17—Hon. Beniah Bowman, Minister of Lands and Forests in the Ontario Government was asked if the province would take any action in regard to an embargo on pulpwood for export to the States. His reply was that the whole matter would be taken up for consideration in the near future.

Officials of the department, however, point out that the Ontario Government does not figure very largely in the matter. It is quite a number of years since the Government stipulated before leasing pulpwood limits on Crown Lands that the pulpwood had to be manufactured in this province. It is only the pulpwood cut on privately-owned lands that is now exported from the province. There is only a comparatively small amount of pulpwood exported from the province at the present time compared with the amount that is annually cut and in view of these facts the suggestion that the Government should consider forbidding the export of pulpwood from Ontario is not likely to receive much consideration from the Government, according to the officials.

(Discussions of this matter seem to neglect consideration of the fact that the provincial governments have not the power to institute an export embargo on anything. That right rests with the Dominion Government. The present embargo—in effect—is really a restriction in the terms of lease of pulpwood lands. —Ed.)

PAPER MEN IN SKI JUMPING.

The ski jumping championship held Tuesday at Hanover, N.H., was won by the Dartmouth team, Bache-Wiig, Carleton and Bowler, with the Montreal Ski Club represented by Pickering and Wener, a close second. Bache-Wiig is a member of the well known family of pulp experts and Wener is on the staff of the Canada Export Paper Co. A tandem jump by I. Wener, of Montreal, and J. H. Wiger, of St. Paul, Minn., was made in good style and was one of the prettiest events of the meet.

British Misled by Embargo Rumor

(From Our London Correspondent.)

London, January 30, 1920.

As the British market was considerably upset over the misunderstanding that the threatened partial embargo on two mills was general in Canada, the following remarks will be read with amused interest:

When the news spread in London that an embargo had been placed on Canadian paper coming into the British market—or that an attempt was being made to place it—there was considerable sensation at the sudden turn of events. I need hardly point out there is a very strong feeling prevailing here over the embargo and protests have been piled on the Canadian High Commissioner, and the Colonial Office, in London, was asked to communicate with the authorities in Ottawa. Why should an embargo be introduced in a market where there is an up-hill fight for the supremacy of Canadian paper and pulp over foreign products? Putting aside the disputes in Canada and America—the latter I blame for all the trouble—is it not a short-sighted policy to hamper the progress of an industry that has for the last 10 years been trying to get the thin edge of the wedge, inch by inch, into the British market and when successful results are showing themselves on the horizon is it not disheartening to the Canadian paper mill man and his English consumer to be struck down, detrimentally, by an embargo in the face of Scandinavian competition? This is a determined and wilful effort on the part of the Canadian Government authorities to allow foreign products to kill and oust Canadian products. One could understand an embargo being placed on paper going over the border, but when distant markets are brought into the same line, at the expense of the Canadian producer, it is time business men were scheduled at the head of affairs. A determined effort is being made in England to have this embargo removed—if ever it comes into force. Embargoes have been a great curse on trade between England and Canada. During the war we were told to develop trade within the Empire and since 1914 Canada has succeeded in getting a foothold in British markets where paper was much in demand; but if the Canadian Government are going to upset contracts and limit supplies it is greatly to be feared that consumers in the United Kingdom will look further afield where they will not be harassed with embargoes, and the feeling here is that Canadian paper is wanted and is much preferred to the foreign supplies. Summing up the whole position, it may be stated that—

(1) The embargo is a blow at the sale of Canadian paper in the English market.

(2) "Trade within the Empire": Canada gained considerable trade since 1914 in paper and pulp; the embargo will kill the Canadian paper prospects outlined in England and help foreigners.

(3) Financially an embargo works adversely with British financiers, thus stemming mill developments and corporations. To get money you want trade—not an embargo on trade.

Government Control Bad.

A great many of the prominent newspapers in London make comment on the embargo on Canadian newsprint. Government control is condemned and judging by the experience the British public have had in the

textile industry, it is to be hoped they will be saved the same displeasures in the paper industry. It is, however, contended that contracts made on legitimate grounds will not be interfered with. The London Times points out in the financial portion of their paper that great efforts in organizing exports have been made in Canada in 1919 and agreements have been entered into for the development of trade between the two countries. "From year to year the paper and pulp industry expands,' says the "Times," and "markets were found in Great Britain and new mills are projected in Ontario, which will greatly increase the production of paper."

Dealers who hold contracts here for Canadian paper think they will not be materially affected. They are naturally much concerned about the mention of an embargo.

The "Times" also dealing with paper and pulp points to Newfoundland from which 5,000 tons of news were shipped to Australia before Christmas. This is an initial shipment. It is also stated, that arrangements are being made for operations at full capacity at Grand Falls in 1920. The only difficulty experienced is the labor to cut 150,000 cords of pulpwood required at the present time.

Labor Troubles.

I am told that in Norway there are labor troubles in the pulp and paper mills. There does not seem to be a settlement yet in the industry and mill men are meeting in conference to discuss the unrest, and, at the same time other trade subjects with a view to furthering their interests. In England, owing to the extra high cost of living for the paper mill workers in Bury the union leaders are recommended to ask for another 50 per cent increase on the present minimum wages. The agreement at present in force was signed in July last, and it was operative for 12 months. Sunday labor is also causing some dissatisfaction, and this seems strange, because the eight hours' shift is in vogue and the union's leaders agreed to the terms of the agreement. It is not known when these demands will be made on the employers, but personally I should say nothing will be done until after July next. Then negotiations may be opened and grievances rectified. Trade Unionism is making great progress in the United Kingdom to-day—and everything points to the fact that the next Government will be a labor one. Trade Unionists have been so united that wages sheets today in mills, and other industries, have more than doubled since 1914.

Groundwood Scarce.

Supplies of groundwood (moist) arriving in the British market are on a reduced scale and the price per ton has jumped to £12. The closing of the Baltic, of course, always affects supplies at this time of the year and there is usually a dullness at the opening of a new year. But there seems to be a little more than dullness behind the present position. Mills have fair stocks in hand, but if business from the seller's side does not soon brighten up, the position for the consumer will become acute. Supplies from Canada are on a small scale, just at the moment and the market is disturbed in consequence. Scandinavia continues sending small parcels and paper mills are now looking round for supplies to be delivered in the near future, and particularly before prices reach a higher level.

Sulphite and sulphate are going strong, and in some cases contracts up to 1921 have been closed. Prices are steady. For some time past Scandinavian mills have been trying to regulate their supply so as to close contracts. These have been settled on very good prices, and the surplus they are holding for future dealings. Bleached sulphite is £45 a ton (f.o.b., c.i.f., etc.); easy bleaching sulphite £37 15s 6d, and strong quality sulphite ranges up to £30 a ton.

Groundwood (dry) is also scarce in the market and the demand is good. It is now quoted at £24 a ton for immediate delivery—if it can be obtained.

Newsprint Dearer.

The situation of newsprint in the United Kingdom is not so acute as in Canada. All the daily and weekly newspapers continue publishing the same number of sheets as they did six months ago, and they still retain the war prices when selling. This, of ocurse, is due to the extra cost of production. Newsprint today is selling at 8 cents a lb., an advance on 1919, and hints are being thrown out that supplies must be conserved. If Canadian supplies are cut off the market will be seriously affected—much reliance being placed on Canada and Newfoundland to keep the law of demand and supply in a steady balance. The domestic supply very soon finds a consuming channel, but the difficulty to be faced in this quarter is the supply of raw materials. Up to the present no paper has arrived from Germany or Austria, neither has pulp, though there are 600 pulp mills in the "Fatherland.' The domestic demand is too great. Sweden is selling newsprint in London today at £45 10s.

If any shortage should occur in this country it will be solely due to the attention given to the export trade and the competition in it. It is estimated that paper mills are at present exporting 30 per cent of their output, compared with less than half that amount before the war, and the Government are encouraging them for their own ends. The selling price on export account is good and people are pointing to the chaos in Canada and America as an example.

GETTING BUSY ON COMMERCE BOARD vs PRICE BROS.

Ottawa, Feb. 17.—The Board of Commerce was in consultation today with Colonel O. M. Biggar, K.C., who has been retained as a special counsel to institute the Government's case against Price Bros., paper manufacturers of Quebec, arising out of their failure to comply with orders to supply paper to certain publications. The proceedings proposed are of a criminal character.

The company is charged with hoarding the 15 per cent of its product designed to meet the domestic demand. It contests the regulative authority of the government, and the case will be fought out in the courts of Quebec. The government, to which the situation was referred with a recommendation for prosecution, has concurred in the proposal of the Board and arrangements for going ahead with the case are now being made.

When the Quebec list of appeals in the supreme court is finished, the reference to that court calling into question the constitutionality of the Board of Commerce act will be argued, and there are so many parties interested that the array of counsel will be formidable, at least on the side of the attacking interest. So far, only W. F. Connor, K.C., vice-chairman of the Board, has been instructed to argue the case for the government.

Technical Section

SPECIFICATIONS FOR MANILA CARTRIDGE PAPER.*

Certain sizes of this paper are to measure in thickness not less than .005 nor more than .0055 of an inch and to weigh not more nor less than 75 pounds to a ream of 480 sheets 24 x 36. Other sizes of this paper to measure in thickness not less than .0045 nor more than .005 of an inch and to weigh not more nor less than 61 pounds to a ream of 480 sheets 24 x 36, with a five (5) per cent allowance either way.

It is necessary, however, that the manufacturers confine themselves to the thickness allowed between .005 and .0055 on the 75 pound paper, and between the .0045 and .005 on the 61 pound paper.

The roll paper is to be wound on straw board cores, the dimensions of which shall be 5 in. in diameter on inside and 6 in. in diameter on outside of core. The ends of all cores are to be plugged with tapering wooden plugs. The rolls to be not less than 24 in. in diameter nor more than 26 in., the 26 in. size being preferred, and to be in lengths as ordered. These lengths to be exact; the edges of the rolls to be cut absolutely smooth, enabling the paper to be used all the way to the core without any trouble. Splices in the rolls are to be made of what is known as the "dry splice" properly flagged. Rolls to be paid for gross weight, including wrappers, cores and plugs. Cores and plugs to be returned and credit allowed at price charged for this paper, f.o.b. mill.

The diagonal cut sheets are to be cut accurately and to the exact sizes given, and to be paid for gross weight, including wrappers and twine. Tare on cut sheets, however, not to exceed one (1) per cent.

Sellers are to be liable for excess freight on shipments of less than manimum carloads or unless the exact quantity to be shipped in the case is specified by the purchaser.

It is further agreed that shipments of paper will be made at all times within two weeks after receipt of order.

This agreement is subject to the usual clauses covering fires, strikes, delays in carrier, or any other unavoidable accident, to apply equally to both parties.

The purchaser reserves the right to reject any and all paper which does not come fully up to the above specifications.

This contract is also subject to change of specification by the Railroad Commission.

Roll Paper.

Width of Roll.	Thickness of Paper.
20 in.	.005 in. to .0055 in.
17 in.	.0045 in. to .005 in.

Any widths over 20 in. to take same thickness of paper.

Diagonal Cut Shell Paper.

The following shows the shape of Diagonal cut paper:



The grain of paper must run from A. to C.

Thickness of diagonal cut paper to be .0045 in. to .005 in. or .005 in. to .0055 in., which thickness will be specified at the time purchaser's orders are sent to the seller.

*These specifications were received in the course of ordinary correspondence with the Pulp & Paper Magazine, and permission has kindly been given to publish them. Any mill interested in the matter will be put in touch with our correspondent.

REVIEW OF RECENT LITERATURE

K-0. Insulation materials for electricity. Bultemann Wochenbl. Papierfabr., **49,** 964-5, Chem. Zentr., 1918, II 322. A summarized review of the manufacture of insulating materials from cellulose or paper, cotton, and linen.—J. S.

K-24, L-4. Fibre container age. Pulp and Paper **17,** 909 (1919). Discusses the practability and advantages of shipping goods in fibre containers.—R.C.

L-4. Several experiences with glued paper sacks. W. Herzberg Mitt. Materialprufungsamt **36,** 230-7. A discussion of the uses to which paper sacks were put during the war as substitutes for textile products with particular reference to the behavior of the sacks under various applications. In practically every case the firms buying the sacks lost heavily as the manufactured articles never measured up to the sample sacks submitted, and it was pointed out that it was only through the exigencies of war that the paper sack was ever developed or used for for the particular purposes mentioned. In the case of sacks for common salt it was found that after railroad shipment up to 20 per cent of the sacks were damaged and that it was the paper that gave way and not the glued sections. Under conditions of high humidity, however, the glue lost its adhesiveness and caused considerable trouble. Especially for cement sacks it was necessary that the paper have a high bursting test and great resistance to folding.—J. S.

M-8. Centrifugal pumps and their uses. F. A. McLean, Canadian Ingersoll-Rand Co. Pulp and Paper **17,** 885, 907 (1919). History, types, general design, operation and application of centrifugal pumps.—R. C.

P-1. How to use danger signs in a paper mill. G. W. Dickson, Riordon Pulp and Paper Co. Pulp and Paper **17,** 927 (1919). Discusses types of danger signs and proper mode of displaying them.—R.C.

P-0. How to make safety meetings interesting. S. F. Shattuck, Kimberly-Clark Co. Pulp and Paper **17,** 932 (1919). Successful methods of handling the safety publicity program before large numbers. —R. C.

R-5. Pulpwood and woodpulp statistics for 1919. Paper, **24,** 1049-51, (1919). An analysis of the report of the Forest Service in co-operation with the Newsprint Service Bureau.—A.P.-C.

R-0. The supply of raw materials for the French paper industry. L. Vidal, Chimie et Industrie, 2 730-5 (1919). A review of the problems confronting the

paper industry of France, with particular reference to the supply of raw materials. Data on the use of various materials are given, together with a discussion of the available supply, both in France and in its colonial possessions.—J. S.

R-0. Paper money of the war. W. Herzberg Mitt. Materialprufungsamt, **36**, 237-40. A comparison of the old paper money with the new bills issued during the war as to physical properties.—J. S.

A GOOD PUBLISHER GONE

The pulp and paper industry, as well as the publishers of Canada, lost heavily in the death of Edward T. Slack, Managing Director of the Montreal Gazette. He was a most capable journalist and administrator and served faithfully, not only his own concern, but many a public cause. Since 1917 he has been President of the Canadian Press, Ltd. Canada's great co-operative news gathering agency. The fair-minded attitude of the Gazette throughout the newsprint controversy had Mr. Slack's approval and will not soon be forgotten. It will take more than one man to carry on the work he did.

FIRE IN EDDY MATCH FACTORY

Ottawa, February 17.—Fire, which broke out in the upper story of the E. B. Eddy match factory at the Chaudiere tonight at 7.30, caused damage, which will run into several thousands of dollars, and no little excitement amongst the three hundred girls employed in the factory, all of whom got out in safety.

The fire originated in what is known as the "box bins" on the top story, among some thousands of boxes stored there.

DAMIEN ROLLAND DIED AT 32.

Damien Rolland died last week after a short illness at the age of thirty-two. He was a son of the late Senator J. B. Rolland of the J. B. Rolland Sons Company, pulp and paper manufacturers, and a nephew of Mr. S. J. B. Rolland. The company also operates the Model Printing Plant, in which branch of the business the late Damien Rolland was especially engaged. He leaves a widow (nee Alice Laroque) two children; four sisters, and three brothers, Emile, Leon and Pierre, all members of the firm of J. B. Rolland and Sons.

ONE PUBLISHER'S BIG PAPER BILL

Cyrus K. Curtis's recent remark that each copy of the Saturday Evening Post costs 42 cents to "make" caused a sensation in the publishing trade, but I learn this remark was a slip of the tongue, says the Boston News Bureau. The cost of even the largest issue—which incidentally sells for a nickel--is not far from 20 cents.

With a circulation of about 2,225,000 weekly for the Saturday Evening Post, about 1,800,000 monthly for the Ladies Home Journal and something over 400,000 weekly for the Country Gentleman, the Curtis people will use, I hear between 110,000 and 150,000 tons of paper in 1920.

AND CANADA TOO.

If it will make England feel any better over the exchange situation she's welcome to take a look and see what Americans get right here at home for one of their own dollars.—Kansas City Star.

WOULD CARRY EMBARGOING TOO FAR.

Quebec, Feb. 14—An effort to get the Government to prohibit the exportation of unmanufactured pulpwood to other provinces or in the alternative to put a Royalty or duty on such export was made in the Legislature last night by Fabien Bugeaud, of Bonaventure, and supported by W. R. Macdonald of Pontiac. Hon. H. Mercier, Minister of Crown Lands, said that the matter was an important one and required careful study and a survey of the situation, after which the Government would take proper action to protect the interests of the province.

MUST REDUCE GOVERNMENT DEBT TO REDUCE PRICES.

The material changing of the present price level can only be effected by a reduction in the amount of unredeemable paper currency and of Government Bonds with which practically every nation is now afflicted, and in the volume of credit built up with these issues as a foundation. Reduction of Government debt and of currency is necessarily a slow and painful task, involving as it does a reduction of government liabilities by the establishment of an actual surplus of income over expenditure, and therefore necessitating the most rigid economy and heavy taxes.

The nation which takes the lead in this process will be back to a normal healthy condition a generation before those which delay and dally with the illusory hope that economic laws can be amended by Commerce Courts and Price Controllers.—Investment Items.

WAUSAU SULPHATE FIBRE CO. EXPANDING.

At the annual meeting of stockholders of the Wausau Sulphate Fibre Co., Mosinee, Mis., the recommendation of the Board was approved, to increase the capital stock from $3,000,000 to $3,500,000, the increase being $500,000 in preferred stock, which is in effect authorizing additional funds to the extent of about $850,000 as the present authorized $500,000 preferred stock has all been retired except about $150,000.

The company is acquiring about 50,000 acres of timberlands and is planning the further development of its water power as well as extensions to plant. The Board of Directors and officers were re-elected.

The delay that has held up the shipment of German dyes to the United States and to the Allies, as provided under the peace treaty, has been ended and sufficient dyes to supply the needs of American manufacturers, particularly in the textile industries, may be expected soon, according to a cablegram received recently by Dr. Charles H. Herty of the American Chemical Society from Dr. von Weinberg of the German dye cartel. These dyes, said Dr. Herty, will cover the acute shortage for the next six months, after which it is expected that American dye manufacturers will be in a position to produce dyes suitable to their needs.

The Quebec "Chronicle" joins in the growing feeling among newspapers that the continued interference of the Government with the newsprint industry is a mistake.

Abitibi, Limited, set up and broke two new records by the master performance of making 256 tons of newsprint in 24 hours without changing the speed of any of their four machines.

UNITED STATES NOTES

The first large consignment of newsprint paper to come to the United States from Swedish mills since the European War arrived last Friday in New York on the Swedish-American steamship Sonja. It was taken aboard at Gothenburg, and consisted of 3,000 rolls, weighing 1,475 tons. Representatives of Furness, Withy & Co., agents for the Sonja, were unable to say what disposition will be made of the consignment. It is generally understood, however, that the paper cargo of the Sonja is the first of many shipments that will be sent to help relieve the newsprint paper shortage in the United States.

The processes in use for the production of paper from sugar cane refuse, or bagasse, are described in an article by Clarence J. West, of Arthur D. Little, Inc., appearing in the initial number of The Technical Engineering News, Cambridge, Mass. Mr. West says that the operation of producing pulp from this material has been made commercially successful only recently. Paper making according to the process, involves two distinct operations; the first is largely chemical in nature and relates to the conversion of the raw material into pulp; the second is almost entirely mechanical and is concerned with the conversion of the pulp into paper. The pulp obtained through the process, writes Mr. West, may be utilized in the preparation of book and writing papers. It will probably find its greatest application, he believes, in admixture with rag, sulfite or soda fibres for the production of book and the cheaper grade writing papers. Bagasse has little value as wrapping and other papers where strength is the principal consideration.

In the opinion of experts of the Forest Service, United States Department of Agriculture, regeneration of the forests of the United States on a more productive basis is the most important measure for perpetuating the paper industry of the country. In the past, forests have been cut extravagantly and little provision made for future growth. In the future, operations should be conducted so as to secure an increasing reproduction of species available for lumber and pulp. Unless such reforms are quickly and widely adopted, the paper and pulp industry in the United States will be permanently crippled, Forest Service men believe.

Removal of tariffs on print paper costing less than 8 cents a pound was proposed to the Senate Finance Committee last week by Senator Curtis of Kansas, who offered an amendment to the dye tariff bill imposing a duty of 12 per cent on paper costing more than 8 cents a pound. Mr. Curtis said this plan would bring new paper supplies from Scandinavia into the country. Bills before the House to prohibit the exportation of print paper and to authorize the Federal Trade Commission to allocate and distribute the supply have been killed in committee, as there was no indication that they would lessen the paper shortage. The amount of print paper exported from the United States is negligible, and the Federal Trade Commission showed no willingness to undertake the difficult task of allocating the supply.

A reprint in a recent consular report of an article by Dr. Oskar Spohr, recounts the steps by which paper fibre was developed into wearable washable material. Dr. Spohr, who followed the growth of this industry in Germany, assures his readers that German paper clothing as produced today is not half bad. During the late war when the supply of woollens had given out and after various other substitutes had fallen far short of meeting all needs, it was decided that only wood pulp could be produced in sufficient quantity to cope with the huge textile demand.

T. A. Shorey, superintendent of the ground wood mill of the International Paper Co., at Orono, Me., has been promoted to the general superintendency of the company's mill at Solon where he will have a larger field of action.

PREDICTS PAPER MILL IN MONTANA

Missoula, Mont.—Conditions unusually favorable for the location, in northern Montana, a paper mill with an annual capacity of 1,300,000 cords of pulpwood per pear are described by R. P. McLaughlin, supervisor of the Blackfeet national forest, in a report covering investigations he has been conducting for several years.

The most likely location Mr. McLaughlin says is in a compact body of timber on the Flathead river just west of Glacier National park. He says this stand would afford 2,500,000 cords of pulpwood, easily accessible to government roads already built at a cost of $200,000 and handy to natural waterways, for cheap transportation to the mill. Natural power sites may be found on or adjacent to Flathead lake, it is declared, and railway transportation is close by.

The market for such a mill, the report states, would be found in the intermountain territory from Canadian border to the Gulf of Mexico. It is estimated the annual paper consumption of this region is 140,000 tons annually. Sufficient wood to run a mill with this capacity is available in the Flathead territory for 60 years operating or with rotation of cutting, it is declared, the yield will be found practically inexhaustible.

It is expected that bids for the purchase of government timber in this section, with a view to erection of a paper mill will be asked by the forest service in the near future.

NEW SECRETARY OF COST ASSOCIATION

The Cost Association of the Paper Industry announces the resignation of M. F. Peterson, as Secretary-Treasurer, January 31st, and the employment of Mr. J. M. Allen as Mr. Peterson's successor.

Mr. Peterson has gone to the United States Envelope Company with exceptionally good opportunities to grow with the work which he has so well begun. The Executive Committee, in appreciation of the work he can still do for the Association, elected him a member of the Committee on Co-operation as a representative of the Converters.

Mr. Allen, who has taken up the work exactly where Mr. Peterson dropped it, has recently received his discharge from the United States Army where he has been actively engaged in cost work, investigations, and the like, for the Ordinance Department. He has had extensive experience in the combined practice of law and accounting.

PULP AND PAPER NEWS

The death took place in Toronto of Richard Brown, 446 Jarvis Street, who died of pneumonia after a brief illness. Deceased was the president of Brown Brothers, wholesale stationers of this city, for the past sixty years. He was born in England 86 years ago and was one of the founders of the Toronto Paper Manufacturing Company. In the mercantile and church life of Toronto the late Mr. Brown was a prominent figure.

Plans for an inter-university Canadian conference of the newspaper editors and undergraduate administrators of all colleges and universities in the Dominion were discussed at a dinner in the Walker House, Toronto, of the Alpha Pi Chapter of Delta Epsilon honor journalistic fraternity, and the project will probably be carried out in the near future. If possible the fraternity intend also to arrange for "travelling" scholarships as a reward for special services on university publications.

With the object of making themselves independent of the paper mills, it is reported that the five Toronto dailies are contemplating the purchase of a mill and its operation for their own uses. Nothing definite has been done in the matter as yet but it is known that such an undertaking is in the air.

Allied Publishers, Limited, with a capital stock of $40.000 and headquarters in Toronto, has been granted a charter to conduct business as printers, publishers, stationers bookbinders, etc., and to take over from McAinsh & Co., Ltd., certain agencies for the sale and publications of books, periodicals and magazines. The incorporations of the company are D. T. McAinsh, publisher, Bruce T. Ripley, R. B. Howe, Roy Hickingbottom and V. McConnell, all of Toronto.

The death took place in Toronto last week of W. J. Bell, 43 Richmond Street, dealer in toilet, tissue and wrapping papers. Deceased was fifty years of age, and had been in poor health for a couple of years, death resulting from heart failure. Previous to starting in business for himself 22 years ago, he was in the service of Kilgour Brothers, manufacturers of paper bags and boxes. A widow and one child survive. Many members of the paper trade attended the funeral and sent floral offerings.

The second writing paper machine to be installed by the Howard Smith Paper Company is expected to be ready in a couple of weeks. It is 86 inches wide, the same width as the present machine and will be used exclusively for tub-sized and loft-dried paper. At the Cornwall mill good progress with the improvements is being made and the company have increased their production by some four or five tons per day. The program laid out will take about two years to complete. It is proposed to put the mill capacity up to fifty tons per day.

A. G. McIntyre of Bear River, N.S. who is president and general manager of Clarke Bros., Limited, was in Toronto this week, calling on friends in the trade. He was formerly newsprint expert with the American Newspaper Association and also a former secretary of the Canadian Pulp and Paper Association. His firm is erecting a kraft mill at Bear River and it is expected it will be in operation next fall. It will have an output of from 30 to 40 tons per day.

John G. Sutherland, of Dayton, Ohio, sales manager of the Spanish River Pulp and Paper Mills, Limited, was a visitor to Toronto this week. The company in all its plants, now has an output of over 600 tons of paper daily. A third machine is being built for Sturgeon Falls by Pusey and Jones Company, 158 inches wide. This will be in operation early this fall and will increase the production of the mill to 120 tons.

S. B. Beare, Limited, 54 Wolseley Street, Toronto, manufacturers of stationery, have bought a site at the corner of Wolseley and Ryerson streets, and will erect thereon a large factory and warehouse.

The Valleyfield Coated Paper Mills Limited, of Valleyfield, Que., which were recently granted a charter with a capital stock of $300,000 and will take over the plant and business of the National Paper Company of Valleyfield, intend doubling the capacity of the mill, which turns out coated paper. The present output is about ten tons a day. S. F. Duncan and I. H. Weldon of Toronto are directors of the company.

The many friends in the paper trade in Toronto of John B. Piper, sales manager of the Provincial Paper Mills sympathise with him in the death of his youngest sister, which took place as a result of an attack of pneumonia.

Richard Uglow, who has been in the stationery and paper business in Kingston for the past 23 years, died on February 10th from heart trouble. Deceased was a leading merchant in Eastern Ontario for many years.

The new plant of the Canadian Vegetable Parchment Company at St. Catherines is now in operation and is turning out a fine quality of vegetable parchment paper. Ground for the construction of the new building was broken in August last and the first sheet was turned out on February 12th.

Considerable damage was done the plant of the Curtis Publishing Company in Toronto by fire. The estimated damage is $75,000.

George E. Challes is back to Toronto from an extended trip through Michigan, Ohio and several other states and reports the demand for bleached sulphite as being very brisk. Practically all the paper mills across the line are in the same position as those in Canada and are running behind with their orders.

A charter has been granted the Trent Paper Company, Limited, with a capital stock of $1,000,000 and head office in Toronto. The company is authorized to engage in a general business of wood, pulp and paper and to deal in timber and merchandizing. Among the incorporators are Stanley Dodd Pearce, contractor of New York, Kenneth S. Murton and William R. Smyth of Toronto.

The Bancroft Timber Company Limited, of Toronto has been granted incorporation by provincial license with power to deal in timber, pulpwood, lumber and wood products. S. D. Pearce of New York and K. S. Murton and W. R. Smyth of Toronto are among the incorporators.

James McFarlane, a member of the New York Local Typographical Union, is being supported by the Toronto Typographical Union as a candidate for the International presidency. Toronto printers have decided, owing to the increased cost of living to make a demand for an increase in wages. Job printers are now getting $32 a week.

The Canadian Spinner had to fall back on her cargo for fuel last month, when stalled in the reef of the Gulf of St. Lawrence, for three days before her rescue by the Montcalm, the crew were burning the wood and paper cargo to keep up steam.

The head office of the Toronto Paper Manufacturing Company, of Cornwall Ont., which is now a part of the Howard Smith Paper Mills, Limited, is 138 McGill Street, Montreal.

Mr. I. Wener, who is employed by the Canada Export Paper Co., was one of the prize winners at the ski jumping contest at Saranac Lake recently. Mr. Wener had charge of the registration desk at the annual meeting of the Technical Section.

MORE LUMBER CUT IN WEST

Edmonton, Alta.—The province's lumber production this winter and spring it is expected will be considerably greater than any former season. Lumber companies plan cutting much larger areas, and increasing milling facilities to meet the heavy demand for dressed lumber.

Big River, Sask.—The timber cut in this district will probably exceed thirty million board feet this year, according to the statement of the head of the West Lumber and Supply Company. The season has, so far, been a good one, and operations carried on steadily.

THE LESSON OF FOREST DEPLETION

We have it upon the authority of an American contemporary that five thousand sawmills in the Southern States will have to discontinue operations within the next three years owing to the decline in the supply of southern pitch pine; and this statement is confirmed by Colonel Henry Graves, Chief Forester of the United States Forest Service. That department has proposed a very wide and extensive project for the conservation of remaining forest lands and for ensuring as far as possible a future supply of timber resources. There, as elsewhere, however, the great obstacle in the way of the practical carrying out of any such policy is public apathy. The idea has been persistently instilled into the minds of the American people, as also into those of Canadians as well, that their forests could never be exhausted. This mischievous work takes time to undo, and requires an active educational propaganda. We are not in this province in any danger of exhausting our foreign wealth but those are false prophets who would have us believe that our forests are inexhaustible. We need enlightenment and education in this province on forestry questions as much as elsewhere, and for this reason we warmly welcome the work being done in this direction by the Forestry Branch of the provincial department of Lands and Forests, and by such agencies as the Canadian Forestry Association, of which Mr. Gerald Power is the capable president, and the Pulp and Paper Congress, which is meeting this week in Montreal and wish them all every success in their most patriotic and most deserving efforts.—Quebec Telegraph.

CAPITAL IN LUMBERING APPROACHES THAT IN PULP AND PAPER.

According to a preliminary report on the lumber industry of Canada issued by the Dominion Bureau of Statistics, the total capital invested at the end of 1918 was $180,017,178, of which logging and timber plants totalled $36,516,701, mill equipment $53,791,373. The total number of operating plants was 3,086. The number of persons employed on salaries was 3,550 and the total salaries paid were $4,911,735.

The average number of persons working for wages totalled 56,816, of whom 26,735 were employed in operations in the woods and 30,080 in the mills. The total amount paid in wages was $44,490,917.

By provinces the value of the lumber cut was as follows: Alberta, $473,694; British Columbia, $27,992,976; Manitoba, $1,240,052; New Brunswick, $12,189,312; Nova Scotia, $4,089,039; Ontario, $33,165,137; Prince Edward Island, $136,336; Quebec, $20,916,604; Saskatchewan, $2,122,307; Yukon, $10,315.

WHO WILL BE NEXT?

On Thursday, December 18, Jack, an old and valuable employe of this company, was seriously injured by being hit on the head by a piece of coal. weighing 17 pounds.

Jack's foreman had warned him to be careful on account of the cars of coal above him and not 15 minutes before the accident a brother employe called his attention to the danger of falling coal.

Now, Jack is a man that has knocked about this part of the old world considerable, spending a good part of the time in the woods and on the drive, a good deal of the time as a foreman and of course, has taken many chances and gotten by with it. He happened to get it this time.

Everybody feels very sorry as Jack is well known and very popular. Who knows who will be next? Many of us have taken all kinds of chances, and are still at it, but it will come just as true as God made little apples.

There is only one way to prevent it, and that is to play the game safe, take absolutely no chances, it doesn't pay, it isn't necessary and you are warned not to do it.

Men, why be next? Why bring pain, sorrow and perhaps misery to you and your dear ones?

It pays to practice and boost "Safety First."—The Mill.

ON THE JOB

Safety isn't like a perpetual motion machine that only requires to be put together and then will go on forever. You've got to be on the job with Safety every minute.—Exchange.

At Windham, Me., the pulp mill and several adjoining buildings of E. I. Du Pont de Nemour & Co., were destroyed when the pulp grinders ignited wood powder. The damage was $200,000.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, February 16.—There is still a shortage in most lines of paper, and production has been made increasingly difficult by reason of the "flu" epidemic, which, although not as serious as last year, has greatly hampered the mills by reason of the loss of labor. A considerable gap has been created through the absence of men from their posts, which will take some time to fill up. Recent storms have also delayed shipments from the mills, and a case is on record where one Toronto wholesaler waited just one week for a shipment which, although not as serious as last year, has greatly heavy snow storm having blocked the line and caused the delay. These conditions rather seriously affected the tonnage of paper required to meet the clamoring demand of wholesalers, retailers and consumers for nearly all lines of manufacture. The newsprint production fell off considerably for a few days owing to the break in the dam at the plant of the Abitibi Pulp & Paper Co., at Iroquois Falls, the output being affected to the extent of about fifty per cent. Under ordinary circumstances the partial closing of one mill would not have made any material difference, but with all the newsprint stocks very low and with the consumers living from hand-to-mouth in this commodity, it is a serious proposition, and one which would soon compel a number of papers to either cease publication or curtail in size. Repairs are already under way, and officials of the company state that by the middle of the week full production would probably be reached.

Owing to the constantly increasing demand for, and scarcity of, sulphite pulp and rags, it is being freely predicted that there will be a further stiffening of prices on high grade book and writing papers. The cheaper lines went up last week half a cent and No. 3 book that was selling at $8.25 is now quoted at $8.75 mill to wholesaler.

The past few days have seen an advance in tissue paper napkins from 10c for the cheaper lines to 25c on the bleached and more costly lines. Prices now run from 70c to $1.75. Toilet and tissue mills are getting further behind in their deliveries and the coated mills have the same story to relate in respect to big demand and shortage. Practically all the coated paper plants are either increasing their mechanical equipment or adding to their buildings, but progress is necessarily slow, owing to the severe weather and the difficulty in getting delivery of equipment for interior work.

As indicating the tendency of Canadian paper manufacturers to reach after new lines and to specialize in manufacture, it is worthy of note that the first sheet of vegetable parchment ever made in Canada was turned out during the past week by the Canadian Vegetable Parchment Company in their new mill at St. Catharines, and it is said that the future presents great possibilities for this line of manufacture in Canada. Other specialty lines have been evolved from the many suggestions developed since the close of the war, and a number of the mills have begun to specialize with promising results.

The paper box factories are still away behind in their deliveries and report difficulty in securing help, especially female labor. There has been a great development in the box board industry of late, owing to the great demand for containers, chiefly by the confectionery dealers and the box board industry and the wholesale confectionery trade are both suffering from lack of girl help.

Groundwood pulp is scarce and is high in price, selling for from $55 up at the mill. There is an active demand for bleached sulphite and Canadian concerns are well sold up, the price being $120 f.o.b. mill. Easy bleaching sulphite pulp is bringing from $90 to $95. The available quantity of bleached sulphite is being increased at the present time by the conversion of the 100 tons daily output of the Fraser Company's mills at Edmunston, N.B., from an unbleached to a bleached basis and the new Kipawa plant of the Riordon Pulp and Paper Company, which, since starting a few weeks ago, has been turning out unbleached sulphite, will, beginning March 1, be producing bleached at the rate of 100 tons a day. Before the end of the year it is expected that this output will be doubled. There is a great scarcity of soda pulp at the present time, and there is a steady demand for kraft pulp at from $87.50 to $90.00 per ton.

As to the future in the paper trade there is some difference of opinion among jobbers and certain paper concerns. Some, believing that prices will go still further, are placing large orders with the manufacturers.

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At least one Toronto wholesaler does not share in that belief that the present unstable state of the market will continue. His belief is that it would be well for customers to buy all that they require for the next two or three months, and not to engage in any speculative buying, as conditions are in such an abnormal state that the market is largely a bull one. In his opinion a more solid and stable condition of things will be prevailing in the next few months.

Reports received in Toronto are that the cut of pulpwood in Northern Ontario will be considerably larger than during any season in the past two or three years. This is owing to the advancing quotations on pulpwood in sympathy with the upward trend of prices for lumber and other forest products. Wood of any kind, owing to the abnormal demand, is increasing in value right along. Messrs. Thompson & Hyland, of Toronto, who handle large quantities of pulpwood from the various districts south of North Bay, expect to handle 20,000 cords of pulpwood during the present season and have buyers out at all the principal producing points. Spruce pulpwood in the rough is now averaging about $10.00 per cord f.o.b. cars at points south of North Bay and from $7.50 to $9.00 at points north of that point, the price being largely governed by freight rates. About 40 per cent of the wood south of North Bay is peeled and peeled spruce and balsam are bringing about $14.00 f.o.b. cars, while peeled poplar is commanding $10.00. There is quite a call for poplars from mills on the other side of the line and the wood is being used with good results. In connection with the operations in the line of pulpwood, it is stated that a large number of railway ties are being taken out, as well as large quantities of poles.

A report from Bingham, Maine, says that rough pulpwood at the cars is worth $12 to $17, while the Pulp and Paper Magazine has been advised of a Nova Scotia mill buying pulpwood in Maine at less than prices on the Canadian side of the line.

In the rag and paper stock line, the demand for all grades of cotton continues. The mills are buying freely of most lines and prices remain firm.

There are no changes this week in rag and paper stock prices.

NEW YORK MARKETS

New York, February 14. — Paper markets in the States are strong to an extreme. Buyers continue to look about in various directions in an anxious effort to cover their requirements and a large part of the demand remains unfilled. Manufacturers and jobbers say that it is well nigh impossible to satisfy the wants of consumers under prevailing circumstances. The production is not capable of doing so, with the result that some buyers must fail to get all the paper that they desire, thus creating an inquiry of a pressing character.

A new factor has acted further to handicap mills during the past few days. With railroads throughout the Eastern section of the country in a congested condition because of heavy snowfalls, impeding traffic, the movement of commodities of all varieties has been slowed up, and paper manufacturers in some cases have been obliged to close down their plants temporarily because of a lack of coal. This condition has especially affected mills in sections adjacent to New York. Box board plants in New Jersey, Connecticut and parts of New York State have been down altogether part of this week, while several are reported to have been closed for the entire week. Mills using oil as a fuel are as badly affected as are those burning coal, for shipments of oil have been held up for such lengths of time that stocks at consuming plants have been pretty nearly depleted in most cases and totally exhausted in some instances.

The loss of production from the fuel shortage has made for an even tighter situation in paper supplies. Manufacturers are practically ignoring inquiries from other than regular customers, while a good many of the latter are not obtaining anywhere near the amounts of paper that they ask for. Newsprint is in a very strong market position. Sales of standard roll news to the transient trade have been reported at as high as 10.50 cents per pound, establishing new high price levels for this kind of paper. Publishers show willingness to meet almost any figure asked so long as they can secure deliveries. Under present conditions, it is more profitable for newspaper publishers to grant high prices for paper, and print, the bulk of advertising offered them, than it is for them to fail to get paper and not carry the advertising. Of course, if publishers had to pay the ruling prices on spot shipments of newsprint for all the paper they consume, it would scarcely profit them to print the large editions that they do, but it must be remembered that the bulk of their supply is being obtained at a contract price basis, so that they can well afford to pay high prices for the small percentage of paper which they require to augment contract supplies.

Book papers rule firm and available supplies are equally as limited as newsprint. Mills with only a very few exceptions are sold ahead for months and are out of the market as sellers. Publishers who are looking for additional amounts of book paper consequently are finding it a most difficult matter to locate them. Prices are strong and are being made a secondary consideration by buyers to being assured of deliveries, which means that sellers having paper to offer for shipment within a reasonable stipulated period can obtain almost any figures wanted.

Fine papers are moving in concerted fashion and at firm quotations. There is also a very active demand for wrappings, tissues and covers, and producers are shipping out these papers as quickly as they become ready, and are encountering a demand which they experience trouble in satisfying. The board market is daily hardening. Mills are sold up for months, and whenever any of them discover they have a surplus of a few tons to offer, there is literally a scramble among consumers to get orders placed. It appears safe to say that from twenty to thirty per cent more board could be readily marketed than is now being manufactured by mills in this country. Quotations on plain chip board range around $85 per ton and on news board around $90.

GROUND WOOD.—With manufacturing conditions anything but favorable, and with newsprint, board and other mills actively seeking supplies, ground wood is in a strong market position, and prices are steadily hardening. Business has been reported done this week in prime spruce pulp, freshly ground, at $62.50 per ton f.o.b. grinding plants, and indications are that sizable tonnages could easily be sold at this basis were the pulp available. Grinders have little or nothing to offer to buyers, their current output being sold on contract and stored stocks having been well nigh exhausted, and

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Buenos Aires, Argentine.

Exporters of Pulp and Paper

transient buyers are having increasing difficulty in covering requirements.

CHEMICAL PULP. Transactions in chemical pulp have been reported establishing quotations on some grades on still higher levels. Domestic bleached sulphite of prime quality has been sold at 6.50 cents per pound at pulp mills, according to authoritative information, while easy bleaching sulphites and Mitscherlich sulphite have moved up a peg in price, business having been reported done in the former of domestic origin at better than 5 cents at mills and in the latter at 6 cents. Demand for soda pulp continues brisk and offerings are quickly absorbed at a price range of 5 to 5.25 cents a pound at mills for bleached soda. Newsprint sulphite is moving in a consistent way and at firm prices, spot lots freely fetching 3.75 cents at pulp mills. Advices from Scandinavia continue of a bearish character — from a buyer's point of view. Manufacturers in Sweden and Norway name high prices, prices which in numerous instances are beyond a parity with local market values, and there is but little effort being made by them to sell pulp in America. This appears strange in view of the existing position of foreign exchange, but the secret of the matter is that the Scandinavians are obtaining higher prices elsewhere than American buyers offer and therefore are diverting only a limited portion of their output to this market.

RAGS.—Rag stock of all kinds is under good inquiry and is selling at strong prices. Demand from some mill sources has eased off a trifle this week, this being due apparently to delays in railroad transportation which probably have caused consumers to hold off in buying, knowing that they could not expect to have the material delivered for some time, but this condition has been offset by the great difficulty dealers and packers have experienced in collecting fresh supplies and the resultant depletion of unsold stocks. Roofing rag prices have climbed a notch higher. Sales in the East have been recorded at a basis of around 3.75 cents per pound at shipping points for No. 1 packing, while advices have been received of transactions in the Middle West at as much as 4 cents. Blues are quotably firm and are moving in steady fashion at 5.25 to 5.50 cents for average quality packing of repacked thirds. Old whites are in pointed demand and readily sell for 11.50 to 12 cents per pound f.o.b. New York for No. 1 repacked whites. New cuttings are firmly quoted and are offered in limited quantities, this being largely on account of packers being unable to gather fresh accumulations because of the snow-blocked city streets. White shirt cuttings of No. 1 grade continue to be quoted at 19 to 19.50 cents a pound at shipping points.

PAPER STOCK.—Old paper of practically all descriptions is in good demand, although some board manufacturers have let up in their purchasing to an extent during the past few days because of their inability to operate on account of a lack of fuel. Shipments are going forward rather slowly too, because of the car shortage and difficulties in trucking stock from warehouses to railway terminals, but, on the whole ,demand has lost little of its snap, and sellers report a ready outlet for all the supply they can collect. News grades continue to lead the demand, and sales of folded newspapers at 1.90 to 2 cents a pound f.o.b. New York, of No. 1 over-issue news at 2.50 cents and of white news cuttings at 3.50 cents have been recorded. Old books and magazines are freely salable at around 3.40 cents New York, while shavings are under steady inquiry, with quotations ranging around 6.25 cents for No. 1 hard white and between 5.25 and 5.50 cents for No. 1 soft white shavings. Krafts and Manilas are priced at high levels and are sought in good volume by mills.

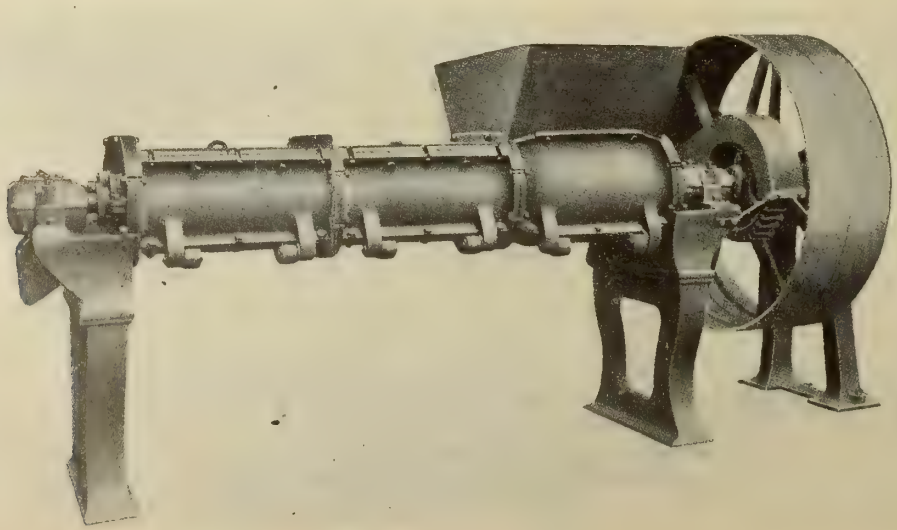
OLD ROPE & BAGGING.—Demand for old rope of papermaking quality is keen, and dealers and packers say they experience difficulty in supplying the wants of all their customers. Prices are firm at around 7 cents per pound, f.o.b. New York for No. 1 Manila rope and rumors have been heard of sales at a shade higher. Old bagging is sought in fair volume and No. 1 scrap is selling at 3.50 cents New York. Scrap gunny is quoted at 3.75 cents upward and meets with a moderate sale.

HOW THE PULPER WORKS

A machine that has been in use for some time in Europe and the United States, but which is very little known so far in Canada is the kneader or pulping machine now being manufactured under patent rights in Canada by the Waterous Engine Works Co., Limited.

This machine is designed for the purpose of breaking up dry, or nearly dry, chemical or mechanical pulp, and is successfully employed to work up frozen pulp. It can also be employed to work up waste paper and shavings, and in board mills on pulp and board waste.

It cuts materially the time required by the stock in the beating engine, and in board mills, the installation





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of this pulper permits of the beating engines being entirely dispensed with.

This pulper is made in three sizes: The small pattern pulper made entirely of brass for fine paper mills; the two section pattern used for working up mechanical and chemical pulp, and the three section pattern which naturally has a much more powerful action, is used for waste paper.

The pulper consists of a cast iron cylinder, one section of which is provided with the feed spout, and the remaining sections with a hinged lid to facilitate cleaning when necessary. On the inside walls of this cylinder are cast ribs. Two shafts carrying cast steel worm wings work in the cylinder in opposite directions and at different speeds. These shafts run in ring-oiling boxes supported by cast iron stands.

The sprinkler pipes and a spray arrangement are supplied to wet the material that is to be worked up.

The material is fed into the feeding spout usually without previous moistening—the material being dampened as it is fed in. With heavily sized, coated or glazed paper it is preferable to wet it with hot water. This can be done by turning a jet of steam into the water supplied by the sprinklers.

Immediately on entering the machine, the material comes into contact with the worm wings on the shaft, which, in conjunction with the ribs on the inner walls of the cylinder, rub, disintegrate, and tear the stuff in its passages to the outlet.

The material leaves the pulper 25 per cent dry, apparently a powder, but with the fibres entirely uninjured.

BULLETIN ON BAGASSE

The Experiment Station of the Hawaiian Sugar Planters Association has issued a bulletin (No. 45) published at Honolulu on "The Paper Making Qualities of Hawaiian Bagassse," by Arthur D. Little, Inc. of Cambridge Mass. It contains a general survey of the question, a discussion of previous attempts to use bagasse as paper-making material, description of the principal paper making processes, discussion of the technique involved in handling Hawaiian bagasse with reference to the experimental results obtained, the commercial aspect of making paper in Hawaii from bagasse and the class of product which might be made, estimates of production and costs and tabulation of experimental data. The report followed the successful design and construction of a mill in Hawaii now in operation making a soft paper felt from bagasse which is used as protection against weeds in the sugar cane fields under the Eckert patents. By this means some 50 to 70 per cent of the labor costs are avoided, and the yield is increased. The sharp, stiff cane sprouts break through the felt while the soft-topped weeds curl up and die.

It might be worth while of an astute trustworthy employer to advertise that he proposes when possible to reduce his selling price to maintain sales and that he considers it a part of his duty to provide permanent work for his men through his own ability to dispose of their output. It can be done and the employer who cannot do it is not an entirely capable manager.—Sphinx Talks.

Determination reduces hard work to nothing; procrastination makes hard work out of nothing.

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3— 75 H.P.	3 "	900 R.P.M.	4— 50 H.P.	900	R.P.M.
1— 50 H.P.	3 "	600 R.P.M.	2— 35 H.P.	1200	R.P.M.
2— 50 H.P.	3 "	900 R.P.M.	2— 30 H.P.	1200	R.P.M.
2— 40 H.P.	3 "	1200 R.P.M.	3— 25 H.P.	1200	R.P.M.
3— 35 H.P.	3 "	1200 R.P.M.	3— 20 H.P.	900	R.P.M.
4— 35 H.P.	3 "	900 R.P.M.	1— 20 H.P.	1200	R.P.M.
5— 30 H.P.	3 "	1200 R.P.M.	2— 10 H.P.	1200	R.P.M.
1— 30 H.P.	3 "	900 R.P.M.	5—7½ H.P.	1200	R.P.M.
4— 25 H.P.	3 "	900 R.P.M.	10— 5 H.P.	1200	R.P.M.
2— 25 H.P.	3 "	1200 R.P.M.	1— 3 H.P.	1800	R.P.M.
3— 25 H.P.	2 "	720 R.P.M.	Single Phase 60 Cycles 110 Volts.		
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2— 20 H.P.	3 "	900 R.P.M.	3—1/8 H.P.	1750	R.P.M.
2— 15 H.P.	3 "	1200 R.P.M.	5—1/6 H.P.	1750	R.P.M.
3— 15 H.P.	2 "	720 R.P.M.	6— ¼ H.P.	1750	R.P.M.
10— 10 H.P.	2 "	720 R.P.M.	10— ½ H.P.	1750	R.P.M.
3— 10 H.P.	3 "	900 R.P.M.	15— 1 H.P.	1750	R.P.M.
15— 5 H.P.	3 "	1200 R.P.M.	1— 2 H.P.	1800	R.P.M.
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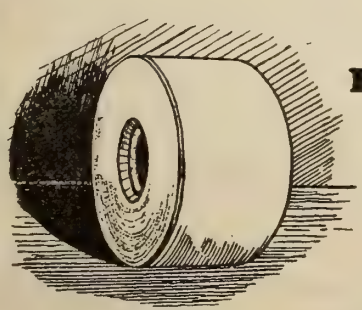
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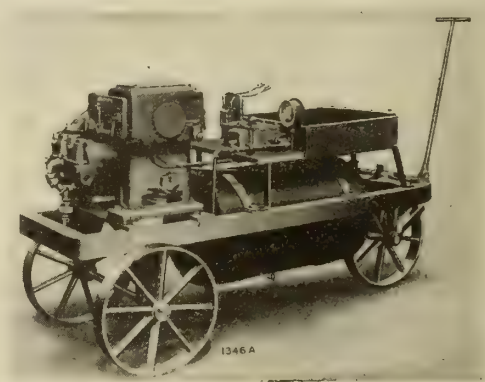
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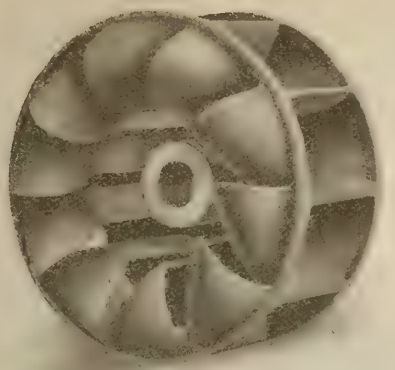
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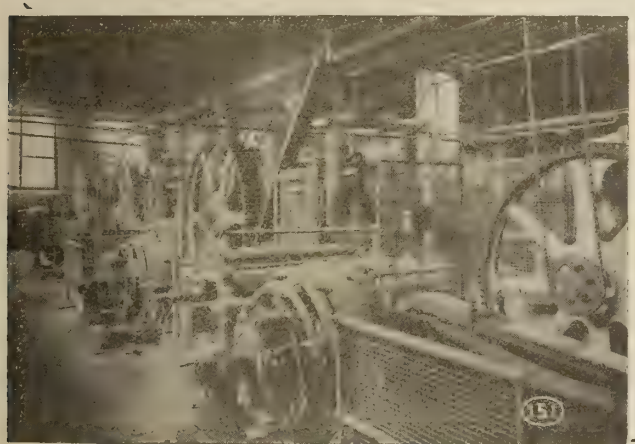
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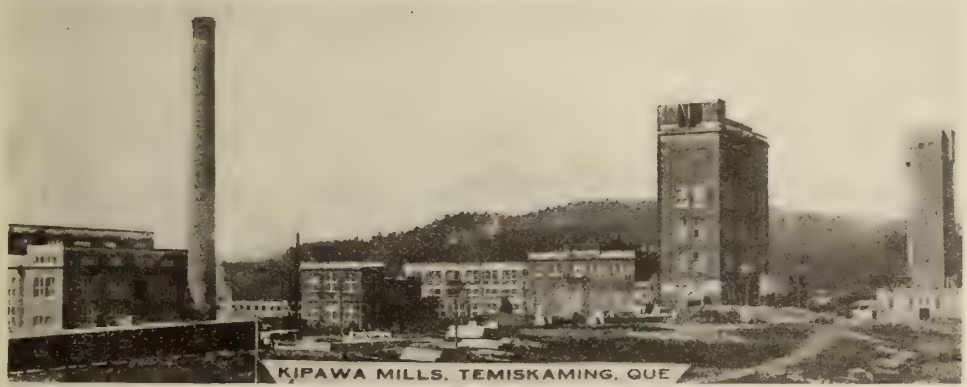
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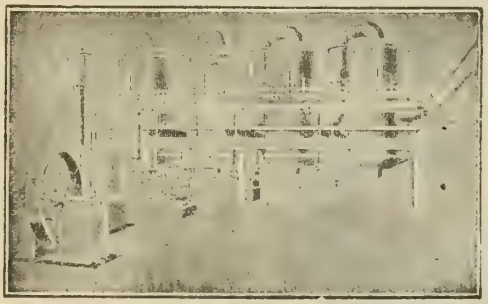
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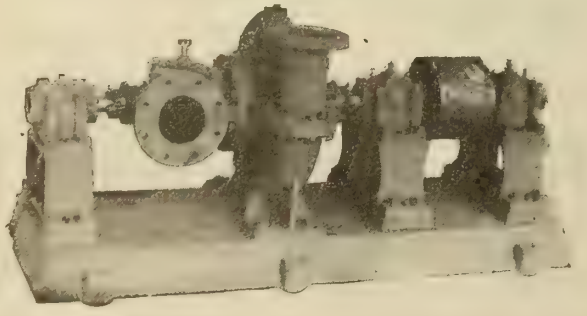
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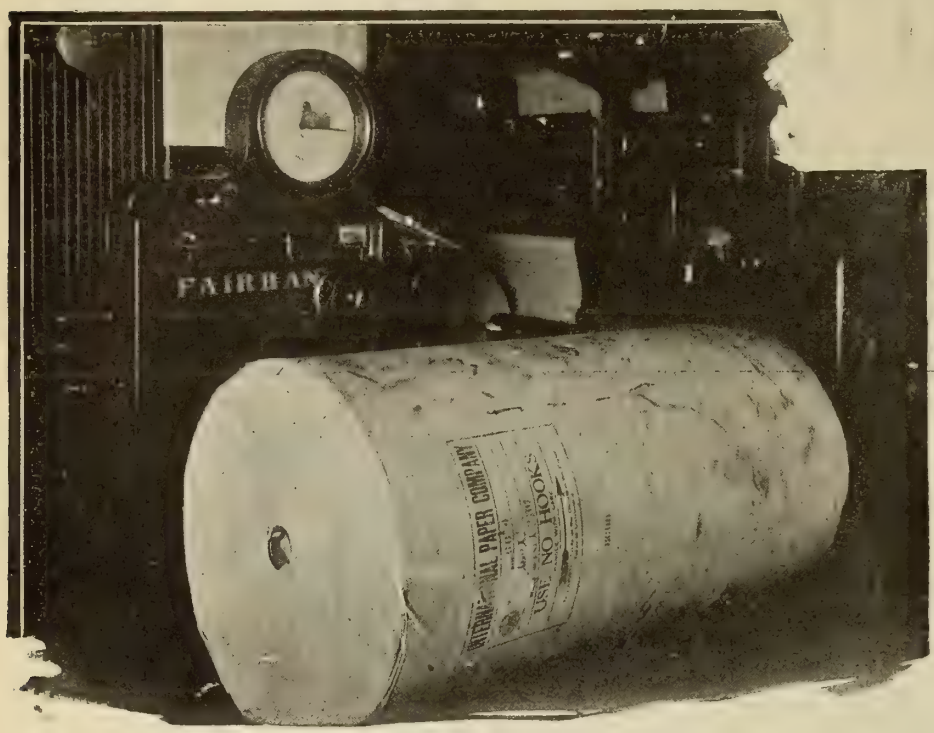
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J. NEWELL STEPHENSON, M.S., Editor.

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EDITORIAL

WHAT SHALL WE DO WITH GRANDMA?

A family brought up without a Grandmother in the house has missed something which cannot in any way be replaced. There are so many things which Grandma can do because she has the time and has had so much experience which no one can do quite so well. There are many fussy little jobs and odds and ends of things that are just naturally left for Grandma to take care of.

The paper industry is much like this in having a number of mills which along side of the more recent bustling, up-to-date affairs appear rather small and old-fashioned. In a sense it is really fortunate that this is so, fortunate both for the industry and for those who depend upon the product of the paper mill for their own raw material. There are a number of grades of paper that require particular care and some which are made in such small amounts that a large mill, with a big production and a large overhead, will not even consider. Most of these little mills are more or less family affairs. Some of them have been entirely paid for and most of them, we have no doubt, are setting aside a sufficient sinking fund so that necessary replacements and improvements can be made at any time without serious financial burden. There is no large number of stock holders clamoring for dividends to be considered, and there is no need for making a big splurge in order to get attention on some stock exchange. Such a mill can go comfortably along, assured that it is filling a need in the industry and is prepared to render just the service that somebody wants by manufacturing a product exactly as it is wanted as to material, finish and delivery. There are many of these odd jobs that somebody has to look out for and any talk of rejuvenating, remarking or discarding the mill that can do them seems to us pure nonsense. There are mills both in Canada and the United States that are situated several miles from the railway on a little stream of water which insures cleanliness of product and perhaps some of the power necessary to drive the mill, where they cut their own wood for fuel or buy it from the neighboring farmer and to which they must haul their raw material and take away their product by team or perhaps by motor. These mills have been operating successfully in some cases for two generations or more and they will continue to do so.

The time has not yet come to put Grandma on the shelf. Let her stay with the family, have a part in its affairs and feel that she is contributing her share to the general good, which she surely is.

MACHINERY BUILDERS SHOULD BE PAPER MAKERS.

In the discussion on the relative value of narrow and wide machines which took place at the annual meeting of the Technical Section, Mr. John Ball, manager of one of Canada's largest newsprint mills made the statement that paper machinery builders should keep a man in the paper mill to observe the performance of their equipment. If this good advice were followed there is no doubt but that remarkable improvements would be made in the construction of pulp and paper mill machinery. The statement is frequently made that no essential principle of the earliest paper machines has been improved upon and there have been few, if any, new principles introduced. We still have the same Fourdrinier wire with its flow box, slices, table rolls, suction boxes, and couch rolls, and the presses and dryers which are now all practically one hundred years old.

There have, to be sure, been a few changes in the resign of some of the castings and the size of the machinery. Some makers build a heart-shaped frame where others introduce the lines of the harp. The number and size of the dryers has been varied and there has been some improvements in the manner of removing the condensed water from inside the dryers. It is true that steam has taken the place of charcoal fires for drying the paper and in comparatively recent years operators of fast running machines have been raising the breast roll so as to obtain a more rapid flow of stock upon the wire. These may possibly be considered as new principles but they may also be looked on as developments in previous practice. The same thing may be said of the introduction of ball bearings and the evolution of the various types of variable speed drive.

There are probably very few machines operating with entire satisfaction that have not been more or less tinkered with by some skillful mechanic or millwright under the direction of a clever superintendent or machine tender. Slight defects in original design or construction are thus corrected and seldom, if ever, does the original designer of the machine hear about these improvements. The same may be said of the general design of a mill. There is hardly a mill that eventually operates with exactly the plan and layout of the engineer. Shafting has to be changed, machines are put in the wrong place for the economical or convenient movement of raw materials or finished goods, pipe lines are the wrong size and other possibilities for improvement from time to time come to

light and changes are made, greatly to the advantage of the operating department of the mill. The engineer who designed the mill seldom hears about these changes or why they were necessary, so when he hears that the mill is operating successfully he pats himself on the back and repeats his mistakes somewhereelse, giving a chance for another concern to make its own discoveries and improvements. This all simply emphasizes the value of the statement referred to as well as the observation that both the industry and the machinery builder would greatly profit by keeping in closer touch with the men who operate the machinery and manage the plant.

There is another phase of the matter which might be mentioned in this connection. About two years ago when the committee on Mechanical Standards for the Technical Section was formed, one of the principal fields of service indicated was the possibility for such a committee to co-operate with machinery builders in developing better safeguards on machines. The need for such guards and the design of such attachments as will facilitate rather than interfere with the operation of the machine is obviously a matter which cannot be entirely worked out in the drafting room of the machine shop. The matter of set screws alone occupies a considerable amount of space in the provisional report of this committee and shows how important is careful attention to even such little things in the design of paper mill machinery. The more successful as well as the safer operation of practically every machine in the plant could very likely be promoted by the following of the suggestion made, that machine designers keep an engineer in a progressive plant, or at least to keep in closer contact with them, A wide awake salesman could often render considerable assistance along the lines indicated but if a competent engineer were to learn first hand something of the difficulties of operating the machinery his firm manufactures there is no doubt but that we should have better machinery as well as safer equipment.

The establishment of paper making schools will also help to a degree in this matter if mechanical, civil and electrical engineers have the sense to avail themselves of an opportunity to take a few courses incidental to their regular curriculum so as to acquaint themselves with the principles and processes of pulp and paper manufacture. The conception seems to have gone abroad that paper making courses are only of value to chemical engineers, the student failing to realize that the paper or pulp mill is a mechanical proposition based on chemical principles operated almost entirely by mechanical means and controlled by chemical checks and analyses. There is need for more opportunities for our students both in vocational schools and in the universities to study the theories and the principal processes and equipment employed in the manufacture of Canada's most important industrial product.

COBWEBS.

The film theatre at Iroquois Falls announces that "The Miracle Man" is coming. The report on another page of this issue of an operating efficiency of 99.9 per cent for a paper machine and a production of 255½ tons per day for the mill would make it appear that the gentleman referred to had been there already.

Greater love hath no mill than this, that it contribute newsprint to relieve the burden of a fellow paper maker.

There seems to be a bit of tendency at Quebec to make conservation of pulpwood and propagation of pulp mills a jewel in the crown of one party and a bee in the bonnet of the other. Nothing like talk to keep this important matter before the people, especially when there is such a good basis for both congratulation and debate.

Last Friday a little town of our acquaintance in New Hampshire was disappointed in not having the village weekly paper. This journal is usually eight pages in size and has a circulation probably less than 5,000. There was no paper to print it on. Yet a single Boston daily in one month sent to news dealers in that town more than 2,000 copies in a month in excess of the number desired. At a low estimate of 20 pages for the daily, we have 2,000 times 20, or at least 40,000 pages wasted and 5,000 times 8, or 40,000 pages of print papers sorely needed. This is the kind of thing that arouses our deep sympathy for the small publisher, who for the most part is plodding along as best he can, and makes us thoroughly disgusted with the big daily that makes a howl for more paper to waste.

An editorial in the Hastings, Ont., "Star" says that paper prices since 1914 have increased 103 per cent, and that other materials, metal, ink, etc., have increased 109 per cent.

SWEDISH PULP MEN ARRIVE.

Two of the most prominent of the pulp and paper magnates arived in Montreal Tuesday to investigate into the conditions which obtain in the Canadian paper-making industry. They are Baron John Mannerheim and Christian Storjohann. They represet the Kramfors Sulphite Mills and the Franco Kraft Mills, also nine other Swedish pulp mills combined under the trading name of Billeruds Aktiebolaget.

Prior to the war these companies shipped huge quantities of paper to the United States and other world markets.

In Montreal the Swedish visitors will be the guests of the executive council of the Canadian Pulp and Paper Association. They were guests of honor Tuesday evening at the complimentary banquet in the St. James Club.

A Comparison of Wide and Narrow Machines

By R. A. McInnis, Abitibi Power and Paper Company
and John Ball, Price Brothers and company.

Mr. McInnis' Support to the Wide Machine.

I want to make it quite clear that in taking the part of the wide machines, I am doing so because we have in our mill, two small machines, and one large machine. Of course, we have another one which is in between, and in addition to that we are installing two other machines, of much larger width, but at the time these wide machines were bought, which was in nineteen hundred and sixteen, the question of speed had not been so thoroughly considered, and, therefore, neither I nor the Abitibi Company are going on record as to whether we oppose high speed or anything of that nature.

For the general information of all concerned, and so that you may be able to follow this matter a little better, I wish to state that our two small machines are what are known as two-roll machines, trimming 148 inches. The large machine which we have in operation trims 190 inches. Two other machines which we are installing are three-roll machines, and will trim 221 inches.

Difficulty in Making Comparisons.

It is pretty difficult to arrive at a true or proper conclusion in making comparisons, because of certain difficulties which we all know of. The first and greatest difficulty is in the local conditions of the different machines, which makes it difficult to draw any accurate conclusions from comparison of the data.

The next thing, I think, is the difficulty of securing reliable exchange of data with other mills.

The third difficulty which we usually encounter, is that the information used in basing arguments is seldom of sufficient scope. For instance, one man may say that he dries the paper with a certain moisture content. Those tests may be taken all at one time, and he bases his conclusions on that, whereas, any decision should be arrived at only by information **scientifically** and **continuously** collected.

The next greatest difficulty, and the one which you will find here this afternoon, is the fact that apparently very few practical operators and a very few technical operators agree upon the question of how to make paper. However, we have to eliminate that as far as we can and take what we have.

I have taken some notes on the question of construction, costs, etc., but as this is an operating proposition, I will deal with the operating problems entirely. Now, at Abitibi we operate one wide machine and the cost of operating that wide machine is no greater than that of operating our narrow machines. It was stated to me, only this morning, that the wide machines must necessarily cost more to operate than the narrow machines. That is not so, as borne out by the facts. In the first place, the labor cost alone represents a very considerable saving during the year. The next thing is the machine clothing on our wide machines. I will state it generally, although I have the figures — the machine clothing costs us less per ton than on the narrow machines. The repair for maintenance on our wide machines is less than for the machines smaller in size, but those figures are not necessarily representative, because of local conditions again, which will be found in different mills and on each machine. That is illustrated by the fact that on our two narrow machines of the same width, we find a variation in the comparison of data.

When we come to operating conditions we have never experienced any difficulty on our wide machines, that was different from that of the small machines. We have had no trouble with our wire rolls or with our press rolls, our presses our dryers, which some of you seem to think we should have. The efficiency of the operation of our wide machines is the same as that of our narrow machines. The number of breaks in the wide machines is no different (although it varies as in all machines) than with the narrow machines.

We have now covered in a general way the question of the cost of operating, but there are a few other questions to which I want to draw your attention.



R. A. McINNIS,
Manager of Abitibi, Ltd., and one of the principal speakers at the Annual Meeting of the Technical Section.

Two-roll vs. Three-roll Machines.

If we, today, were trying to decide what kind of a machine to build, the first thing we would be interested in would be the amount of product we would get. We are putting in two three-roll machines to get the product. Now, if a man comes along and says that he will put in three two-roll machines, his six rolls are equivalent to the six rolls of our two three-roll machines. Naturally the cost of installing his narrow machines must be greater than ours for instaling the wide machines. This is obvious. Furthermore, while it is not possible to get the exact cost of new machinery yet under normal conditions the cost per inch of wire on the new machines would be greater on the narrow machines than on the wide machines. That would not be a true comparison for a high-speed machine, because you would naturally expect to get a larger product from the extra speed.

It has also been stated to me that on the wide machines, and particularly on the wide machines which we have, that we cannot properly wind the rolls, that the wide rolls present some difficulties. I don't know why they should, and they do. We are making as

good a roll on our No. 1 Machine (which is our wide machine) as on the smaller machines, and as a matter of fact, the paper makers say that the rolls made on the No. 1 machine are better rolls than those made on the smaller machines, and that is a statement they have made right along.

Now, when you come down to the question of high-speed machines, the idea is to get an equivalent production from the high-speed machines as compared with the wide machines. I have talked this matter over with the representatives of two of the machine makers, and with paper mill engineers, and I have yet to find (although I have not talked with all of them) a paper mill engineer who will stand up and say that the two hundred and thirty -two inch machines cannot be made to run successfully. There have been a number of reasons given me why they would not run successfully, but these reasons were not given by engineers. I will not go into this point any further, as we can do that by discussion later on.

Troubles in Operating at High Speed.

But, when we deal with the problem of operating a high-speed machine compared with a wide machine, it seems to me that we have a new problem entirely to deal with. We have found in our machines, not only on the wide machines but on the smaller ones, that as we increase the speed materially, we also have to make certain alterations in our stock, and in fact, we had to keep our stock changes coming right along with our speed. Some of you will laugh when I say that because it may sound a little foolish to you, and it is a fact nevertheless, that there are men who maintain it is not necessary to do so, but I have found, when I questioned them very closely, that they have not made much of a study of that phase of it. To use a very abnormal illustration, if we were to run a machine at say three hundred feet per minute using a certain kind of stock, and then increased our speed to six hundred a minute, we would have to increase the uniformity of our stock to maintain a uniform quality, until at least the time it goes on the rolls. That is another thing that should be well understood, which I find many men doubting and for similar reasons we have investigated the matter very thoroughly. Now, as you get into a higher speed, you must have a more exact control of this factor. That can be controlled, but, of course, it makes a more difficult operation.

We have found by our experiments and by our records, that the primary cause of breaks on a paper machine running at a speed of six hundred to six hundred and seventy-five feet is due to the variation in the consistency of the stock after it leaves the grinder, and in the consistency of the whitewater if you are using it, always assuming of course that you are making the proper quality of groundwood.

A lot of interesting data can be compiled as to the best method of handling stock on paper machines, especially comparing the high-speed machine with the wide machine.

There are naturally a lot of difficulties in getting the necessary data to make these comparisons, and the data depends very largely on how the operator proposes to handle the stock.

In our mill we are handling our stock to the wire by the principle of hydraulics and on that principle we figure that in order to make the same product on a narrow machine that you can get from a wide machine you will have to run the narrow machine at a speed of not less than 1,000 feet a minute. When you reach this high speed your operating problems become exceedingly complex, but they are all possible of solution if your machine is designed and built for a specific method of operation, because the method of operation must be very closely determined before the machine can be built.

The method of operation for a high-speed machine depends primarily upon the consistency at which you desire to handle your stock. It has been argued that stock should be handled at possibly as low a consistency as 25 but in ordinary practice stock, we believe, is handled about .040 and assuming that stock will be handled at this consistency for a high-speed machine you would have to have a head of approximately 50 to 52 inches. At this point you can enter another problem and that is the effect of pitch of wire and the question of length of wire, but it is apparent that you would have to increase the length of your wire. The point that I want to make and emphasize is that when you get into that phase of the operation, it must be more mechanically perfect and more scientifically controlled at that point in order to bring the stock down to the end of the wire in such a way that you are going to be able to take it right along on the machine, withthe same number of breaks, or as few breaks as you had when running at a slower speed. That is why I said a few minutes ago that our experience is that the variations in the consistency of the stock is one of the primary causes of breaks. Of course, I want to say that I eliminate from this all the common breaks, such as those of deckle straps, and so on.

Next, we come to the question of the dryers. I presume that in drying the paper on high-speed machines you will either want to increase the size of the dryers, or change them in some other way to take care of the shorter time allowed for drying, but it means practically sixteen to eighteen more dryers, on the basis of a five-foot dryer. Of course the size of the dryers can be increased.

Some one asked me a few days ago if we had any difficulty about getting clothing for the wide machines such as the 232 inch. I need not go into details about that. The clothing of all kinds for our wide machines can be secured at the present time.

The Question of Machine Help.

Now, I think the next two things are of great importance in this question. On the wide machines running at a speed of approximately six hundred and fifty to six hundred and seventy-five feet, we can take our machine help, such as it is today, and transfer it from one machine to the other, the greater width making no difference in their ability to operate it, but I do not see how you can take the same papermakers with their training on slower machines and put them on high-speed machines where there are different operating conditions and problems. You will have to specially train that help as far as I can see, in order to operate a high-speed machine, for the reason that the high-speed machine must be mechanically operated from the time the stock goes on the wire until it comes off as a finished roll. That mechanical operation, must be such that it is continuous. That presents a difficulty which, no doubt, you have taken care of.

Now I do not want to take up any more of your time but I have a lot of data which I can use if I am asked for it, but I simply want to say that on the information that we have available there is no question at all but that the big machine, the wide machine, is a more profitable investment than the narrow machine, and on the basis of operation, as it is necessary today, the wide machine looks like a more feasible proposition than the high-speed machine. I am making that statement so that you can get after me.

Another thing to be emphasized is this: We all make too many statements which cannot be easily supported, and I have found in trying to get accurate information that statements are made regarding operations which are not borne out by the figures which are ultimately secured, and, therefore, I would suggest to the chairman that in the discussion where any statements are made, they should, as far as possible, be supported with some data that has been collected, and which is known to be reliable.

Mr. Ball Favors the Narrow Machine.

It gives me great pleasure, said Mr. Ball, to be able to address you on the subject of the difference between the successful running and cost per ton of product of a small sized paper machine, as compared with a large sized, although I have not had a great deal of time to prepare data. I have gotten some figures together, but not from a great many different mills. I have taken the 156 inch machines as compared with the 203 machine, running at practically the same speed, have taken the different horse-power, the difference in the cost of clothing and labor, and the difference in production, and find from the data I have at my disposal that the total earnings are much more in favor of the smaller machine than of the large. I cannot say this is true of all large machines as compared with small, as we are not in a position to check up the large machines as compared with the small machines at our mills. There may be in some of the larger mills, which have small and large machinery running side by side, cases where the large machines may produce more cheaply than the small, but these are figures to which I have not had access.

Builders Must Make Better Machines.

From my experience with the wider machines, press rolls, felt rolls, etc., must be kept in better shape, as far as repairs and being in line is concerned, than is the case with small machines, for, due to the extreme width, wrinkles will occur on the large machines more frequently than on the small ones; and the mechanical end of the building of the large machines, in my opinion, has not been carried to a point of perfection where it should be. In other words, the day has arrived when the machine builder has to build a much better machine mechanically than ever before. The day has gone by when the builder could go to work and mass together a few hundred tons of cast iron, and so forth, up to four or five hundred tons, and say, "Gentlemen, here is a paper machine. Hand us over a couple of hundred thousand dollars or so". That day has gone by. There is no reason why paper makers cannot handle paper successfully, or why they cannot handle a machine successfully, up to a thousand feet, if the builders will construct the machine.

I feel quite safe in making the statement at this time, gentlemen, that the machine builders have never to any extent kept themselves in close touch with the paper manufacturers, or the paper makers. They do, on receipt of enquiry for a new machine, take up with the Superintendent of the mill, and ask him if, in his opinion, he would like to have a few things done, which are minor details, and which do not, as a rule, take more than a day or two, but this is about the limit of time spent by the builders in the paper mills. I believe for the good of the trade, the paper-machine builder and the manufacturer, it would be to the builders' advantage to keep a man practically all of the time in some good mill, finding out the defects, and trying to overcome them. As it is now, the paper manufacturers have difficulties which they overcome in a way temporarily, never sure they will not have a recurrence, whereas, if there were a practical mechanical engineer, a machine builder, on the job, he could in all probability, overcome many difficulties which the paper manufacurers experience. In this connection, I may say, that we have but recently engaged a first-class mechanical engineer for this very purpose.



R. B. WOLF,
Official Representative of the Technical Association of the Pulp and Paper Industry.

I trust, gentlemen, you will treat these few remarks in regard to the paper-machine builders, not as criticisms, but as a suggestion which I feel would be beneficial to all. I am giving you this suggestion after several years experience at the business, and as I continue at it, I see more fully, and appreciate more fully the possibilities there are in the industry, and feel that we are only just beginning to do the things which are possible.

Now, I wish to present some comparative figures, which I have tried to be as fair as possible in arriving at, and which may be of some value, namely, on the cost of producing paper on the small, or rather, the medium machine, as compared with the large machine.

The following figures were taken from a 202 inch paper machine, average trim, 188 inches.

Clothing used for 12 months, November, 1918 to December, 1919 as follows:—

CLOTHING FOR 202" MACHINE.

	No. Used	Price	Tons per Article	Cost per Ton	Cost per Unit
		$	$	$	$
Wires,	25	1148.	834.6	1.37	0.853
Jackets,	24	371.	869.4	.42	3.72
1st Felts	52	232.	401.2	.58	2.18
2nd Felts,	35	352.	596.1	.59	2.26
3rd Felts,	25	425.	834.6	.50	2.28
I Sec. Top.	9	950.	2318.4	.41	1.03
1 Sec. Bot.	7	1430.	2980.8	.48	1.03
2 Sec. Top	5	709.	4173.2	.17	1.03
2 Sec. Bot.	5	1043.	4173.2	.25	1.03

Total cost for clothing per ton, ...$4.77
Cost per ton for wires, ...$1.37
Cost per ton for jackets and felts, ...$3.40
Pounds of unfinished paper per inch of trim, 695 actual.
Pounds of finished paper per inch of trim, 708 actual.
Pounds of unfinished paper per inch of trim, 701,-32 pound basis.
Pound of finished paper per inch of trim, 715—32 pound basis.

Percentage of deckle run, 98.92%. Average speed, 646 feet per minute.

Average pounds daily, 130, 560 pounds. Tons, 65.-28 daily.

65.28 tons for 308 days, is a yearly tonnage of 20,-106.64 tons.

The following figures are taken from Number 4 Machine at Kenogami.

Clothing used in the past ten months.

	No. Used	Price-	Tons per	Cost per Ton	Cost per Unit
		$	$	$	$
Wires,	15	828.	946.7	0.87	0.853
Jackets,	9	279.	1578.0	.17	3.72
Press Felts,					
1st.	26	186	546.2	.33	2.13
2nd.	24	249	591.7	.42	2.26
3rd.	17	264	835.3	.31	2.28
Dryer Felts,					
1st Sec. Top.	3	678	4734.0	.14	1.03
1st Sec. Bot.	3	748	4734.0	.16	1.03
2nd Sec. Top.	6	748	2367.0	.32	1.03
2nd Sec. Bot.	3	678	4734.0	.14.	1.03

Cost per ton for clothing $2.86
Cost per ton for wire $0.87
Cost per ton for jackets and felts $1.99

The following figures are for the calendar year 1919.

Pounds of unfinished paper per inch of trim, 743 actual.

Pounds of finished paper per inch of trim, 757 actual.

Pounds of unfinished paper per inch of trim, 741,-32 pound basis.

And the pounds of finished paper per inch of trim, 755,—on a 32 pound basis.

The percentage of deckle run is 99.80. The average speed is 637 feet per minute.

Average indicated horse power from engine cards, 286.3.

Average pounds of paper daily, 109, 649. 54.8 tons daily.

Average daily tonnage of 54.8 tons for 308 days, is 16,878.4 tons yearly.

Average lost time, 77 minutes.

Average running time, 22 hours and 43 minutes.

Now, comparing a 202 inch machine with an 156 inch machine, we find the following "tonnage basis":

	P.c. Eff.	P.c. Lost time.	P.c. Broke.	P.c. Culls.	P.c.Deckle lost.
202" Machine.	83.37	7.26	7.96	.24	1.07
156" Machine.	90.92	4.83	3.59	.42	.20

The 156 inch machine has a seven per cent more production than a 202 inch machine, per inch of trim.

From the aforementioned data, the cost of clothing per ton on a 202 inch machine is $4.77.

The cost per ton for clothing on a 156 inch machine, is $2.86

Or a saving on clothing of $1.91 per ton in favor of the 156 inch machine.....$1.91

A saving of labor per ton in favor of the 156 inch machine, or 15

On the basis of a boiler horse power, costing $150. per year, the cost per ton for driving 202 inch machine, $3.376, or 450 horsepower. The cost per ton for driving a 156 inch machine, is $2.546, or 286 horsepower or a saving of eighty-three cents per ton for driving the 156 inch machine .83

A total saving, of .. ..$2.89 in favor of the 156" machine.

To get comparison on a yearly tonnage basis, we may say:—

Four 202 inch machines,—total deckle 808 inches, yearly tonnage, 80,424 tons.

Five 156 inch machines—total deckle 780 inches, yearly tonnage, 84,390 tons.

On a basis of 84,390 tons at a saving of $2.89 per ton, for clothing, labor and driving power, the total is $243,887.00.

In addition to this we have the profit on the extra four thousand tons of paper produced.

Note must also be taken of the fact that loss in production, due to break downs will be less with the five machines, than with the four.

Now, gentlemen, I have just enough data to start something, and I wish to start something that will be of benefit to all of us.

The Discussion.

Replying to a question from Mr. Mason. Mr. Ball said, in regard to the comparative figures between the one hundred and fifty-six-inch and the two hundred and two-inch machines that he used somebody else's figures for the latter, and his for the former, because he had only the 156" machines.

Mr. McInnis started a laugh by remarking: One thing I want to say about Mr. Ball's comparisons of the 202 and the 156 inch machines is that it just proves my point about the local conditions. I think if Mr. Ball was operating the 202 inch machine and somebody else was operating the 156 inch machine he would have his figures reversed.

At this point Mr. John Stadler resigned his seat as chairman, and Mr. Shipman, the newly elected chairman, took the chair. Mr. Stadler joined the discussion as follows: Mr. McInnis, before starting on his discussion, said that he wants to have statements made from facts. He also said that the local conditions are an essential factor, and therefore, we take these two

factors together, tnd so taking them, I don't think that the 202 inch machine that is installed in our mills, if taken as a basis for comparison, would be fair either to the builder or to the operator of the machines. This machine was installed in a building at the request of the parties who furnished the money, and the engineers who actually supervised their installation and made the drawings recommended that we do not utilize such a building, therefore, the machine in question, with which I am connected, does not represent a machine of 202 inch width, such as I would personally design, or even install in a building, or call for its installation.

This machine was built in what we might call a condensed form. It is far too short for its size, and a good many parts of the machine have been built contrary to what we knew was, at the time, good operating practice, hence the machine itself is what I call not representative of the type that such a machine should be, but it illustrates one point very forcibly, and that is, that the financiers should mind their own business, and the engineers should insist in not allowing any of the financiers to butt into their business.

Point two: statements and statistics. Mr. Ball has given us some figures of production showing a seven percent increase from one machine over the other. Are the figures of production taken on identically the same basis?

Mr. Ball stated that, as far as available, they are practically the same within three or four feet per minute, and Mr. Stadler continued: It is very easy to run up the efficiency in order to make a good showing but there are a good many factors by which you could increase the efficiency a few points, if you want to stretch your imaginations and figures a little at times, and the efficiency figures which you have are eighty-three percent, as apparently representing the wide machine. I cannot tell you the policy of our organization is not to show the exact figures, but we want to have figures which are representative, and we would rather have them such as to preclude any reflection being cast upon the organization, so we want to be sure that we have conservative figures. It would be an easy matter to speed up the machines and use a little lower figure, and there are a good many other factors which could be introduced, but we will let the efficiency stand as it is.

I told you at the beginning that the machine itself is not representative of what the design should be, and I can tell you standing right here, that I would hesitate to have two machines side by side, one of, say, 164 inches, and the other of 202 inches width, provided these two machines are built the way they should be, and there would be absolutely no difference in efficiency, as far as the width of the machines goes.

Then there is the human element of local conditions which has been clearly outlined. As far as width itself, I don't think that you will gain anything, or that there will be anything against the wide machine as compared with the narrow one, in regard to operation.

The next thing is the question of clothing. Mr. Ball gave you some figures, a financial summary, to the extent of $2.89 in favor of the 156 inch machine. I do not think that that figure, if compared over last year only, would be fair on a comparative basis, for the simple reason that we have equipment in stock which was supplied, some of it, at a time when material was fairly poor, a half-way-during-the-war period. Everybody had to stock up at that time in order to carry on operations. On some of our smaller machines we had certain supplies, especially wires, on hand, which were supplied before the war, so I don't think that the clothing figures would be even competitive. Another factor against that, is the very condensed arrangement of this machine. The press part itself is about forty-five feet shorter than it actually should be, and if you have a longer felt running over more rolls, you have more resistance which causes you a great deal more worry, but our observation of the difference in cost is not at all $1.92, on competitive material, going over a long period.

Labor Cost Less on Wide Machine.

Now, comes the question of labor: If labor is taken into consideration, you cannot take the difference in labor cost in our machines and yours, for the simple reason that our machines are set into a building which was entirely too short, but, as I said, it had to go in and it did go in. You know that quite often a lady buys a pair of shoes two numbers smaller than the size of her foot. Now, she does not do that on account of necessity, but because it is more fashionable. We do it from sheer necessity, and we are paying for it, just as well as the lady pays for it, if her shoes burst out, because they are too small. Therefore, as far as I can see, if you figure labor on the two machines, you will find that the labor cost is in favor of the wide machines. I am positive of that.

The next thing is the question of fuel: Mr. Ball gives here a difference of eighty-two cents in the cost of fuel. I think that, in this case, he is on the wrong track entirely. The heat used in the paper machine is particularly used for drying, and in order to make any comparative figures at all, you would have to have the exact percentage of moisture compared in both cases, of the sheet in the paper as it comes to the drying elements and the relative moisture as it comes off. From this, you would compute your drying efficiency. That would be probably split into two factors, one of the two would be the actual heat required for removing the moisture in the wet paper going through the machine, and the other one would be the amount of heat lost on account of radiation. The radiation would principally come from two ends of the machine, therefore, if two machines run at the same speed and would have actually the same driving properties, it would be in proportion to the width of the machine. In this case, consequently, your wide machine has the advantage and the amount of eighty-two cents is not at all justified.

To express it another way, if the machine is wider, your radiation loss is less, and consequently your drying efficiency is higher, because whatever heat you put into the machine would be utilized for drying the paper, unless you have such conditions in your plant as to carry away the heat which I think is poor operating economy. Therefore, as far as drying is concerned, the eighty-two cents has to be taken off entirely and even put to the credit of the wider machine, but not to such an extent. The difference would be very small, the radiation loss of the drying elements, speaking off-hand, I think is something about eighteen percent. So it is not a big factor, but whatever difference there is, is in favor of the wide machine.

Now, another factor in regard to the wide machines, (and understand I am holding myself strictly to the wide machines; I do not go into the high speed as yet), is a first-class factor, and mention has been made that the wider the machine is built, the more difficult to operate it is. I do not share that opinion exactly. This is simply an engineering proposition. and I think we have, at the present time and in the last ten years, acquired enough knowledge of the machine designing, so as to utilize the engineering knowledge, or basic engineering facts, in designing paper machines. As far as our 202 inch machine is concerned, we have not experienced any such trouble at all, as Mr. Ball has alluded to, such, for example, as trouble with rolls, drying cylinders, and other factors. These are all troubles of construction which I think the paper-machine builders should take into consideration at the time they design the machines.

I fully corroborate the statement of Mr. Ball in which he says that the time has come when the builder of the machines has to know a little more about it, but it is the sad case that quite often he does not All he is interested in is to get out a certain thing which looks like a machine, and sometimes beautiful architectural designs are used, where strong mechanical construction would be very desirable, and last but not least, these little parts where the whole elemental reserve is (some of us call them 'bearings'), are quite often not at all fit for the purpose for which they are used.

I quite agree with Mr. Ball when he says that the wider the machine, the more trouble. That is true, but with proper engineering knowledge utilized on the machines, there is absolutely no difficulty to go even to the wide machines of which you have been speaking a while ago, a three-roll width. In that case also surely there is some value as to speed. As for construction difficulties I see no limit at all in making a machine to run five thousand feet a minute but there may be a little practical operating difficulty, which I hope the discussion will bring up here.

More Production Means Greater Width or Speed.

Mr. Mason: Mr. McInnis brought out a good point when he said very rightly that what he wanted were facts and not opinions. Unfortunately, we have no facts except for the narrow machines. We have no facts on machines as wide as 156 inches, and, therefore, it is a listening part that I should like to play, rather than to give any opinion.

I think, however, that the development toward greater production has got to take two directions, one towards width and one towards speed. I do not know of any one who is anxious to try both at the same time. I don't know of any one who is anxious to run Mr. Stadler's machine at five thousand feet with three rolls. At least I should not like to. So we have felt that in putting in machines for two rolls we would rather play with the speed a little more and let someone else play with the other element, and after a few years experience, we might be willing to play with both.

Mr. Shipman here left the chairman's chair, and was replaced again by Mr. Stadler.

Mr. Shipman said: I really prefer not to participate in this discussion for the reason that Colonel Jones had our entire staff of statiticians working for nearly two weeks before the meeting, getting data ready, and I saw the partial result of their work, and I don't want to put a hole in his kettle of soup before he gets here, and he is liable to be here at any moment.

(To be Continued.)

FORT FRANCES SUES FOR DAMAGES.

Mr. H. A. Tibbetts, solicitor for Sheriff Baker, has been advised that on February 6th a writ was issued by A. D. George, solicitor for the Fort Frances Pulp & Paper Company, from Ottawa, against Sheriff W. A. Baker and R. A. Pringle, ex-paper controller, for damages for trespass on the company's property and interfering with the company's business.

This writ is intended to test the validity of the Orders-in-Council on which the sheriff and paper controller acted. Venue is laid at Toronto, and it is expected that the action will go to trial some time next month.

Newsprint is one of the last of the commodities, the control of which has been held by the government under the War Measures Act of 1914. Paper manufacturers are very indignant, in that they are losing the benefit of the United States market at its very much enhanced market prices. The case is one that will be followed with interest not only in Canada, but on the other side of the line as well. In view of the fact that almost all the witnesses to the alleged trespass reside in Fort Frances, counsel for the sheriff states that the court will be very probably asked to change the venue to that place.

PAPER MACHINERY HOUSE REBUILDING

As advised in our issue of February 5th, fire of unknown origin destroyed a portion of the Plant of the St. Lawrence Welding Company, Montreal, on Tuesday night, February 3rd. This particular portion of the plant was known as their Tank Manufacturing Department. Owing to circumstances the company had been forced into an old saw-mill in the rear of the main works; this saw-mill was recognized as a fire-hazard by everybody concerned, and now that it has burned up The St. Lawrence Welding Company has decided to rebuild on the old site. Their boiler shop and tank shop will occupy the new building which will be 148 feet long by 60 feet wide with a balloon roof 25 feet high. The building will be built of brick and steel and be fire proof and modern in every way. The heavy tools suffered little damage in the fire and the tools that were destroyed have already been replaced, and the company is now operating its tank shop under a reduced capacity. It is stated that by the first of April the company will be in full possession of the new shop which will greatly increase their out-put of all kinds of steel plate work. Thus although the fire was an inconvenience it was more or less a blessing in disguise.

TO PROTECT MANITOBA FORESTS.

Winnipeg, Man., Feb. 12—By a bill introduced by the provincial treasurer, Hon. Edward Brown, and given second reading in the legislature of Manitoba this afternoon, power is conferred of prosecuting in all cases where fires are left unprotected. At present under the law a prosecution does not lie if damage does not follow. The legislation has been introduced at the instance of the forestry department of the Dominion and is intended to help prevent conflagrations in the timber sections of the country.

Annual Meeting and Dinner of the Paper Makers' Association of Great Britain and Ireland

New Technical Section to be Formed—Mr. Lewis Evans Retires from Presidency—Export Trade to be Better Organized.

(Special From Our London Correspondent.)

London, February 6th, 1920.—After a year's debating in committees on matters appertaining to the British paper industry —committees which are held privately in various parts of the country—the British paper makers assembled for their annual meeting and de jeuner yesterday. There was a good attendance and some interesting business was got through, a special feature being the proposal to form a new technical section, a leaf being taken out of Canada's book for furthering the interests of the industry. The President, Mr. Lewis Evans, F.S.A. presided.

The Secretary, Mr. A. W. Foster, B.A., submitted the annual report of the Association as follows: "The present report covers the 12 months ending 31st Dec., 1919, the first complete year of transition from war to peace, the 55th year from the foundation of the Scottish Paper Makers' Association, and the 48th year from the inaugration of of the Paper Makers' Association of Great Britain and Ireland. The three preceding years during which the industry was carried on under conditions created by Government control, have not been included in any connected report, though members have been kept in touch with the course of events by the Association's periodical circulars; the full history of that period can only be told when lapse of time permits a more complete disclosure of the inner meaning of the narrative.

Government Control

The year has seen the industry pass from complete control by a special Government Department to complete freedom from direst Government interference, and much of the work of the Association has been concerned with the circumstances attendant on that transition. The system of limited imports, subject to license, both of manufactured paper and raw material, which had been gradually perfected during the two preceding years, was in full operation at the beginning of the year. It was clear that the strictness of this system would necessarily be relaxed, but it was expected that the authorities, realizing the danger of sudden action would prepare a scheme of gradual increase in license quantities so as to permit paper makers to adjust their mills step by step to the altering conditions, and so to return to their normal state without violent dislocation of the industry. Early in March, however it was found that this expectation was erroneous, and it was announced that all restrictions on the import of paper were tobe removed. The question was immediately taken up by the Association, a deputation waited upon the President of the Board of Trade and steps were taken by many members of Parliament to call the attention of the authorities to the danger of the course proposed. This brought about the appointment of a Special Committee of Enquiry into the condition of the Industry. The sittings of the Committee extended over some three weeks during April, and a mass of evidence was presented on behalf of all parties interested either as makers or users of paper. The sequel was a remarkable one; the committee's report advising the restrictions on import should be continued, was approved by every member and this although diversity of interest might well have caused diversity of opinion, for the committee contained representatives of newspaper proprietors, publishers, printers, box-makers envelope makers and manufacturing stationers, wholesale stationers and trade unions, in addition to three Government officials and five paper makers.

The Association desires to place on record the thanks due from the industry to its representatives on the Committee of Enquiry, Messrs. George Clapperton, Joseph Dixon, W. E. Nuttall, C. R. Seddon, andW. L. Tod; and to the members who gave evidence in so admirable a manner on behalf of their respective sections of the trade. The re-imposition of import restrictions immediately restored confidence to the market, orders were again forthcoming, mills which had closed down were re-opened and the most difficult period of the transition year was, thanks to the action of the Committee of Enquiry, traversed without undue hardships. When the Government in August, disclosed its general trade policy as one of free import save in the case of a limited list of new industries, papermaking was ready to cope with the problems of world competition with trepidation. The course of the industry since September gives every confidence that on equal terms the British paper maker can hold his own against any competition.

The Return to Normal Conditions

Apart from the special work arising from the cessation of Government control, the Association has strengthened and extended its relationship with the organizations representing allied industries, a branch of its activities which will assume great importance as time goes on. The discussions and negotiations which proceed from time to time between this Association and the British Wood Pulp Association, the British Paper Stock Merchants Association, the Newspaper Proprietors' Association, the Wholesale Stationers and similar bodies, have considerable value not only in their immediate results but in creatng an atmosphere of friendliness throughout the various branches of the industry. The Association's position in relation to the permanent Government Departments which concern themselves with trade matters is now thoroughly established and much work has been done in this connection during the year.

The report went on to deal with the disabled and demobolized soldiers and states that a fund for assistance had been established.

Technical Research and Trade

This question, the report went on, has been carefully considered by the committee during the year and it is proposed that the Association's activities shall be extended by the formation of a Technical Section, which will afford an opportunity for the discussion and investigation of papermaking problems by all who are interested.

The events of the last five years have taught all industries the value and necessity of close organization. The tendency of modern Governments to inter-

fere more and more with commercial matters emphasizes the desirability of combined action by manufacturers in their capacity as producers, just as the tendency of workers to act in a body through the medium of trade unions necessitates employers of labor. In the papermaking industry great developments have occurred during the war-time period in the direction of better organization and, though much remains to be done, the machinery of the Association has already been overhauled so as to provide for the requirements of this complete trade. The organization of papermakers as employers of labor is ensured by the Employers' Federation of Paper Makers. The organization of paper makers as manufacturers is necessarily complicated on account of the number of grades of paper made by them; but the Association's scheme of District Committees, each composed partly of representatives elected by the whole of the members in the district, gives full weight to sectional views while enabling the combined force of the whole industry to be brought into play where required. The Executive Committee has had this question under consideration with the view of improving the method of organzation, and has approved of standing orders which are to be submitted to the General Meeting for endorsement.

It cannot be too strongly stated that the strength of a Manufacturers' Association rests on the numbers and the loyalty of its members. The influence exerted by this Association during the war depended largely upon the fact that it rightly claimed to represent the vast majority of the industry, as may be seen from the figures of membership. There are 138 firms making paper in England of whom 124 are members of the Association. There are 49 firms making paper in Scotland, of whom 39 are members, and there are 5 firms making paper in Ireland, all of whom are members. With the addition of 10 firms making boards, this makes the total membership 178 firms.

The report concluded with a reference to the Association's financial position. This needs re-consideration at an early date, says the report, owing to increased activities and responsibilities.

The report was adopted.

The New President.

Owing to the President, Mr. Lewis Evans, F.S.A., having signified his intention some time ago to resign the Association proceeded to elect a gentleman in his place.

Mr. W. L. Tod was elected to the vacancy by 85 votes to 75 votes. His opponent was Mr. Seddon. Mr. Tod is a Scottish papermaker and a very active worker in the Association. His candidature was supported by Mr. T. Parker Smith, Mr. Albert Reid, and Mr. Joe Dixon.

Amidst applause, Mr. Tod took the Presidential chair, vacated by Mr. Lewis Evans, and the ordinary business of the meeting was proceeded with.

Technical Section to be Formed

Mr. A. Baker moved that a technical section be formed. He pointed out the success of such an institution in Canada and America where they were constituted on broad lines. While the committee was dealing with the subject, the subject had been raised independently by Messrs. Sindall and Bacon in the Press. The objects were to promote science and scientific research and to arrange for an interchange of ideas and the collecting and formation of information of interest to paper manufacturers.

Mr. J. E. Jepson agreed with the suggestion and seconded the resolution.

Several members supported the proposal and the resolution was passed nem. con.

The Export Trade.

The organization of the export trade was next considered on a motion submitted by Mr. T. Parker Smith. He moved "That this Association views with favor the formation of an Association of producers of paper for the export of British paper." An association of this kind, he pointed out, would cover all the foreign and colonial markets, the orders could come through the one central house in London and then be distributed in bulk to the various mills. The association would also be able to handle shipping difficulties and enable the mills to put their samples before buyers in the various markets. Raw materials could also be brought to the country and re-exported cheaper and better than other countries.

Mr. Birrell supported the resolution and suggested that a committee should be selected to discuss the matter with other bodies associated with paper.

The resolution was passed and the matter referred to the Executive Committee to take action.

Mr. Lewis Evans.

On the motion of Mr. Albert Reed, seconded by the President, a hearty vote of thanks was passed to Mr Lewis Evans for his great work on behalf of the Association and for his services as President in past years.

Mr. Evans suitably replied and the meeting closed.

The Dinner.

In the evening the members of the Association sat down to an excellent dinner in the Connaught Rooms. Mr. Lewis Evans presided and over 300 members of the pulp and paper trades were represented. A fine string band enlivened d jeuner party and a first-class menu upheld the reputation of the Association.

After dinner there was a round of toasts submitted, including "Our glorious Dead," which was honored in silence. The health of "The war-time Controller of Paper and his Department" was next toasted and Mr. Vernet, the late controller, replied, reviewing the work of his department and the experiences gone through. He mentioned that in 1919 newsprint was 3¾d per lb., while today it was 4d.

Viscount Burnham ("Daily Telegraph") proposed the health of the members of the Association, who said that in Canada there had been some awkward disputes between the Government and some of the papermaking firms which certainly did not look as if there would be any great fall in prices. So it was a misfortune that prices were soaring—misfortune, he said, because it does not make for stability, and did not give ground for confidence.

Mr. Tod acknowledged the sentiment. Other toasts followed, including "The Allied Trades," "The Visitors," the latter being replied to by Lord Riddell and others.

During the dinner proceedings the members of the Association presented the Secretary with a cheque for £550 for his services. Mr. A. W. Foster suitably replied.

The health of Mr. Lewis Evans having been proposed, the proceedings ended at a late hour.

BRITISH TRADE NEWS

Paper Difficulties.

The question of the demand and supply of paper of all kinds is bound to receive some attention by the Paper Makers' Association and incidentally the prices. In London today the demand is very great and prices for newsprint and other grades of paper are hardening. It is stated in some quarters that the demand is exceeding the supply, but there are no signs yet of a shortage. The position in Canada and America is influencing the market here and in France the newspaper proprietors belonging to the National Press Syndicate have appointed a committee to make preparation for the organization by February 15th of a consortium for the supply of newsprint to the French consumers. A request is also made to the Government to prohibit the sale of newspapers from midday on Sunday to midday on Monday. It is thought that this news scheme will help to solve the paper shortage, which, owing to unlimited speculation has reached fabulous prices. This week I was talking to two well-known paper men, who were on a visit to London from Paris and they told me that the paper position is a serious one for all concerned. Since war ended there have been new industries springing up and new concerns which swallowed up the paper to such an extent that something must be done. The demand now exceeded the supply, and if the Government adopted the resolution of the French newspaper proprietors France will be minus morning papers on Mondays until the paper market settles itself again.

Pulp News.

Groundwood (wet) is still selling at £12 a ton and supplies are not plentiful; groundwood (dry) is double that price and also scarce. Canadian sulphite is selling cheaper here than the Scandinavian, for the simple reason that raw materials are scarce in the latter country and added to this are labor troubles and shipping difficulties. It is a very difficult task to get an accurate and impartial survey of the pulp situation in Scandinavia—one hears so many different accounts in conversation. A prominent Norwegian told me not long ago in London that the Scandinavian mills are up against many difficulties, labor and otherwise. These troubles are reflecting themselves in prices demanded in the British and other markets and now we have a case of Canadian sulphite easier in value than the foreign material. There are, however, no supplies of groundwood arriving in England for the moment, but small parcels of sulphite are finding their way in, which are very acceptable, as sulphite is in fair demand—Canadian being £28 5s. and Scandinavian £30 a ton. Prices of all pulps are firm here. Germany is now figuring in the import list furnished by the Customs authorities, but the supplies are small. They were shipped at Hamburg and consisted of a hundred odd tons of sulphite and a few tons of dry groundwood. Undoubtedly it will be some time before the Germans are able to become keen competi tors in the pulp markets and shipments will be only spasmodic.

Swedish Pulp Cargoes.

The Swedish authorities have notified the British Trade Department that on account of the disasters and damage caused by cargoes of wood pulp absorbing water, the Swedish Department of Finance is at present considering new regulations which have been proposed and are expected to come into force very shortly. According to this proposal vessels trading in the Baltic or on longer trades must not carry on deck a larger cargo of wood pulp than corresponds to the weight of a deck cargo which the vessel can carry without hazarding her stability minus the weight of the maximum quantity of water absorbable during the voyage. This latter weight will be calculated at the rate of 100 per cent of the weight of dry pulp and 33 per cent of the weight of wet pulp. If pulp is stowed on an open deck an absorbent at least 50 millimetres thick must be placed beneath the cargo. An empty space must be allowed for the increase in the volume of the pulp on account of the absorption of water and all scuppers must be left open.

It will be recollected that not long ago a steamer laden with pulp encountered a gale and turned turtle and disappeared with all the crew, except one or two. Another point not to be overlooked is the fact that new shipping regulations mean prices being affected and it remains to be seen now if this latest order will give the Swedish pulp men an excuse for higher quotations in London.

Notelets.

Wrapping papers have been increased in price to the extent of $25 by the British mills. There is a good demand in England today for these papers and the increase per ton is readily paid. Canadian mill men please note.

Mr. C. F. Cross will shortly lecture on new raw materials in London. His lectures before scientific bodies are always very interesting.

Mr. Lewis Evans, President of the British Paper Makers Association, is retiring from the chair this year.

Mather and Platt, Ltd., the well-known papermakers engineers, are increasing their capital by the creation of a new share list.

Last year the U.S.A. made big shipments of newsprint to India—more than the British.

Norway is selling newsprint at 630 Kronor per 1,000 kilos net f.o.b. but supplies are reported to be limited.

The demand for China Clay is good. It is hoped to produce soap from an extract of china clay in the near future.

Chemicals in London are unchanged. Salt Cake is £7 15s. a ton; Sulphate of Alumina, £13 5s. to £18 a ton; Sulphur £32 and rolls £22; bleaching powder £18 to £20 a ton; soda crystals £5 10s. a ton and alum £19 per ton.

About 200 tons of sulphite arrived recently from Canada.

There is a ready sale for Canadian sulphite in the British market at present.

BUILT FOR PAPER MILL, STILL WAITING.

The Gananaque, Ont. Reporter says that the report of early activity in extending the plant of the Toronto Paper Manufacturing Co. at Cornwall recalls to memory that the building at present owned by Mr. W. J. Gibson near the mouth of the Gananoque River, was originally erected for a paper mill. But after it was completed the end wall near the river settled slightly and the paper manufacturer declined to put his machinery in it and located elsewhere—possibly in Cornwall. The defect in the wall was afterwards remedied and the building has since housed a number of different industries. It would make a first-class location for a paper mill today and Gananoque would be glad to welcome such an industry.

ABITIBI'S RECORD-BREAKING WEEK.

"The Broke Hustler" is happy over the results of the week ending February 7. There was less broke to hustle. We quote:—

Two hundred and fifty-three tons of newsprint on Thursday, Two hundred and fifty-three and a half tons of newsprint on Friday; two hundred and fifty-five and a half tons of newsprint on Saturday.

This is a concise but striking resume of the record in newsprint production which the Abitibi Mills have reached. Three years and a half of careful, painstaking effort are behind last week's achievement. Months and months of research work, long periods of careful planning of the disposition of materials and men, the closest co-operation between every branch of the great plant,—all were necessary to the consummation of this record week, the results of which must be gratifying in the highest sense of the word to everyone concerned.

On Thursday, February 5th, the paper mill ran ahead of all previous daily records, producing 253.15 tons of newsprint, or an average of seven hundred and seventy-five pounds per inch of trimmed wire. No. 4 machine in particular, distinguished herself by showing an operating efficiency of 99.9 per cent, with only three breaks in the 24 hours. Big No. 1 machine showed 97.9 per cent. operating efficiency, with ten breaks; No. 2 machine showed 95.4 per cent operating efficiency with seven breaks; No. 3 machine showed 94.5 per cent operating efficiency, with three breaks.

Good as this day's production was, on Friday the mill went one better, producing 253.61 tons, or an average of seven hundred and seventy-seven pounds per inch of trimmed wire. Nos. 1 and 4 machines dropped a little behind their records of the previous day, but Nos. 2 and 3 forged ahead and forced the general average up.

There were fewer breaks than on the previous day, divided up as follows:—No. 1 machine, 12; No. 2, 6; No. 3, 4; and No. 4, 6 breaks.

The operating efficiency of the respective machines worked out as follows:—No. 1 machine, 93.7 per cent; No. 2, 97.6 per cent; No. 3, 97.6 per cent; No. 4, 96.7 per cent.

Saturday, however, was the banner day for the Abitibi Mills. All records were smashed, Nos. 1 and 4 machines coming back into their own. Of course, No. 4 could hardly break the high record she set herself on the previous Thursday, but with 99.6 per cent efficiency she almost equalled it. No. 1 machine broke her own individual record by averaging up an operating efficiency of 98.7 per cent. At the same time Nos. 2 and 3 kept up their usual splendid work, No. 2 averaging 94.2 per cent in operating efficiency and No. 3 averaging 96.4 per cent.

The number of breaks also decreased. No. 1 machine totalling 9 for the twenty-four hours; No. 2 machine only three; No. 3 machine, five; and No. 4 machine, nine.

The week ending February 4th is thus the greatest production week in the history of the Abitibi plant. One thousand four hundred and eighty-four tons fourteen hundred pounds of newsprint were produced in one hundred and forty-four hours. Saturday, February 4th, was the Abitibi plant's biggest day with a production of two hundred and fifty-five and one-half tons for the twenty-four hours.

The boys have set a high standard to live up to, and a high record to surpass. Their energies are already bending to the task, however, and the same persevering co-operation will no doubt set still higher marks in the not far distant future.

No wonder President Anson wired the mill as follows:—New York, February 10, 1920: William Zieman, Abitibi Power and Paper Company, Limited, Iroquois Falls, Ontario:—My congratulations to you and all our employees on your splendid production record for last week. I greatly appreciate the combined effort and co-operation of the entire force which must have been extended to attain this result.—(Signed) F. H. Anson.

F. N. BURT HAD BEST YEAR.

F. N. Burt Co., Ltd., of Toronto had a record year in 1919. The annual report for 1919 shows profits of $795,719, compared with $470,376, an increase of $325,000 over the year which had been the best in the company's history. In addition, there have been important extensions to plants, which have been paid for out of profits, while liabilities have been reduced, and liquid assets increased.

Nemise Gouin, Crown lands agent at Amos, P. Q. died early this week at the age of 52. He was a brother of Sir Lomer Gouin, premier of the Province.

THOROLD MAN IS WHIRLED TO DEATH IN BELTING.

Thorold, Feb. 12.—Wilfred Mills was accidentally killed about 7 o'clock yesterday evening while at work at the Ontario Paper Company. He was employed as an oiler and it is thought he became caught in a belt and was whirled to his death. No one saw the accident, but his body, terribly mangled, was discovered by a fellow-workman. An inquest is being held by Coroner Herod.

Abitibi Paper Mills started full blast on Thursday afternoon, all repairs being completed. The pulp mills had been operating all week and the paper mills to half capacity.

THE OVERSOLD PAPER MARKET

The condition of the paper market is reflected in the fact that the government in its annual requested for bids on paper need for government supplies received no bids whatever on either news or book paper. This probably was not intended as a rebuke to the government's waste and extravagance in the use of a scarce article, but it might well have been.—Berkshire Courier.

FOREIGN BOOKS FREE OF DUTY.

Ottawa, Ont., Feb. 24.—Enquiry at the Customs Department as to whether books printed in the German and Austrian languages were admitted free into Canada while those in English were subject to a duty, confirmed the truth of this statement. Item 172 in the Canadian tariff provides for the free admission "of books printed in any language other than the English and French languages, or in any two languages not being English or French, or in any three or more languages."

An official of the department pointed out that this item had been in the Canadian tariff for nearly 25 years and that the customs department had no authority under the Act to prohibit books printed in German from entering Canada.

Technical Section

Annual Business Meeting of Technical Section

The reports of committees and the discussions of them is continued from the last issue of the Pulp and Paper Magazine. Another, and probably final, instalment will appear next week. On another page will be found the discussion of the relative merits of wide and medium width paper machines.

REPORT OF COMMITTEE ON EDUCATION

By T. L. CROSSLEY, Toronto, Chairman.

Your committee has much pleasure in reporting that Education is one of the most active subjects in both Federal and Provincial arenas.

At the recent National Industrial Conference at Ottawa, representatives of both employees and employers in the paper industry were present and your committee was represented in the third group. Very important resolutions dealing with the status of teachers, and compulsory education were unanimously passed.

At Winnipeg, a National Conference on Citizenship in Education took place in October last. It was largely attended from all parts of Canada, by representatives of industry, education, religion and municipalities. This movement is of special importance in paper mill communities, because of the large numbers of children in such places whose parents are of foreign birth.

We report as follows on the special activities of your committee.

TEXT BOOKS.—Satisfactory progress is being made and this matter will be brought before you in a report by the chairman of the joint executive committee in charge of the project.

NIGHT SCHOOLS.—Classes are in operation in several towns among which are, Port Arthur, Hawkesbury, Iroquois Falls, Sturgeon Falls, Espanola and Cornwall. The classes at Thorold did not reopen this winter partly due to local conditons and partly to the opening of evening classes in the Collegiate Institute at St. Catherines. It is gratifying to find these classes increasing in number and every effort should be made to maintain these and start others, so that when the new text books are ready there will be in all places some organization to help the students.

STUDENTS' VACATION WORK.—Some thirty university students from all undergraduate years entered the mills in the past summer. About 75% of these made good and will be welcomed back next year, if they wish to return.

Nine essays havxe been submitted in the prize competition, and we shall shortly have the report of the judges.

The students represented McGill, Queen's, Toronto, Laval, and Nova Scotia universities.

We would like to have some idea of the manner in which these men were paid and to have suggestions on this point from mills in which these men worked.

In our opinion the best work can be had and results obtained by keeping the man at one or two jobs in one department each vacation, in order that he may get a better grounding in the work and principles of each branch.

EDUCATION REFORM.—Your committee has been in close touch with the organization which is endeavoring to secure changes in the administration and curricula of schools with a view to conservation of time and energy on the part of children, especially in the primary departments.

Mr. J. N. Stephenson is secretary of the organization and you are also represented by another member of your committee.

A memorial with recommendations has been sent to the Minister of Education and Premier of each province, and it is planned to have a deputation wait on each to urge adoption of these recommendations. The first of these deputations waited on the Premier of Ontario, Hon. E. C. Drury, and Minister of Education, Hon. R. H. Grant, recently. The deputation consisted of Dr. W. L. Goodwin, Chairman, Mr. Tom Moore, President Trades and Labor Council of Canada, Messrs. Segsworth and Dunlap, of the Mining Institute of Canada, and the chairman of your committee. The ministers gave close and interested attention and expressed their sympathy with the movement promising to do all in their power to help.



T. L. CROSSLEY,
Chairman Education Committee.

Your committee has received a number of letters from young men, some of them being returned soldiers, as to the prospects for the future in the pulp and paper industry. In all cases we have advised a university training if possible, with vacation work in mills, followed by employment in mills to obtain first hand experience to fill out their knowledge of basal principles.

Instead of reading his report, Mr. Crossley said: I don't know as it is necessary to re-read the report. You have it before you, and I will just go over it rapidly, as there are a few points in it, upon which I think we ought to have some discussion.

There is a great deal going on in various ways in reference to education. In fact, it is one of the topics of the day in every industry. The textile industry is especially interested in this, as well as a number of other industries, and a number of communities, because it is recognized that the conditions which are prevailing in such countries today as Russia, and Mexico and a great deal of Europe today, is a question of not so much technical education, but education on the proper basis, so our subject is one of the most important subjects to be considered today.

There was an Industrial Conference held at Ottawa last fall, and at that Conference resolutions were put through with reference to teachers' salaries. This is one of the weak points in our educational system from the Primary classes clear up to the Universities, this question of salaries to instructors, and also the question of a compulsory education, and the unification of lines of educational work throughout the Dominion.

Then a conference was held in Winnipeg, also last fall, with reference to the requirements of education for citizenship and that also has a strong bearing on all industries, and especially upon our own industry, where a great number of foreigners are employed, and one of the chief things both for technical work and for safety work is that these men shall be able to understand the English language primarily, and then understand intelligently the instruction they receive.

Now, as to our own special activities wih reference to the question of text books. We shall hear directly from the "Chief" Executive on that subject.

As to night schools; Classes are in operation in several towns amongst which are Port Arthur, Hawkesbury, Iroquois Falls, Sturgeon Falls, Espanola, and Cornwall. The classes at Thorold did not re-open this winter, partly due to local conditions, and partly to the opening of evening classes in the Collegiate Institute at St. Catherines. It is gratifying to find these classes increasing in number and every effort should be made to maintain these and start others, so that when the new text books are ready, there will be in all places some organization to help the students.

I would like to read a portion of a letter received from Mr. Hovey, of the Abitibi Company as an indication of the lines on which the mills can organize to work for educational progress. He says they have a committee whose business it is to co-operate with the town schools in regard to preliminary instruction and another to look after special talks and discussions on mill operation for men who are qualified for advanced work.

You will notice from this that they have organized for educational work, under two sub-divisions, one to attend to the elementary work in connection with the local schools, and the other committee will attend to the senior work, and the technical requirements for their own mills. I think the Spanish River Company is operating something along the same lines as well.

Summer Work for Students a Success.

With reference to the students' vocational work. We have had one season last year—our first season—on an organized basis. The Universities are taking a great deal of interest in this matter, and last summer some of the students were employed in the different mills and from the reports which we have at hand, I think it would be quite safe to say that seventy-five percent of these men made good, and will be welcomed back to their mills, if the want to go, for another season. In most cases the men were put to work at whatever was required of them—whatever work required a little more help, and in nearly all cases the men loyally took up the work laid before them, and in some cases were give special care in going through the mills. We do not recommend that students be given preference in the mills over other men. It is liable to lead to jealousy, and somewhat divide the object for which we are striving, but if the student when he reaches the mills, is given to understand that he can make what observations he likes, and will be expected to do whatever work is laid before him, and be treated on a purely business basis, he will get along better. I would like to read one or two extracts received with reference to these students.

Here is one from one mill. Speaking of a student it says: "He showed good ability for technical work, and had a good personality around the plant."

With reference to another man, we learn that: "He had good ability, and may develop later on, but it is doubtful if we should want him again." You see, we have to take those chances.

Here is another case, I would like to cite. Speaking of a student, the mill says, "He became a member of the Union, and was a good mixer and although it is undecided whether he will return to us next year owing to some of his personal plans, if he desires to, we desire to have him."

Here is another: It says, "He began work as a boom helper on July 4th, 1919. After two weeks, he was transferred to the wood-room where he worked on chippers, and on the conveyors, later going to the groundwood mill, and doing the same as two others did. His work was most satisfactory. He became an enthusiastic Union man,attended the meetings regularly, and got well acquainted with everybody. He showed ability to use his head, and is planning his college work for the coming year, so that it may be of direct benefit to him when returning to us next year, after graduation."

So you will see it is a very important feature of our work that we should prepare a man for the future technical openings in the industry.

In connection with this; nine essays have been written in competition for the prizes, and we shall know about these sometime soon, when the results of the Judges are sent in.

The students working in the mills represented McGill, Queen's, Toronto, Laval and Nova Scotia Universities, and in this connection in the discussion which may follow the report of your committee, we would like to have some idea of the manner in which these men were paid, and we would like suggestions as to this from the mills in which the men worked. It would be desirable, perhaps, to have something in the way of a uniform basis of pay for these students, something that would unify opportunities, or equalize their opportunities.

In our opinion, the best results would be obtained by keeping the men at one or two jobs in one Department each vacation, in order that he may get a better grounding in the work and the principles of each branch, and not try to put a man right through the mill in one season.

Broader Aspects of Committee's Work.

Your committee has been in close touch with the organization which is endeavoring to secure changes in the administration and curricula of schools with a view to conservation of time and energy on the part of children, especially in the primary departments.

Mr. J. N. Stephenson is secretary of the organization, and you are also represented by another member of your committee.

A memorial with recommendations has been sent to the Minister of Education and Premier of each Province, and it is planned to have a deputation wait upon each to urge the adoption of these recommendations.

The first of these deputations waited on the Premier of Ontario, the Hon. E. C. Drury, and Minister of Education, Hon. R. H. Grant, recently. The deputation consisted of Dr. W. L. Goodwin, Chairman, Mr. Tom Moore, President of the Trades and Labor Council of Canada, and Messrs Segsworth and Dunlap, of the Mining Institute of Canada, and the chairman of your committee. The Ministers gave close attention and expressed their sympathy with the movement, promising to do all in their power to help.

Deputations will be organized from this special committee to each of the Provincial Governments with view of reforming education, and shaping education better for the future of the child, so that there will be as little waste of time as possible in the teaching of the children, and also in some way, if possible, to consolidate the similar schools and equalize the opportunities of the children in the communities not so well populated.

Your committee has also received a number of letters from young men, some of them returned soldiers. They write in asking whether the pulp and paper industry is a good industry, and returned soldiers have written us asking us as to the pulp and paper industry, and we reply that wherever possible they should secure university training, with vacation work in mills, followed by employment in mills to obtain first-hand experience to fill out their knowledge of basic principles.

Your committee would be very glad to have as much discussion on these various phases as possible, but I think before we have any discussion on these matters, we should hear from the text-book committee.

Preparation of Text-books Discussed.

Mr. Carruthers, chairman of Joint Executive, said: In order to save time, I will ask Mr. Kellogg to read the progress report. He has already prepared it and had it printed, and he will read it, and that will give you a fair, comprehensive idea of what progress has been made up to date. Mr. Stephenson, the editor, is here, who will be pleased to supplement any information required.

While I am on my feet, I would like to give you some information as regards the financial standing of the committee. The receipts from Canada for the purpose of preparing this text-book up to the fifteenth of this month, were $5,815.92. The expenditures were $2,892.31, leaving a balance of $2923.61.

The United States receipts were $8023.84; expenditures, $7847.75; balance $176.09. The total receipts for Canada and the United States were $13,839.36; the total expenditures, $10,740.06 leaving a balance of $3039.30.

We endeavored to be careful in these expenditures and we feel that no money has been spent without getting commensurate results. We still have a very expensive part of the work to be performed. Our contract with the publishers, while it includes the preparation of manuscript etc., still we are obliged to stand the expense of preparing the illustrations, in order to make these text books of maximum value, and we propose to be rather profuse with these illustrations and have them prepared with as great accuracy as possible.

Mr. R. S. Kellogg, secretary of the Joint Executive Committee on Vocational Education, was called on for the Progress Report and replied:

As you all doubtless know, sometime ago your committee adopted the policy of issuing periodically, but not at regular intervals, what is called a "Progress Report" showing just exactly what the status is at each one of these periods in the preparation of these text books. These have been sent to all committee members and to all contributors to the fund, and published in the technical journals as a means of keeping the entire industry informed.



GEO. CARRUTHERS,
Chairman Textbook Committee.

The Third Progress Report that came out, as of October first, gave a detail of twenty-five sections that are to go into the text books, as planned for at that time, with the approximate number of pages, and the stage of preparation it had reached showing a total as far as could be reached, of something over two thousand printed pages in the final volumes.

The Progress Report which has just come out, brings up to date the information given at that time, in regard to the preparation of the different sections, the twenty-five sections to be grouped into four volumes, and the information given by Editor Stephenson upon the preparation of the different parts of these four volumes, as of January fifteenth.

Mr. Kellogg here read the Toronto Progress Report which was published in the Pulp and Paper Magazine on January 22nd.

First Manuscript in Publisher's Hands

J. N. Stephenson, editor of the Text-books made a supplementary statement, as follows:

A week ago I had the pleasure of passing on to the McGraw-Hill Book Company the first portion of the

manuscript which consisted of the section on Arithmetic, and the section of How to Read Drawings, with illustrations for each. The McGraw-Hill Book Company are planning to set up in type, as it will finally appear, four pages or so, showing the type, in its appearance and size and character, also the cuts illustrating the drawings and also the manner in which the half-tone reproductions will appear. This will be printed in four or five varieties of paper, illustrating the various grades available and the effect produced by using these different grades, on which the book may be printed. This sample will be sent out to the members of the Committee, for their approval and for their choice of the manner in which the book will best appear.

There will be many helf-tone engravings, but where especial detail is necessary it is planned to put them on separate paper, have them put in as inserts, as for instances, it may be necessary to do in reproducing the photo-micrographs.

Since the Fourth Progress Report was drawn up we have completed eighty-two drawings for the Elementary Electricity, and that number will give you an idea of the way in which we are trying to show the thing in pictures. The Application of Mathematics has been checked up against the drawings, and that is ready to go to the printer when he needs it. The section on Electricity is also ready, and I have received further portions of the work on Chemistry. There is still a chapter to come in on some of the more important mechanisms we find in the construction of paper and pulp mill machinery, but there should not be any particular delay in getting that through.

As was pointed out, we are trying to get the sections done pretty much in order, and there is the psychological question which comes in as regards the issuing of the books. While we may have to wait a while, we fully expect to have Volume I fully completed by the end of the coming summer, or at least. in the early fall, but it may not be advisable to make that immediately available in bound-volume form; the reason being that most of our prospective students are those who are already in the industry, a good many of whom are high-school graduates, and a good many college graduates who have all had the preliminary instruction, but who want to go further. If we send out alone our first volume that contains very little, if anything, of immediate practical value to these men, some of them will get cold feet on the whole proposition, and we don't want to give them a chance for that sort of discouragement. So, the idea was to go ahead with volume one, and print it, and put it in pamphlet form for study, and perhaps to have these immediately available if anybody wants them for class instruction such as schools, as the Chairman has mentioned. We shall in the meantime proceed as rapidly as possible with the production of Volume II, which covers the Manufacture of Pulps. Before that is ready, we should be printing Volume III. and starting Volume IV.

As soon as Volume II is done we should start in on the distribution of the first two volumes, and while doing that we will whet the appetite of those who get them, so they will be even more insistent that the Editor get busy and pass along the rest of the work.

I may say that manuscript is coming in all the time, and if there were more than twenty-four hours in the day, we would be able to make a great deal more rapid progress than we do, but we are doing the best we can and getting the stuff out as rapidly as possible particularly in ragard to portions of Volume II. I would like to urge all of those on whom authors call for information to give us full and immediate assistance. This proposition was started by the Technical Section, and it is up to the members to stand behind it, and give all the assistance they can, and many of you can give a good deal of assistance by furnishing the information requested by the Editor and authors.

The Chairman suggested that members read over the Progress Report, and the Report of the Chairman of the Committee, and after reading them over, sit down and write to Mr. Stephenson, and put in their suggestions that way.

Replying to Mr. Wardle's question : What is the cost of the books to be?

Mr. Kellogg said: As near as we can tell the cost of the text books—if you want to buy a set—will be in the neighborhood of twenty dollars, or about one cent for each page, for the books in printed and bound form. For the separate pamphlets the cost will have to be a little higher, but the cost will be as reasonable as it can be made..

Mr. Crossley asked for information on the management of educational work in communities where the three-shift day is in operation. He would be glad to have the members of the Technical Section keep the Education Committee posted of any developments in education, in any of those communities.

The Chairman added: I hope you willcomply with Mr. Crossley's request to give him full details. Personally I shall be glad to give him the information as to the developments in our community, and those which we shall make in the future.

Technical Section committee reports and the discussion of them will be continued in the next issue.

REVIEW OF RECENT LITERATURE.

B-4. Production of fuel alcohol and wood pulp in connection with the sawmills in British Columbia. A. Hallden, Wes. Lumberman, October, 1918, p. 59—C.L.

B-9. Taking an inventory of Canada's forest assets. Can. Lbrman & Woodworker, May 1, 1919, p. 136. Summary of estimates of the forest resources of the different provinces, together with summary of bulletin on the lumber industry, issued by the Dominion Bureau of Statistics.—C. L.

B-9. Surveying the forest resources of Canada. R. H. Campbell, Director of Forestry. Can. Lbrmn. & Woodworker, May 1, 1919, p. 134. Review of what woods are found in the different provinces. Character of the timber and the land. Pacific coast is lumberman's paradise.—C.L.

B-10. British Columbia pulp and paper industry under-developed. Wes. Lumberman, Feby. 1919, p. 48. Demand for newsprint in Australia exceeds availably supply; other markets growing in importance; more mills needed at the Coast.—C.L.

(Abstracts continued on page 228.)

NEWSPAPER HAILED WITH DELIGHT

Great rejoicing was heard on the streets in Oxbow, Sask., on Saturday evening when it was known that the Winnipeg papers had arrived. After a lapse of one week without a daily, the people were quite eager to again read the news of the outside world. Sounds like the excitement of having the stage coach arrive.

PULP AND PAPER NEWS

Good progress is being made with the additions to the factory in Hamilton, Ont., of the National Paper Goods Limited, manufacturers of envelopes, tablets, papeteries etc. The addition is 52 x 70 feet in area, three stories high and will contain approximately 12,000 square feet of space. It is being erected for the purpose of increasing capacity in the company's stationery department. It is expected that the building will be completed about April 1st. From 25 to 35 additional employees will be taken on.

John Curran, a veteran newspaper publisher of Orillia, died in that town on Feb. 16th from pneumonia. Born in Ireland in 1839, the late Mr. Curran came to Orillia about forty five years ago and founded the Orillia News-Letter. His first journalistic venture was the Essex Centre Chronicle which he conducted from 1880 to 1884. He then returned to Orillia, bringing the Canadian Workman with him, which paper was made the official organ of the United Workmen in 1895. Mr. Curran was editing that publication at the time he was taken ill. He is survived by his wife and a family of twelve, one of the daughters being the wife of Major Gray of Winnipeg.

The Kingston branch of the Army and Navy Veterans have agreed to purchase nothing from the United States until that country restores the value of the Canadian dollar to one hundred cents. The members also condemned the anti-British attitude of the Hearst papers and will protest to Ottawa against these papers being allowed to enter this country. They will also ask that Canadian paper mills be asked not to supply paper to the Hearst papers and the news agents will be asked not to handle the papers.

It is expected that the new building which the Murray Printing Company are about to commence to erect on Spadina Avenue, Toronto, will be completed by about July 1. The company which is one of the largest printing concerns in Toronto intend to put up a six story building of mill construction which will contain about 36,000 square feet of floor space. It is proposed to instal the latest style of machinery.

Enquiry by a representative of Pulp and Paper Magazine at the head office in Toronto of the Trusts and Guarantee Company elicted the statement that the report that Canadian and American financiers were formerly owned by the Riviere du Loup Pulp Company, was altogether premature. The manager of the Trusts and Guarantee company, which now holds the plant, stated that while several offers had been received for the plant none had as yet been accepted nor was any deal likely to be consumated for at least two weeks. The plant at present employs 50 men, and the report stated that the new owners would employ 1,000 hands, develop 25,000 horse power and open up a seaport at Riviere du Loup, where ships may come and go early in the spring and late in the fall.

The annual meeting of the Interlake Tissue Mills Company, Limited, was held at the head office of the company on Richmond Street, Toronto, on February 18th, when the reports presented showed an exceedingly satisfactory year's business operations. A progress report on the extension being built to the company's mill at Merriton was submitted and although no announcement was made as to when the addition will be completed, it is understood that the company proposes to push the work with energy now that weather conditions are improving. The new addition will treble the output of the company, according to estimates made when the work was undertaken. All the old officers were elected and there are no changes on the board of directors. The officers re-elected are: President and General Manager, George Carruthers; Vice President and treasurer, I. H. Weldon; Secretary, S. F. Duncan.

The many friends in the Ontario paper trade, of E. H. Wilkinson, head of the E. H. Wilkinson Company, jobbers, Bay Street, Toronto, will regret to learn that he, his wife and his entire family are laid up and suffering from the flu.

Among the victims of the prevailing epidemic in Toronto is A. P. Costigane, secretary and engineer of the Ontario Pulp and Paper Makers Safety Association, who has been laid up for several days. Mr. Costigane expects to be back in his office in the Dominion Bank building shortly.

Charles F. Allen, who is known throughout Ontario as a traveller of many years standing for the Buntin, Reid Company, wholesale paper dealers, Toronto, has resigned his position with that company and George Downie will in future cover the territory handled by Mr. Allen. Mr. Allen is one of the best known paper men in Ontario. He has been with the Buntin, Reid Company for about seventeen years and for some time lately was the sales manager for the firm. Mr. Downi, who succeeds him on the road has had many years experience in the paper business, having been in the firm's employ for several years.

C. J. J. Snider, Managing Editor of the Toronto Evening Telegram, left some time ago for Jamaica where he is sojourning for his health. He rented his house furnished and the discovery has been made that the house has been looted, presumably by the tenants and the furnishings moved away piecemeal. Several arrests have been made in Montreal in connection with the affair.

The Ontario Minister of Education has decided to continue the policy adopted by his predecessor in office, Hon. Dr. H. J. Cody, in paying to the publishers of public school text books the difference between contracts made under pre-war conditions and the new contract prices which are necessarily higher because of the increased cost of all supplies. Under the plan it will be possible for children to obtain certain of the text-books at the retail price that has been charged for some years past, notwithstanding the greatly increased cost of making the books.

W. M. Findlay, for the past five years connected with the advertising department of Willys-Overland Inc., Toledo, Ohio, has rejoined the advertising firm of J. J. Gibbons, Limited, Toronto, with which organiza-

tion he was connected for three years before going to Toledo. Mr. Finlay was at one time engaged in editorial work on Toronto, Hamilton, Galt and Brantford papers.

Announcement is made by the Waterous Engine Works Company of Brantford, Ont., that they have reached an agreement whereby the well known centrifugal screen, now manufactured by the Mullen & Pope Company of St. Joseph, Michigan, will now be manufactured and sold in Canada by the Waterous firm.

PROVINCIAL PAPER MILLS HOLD ANNUAL MEETING AT TORONTO.

The balance sheet presented to the annual meeting of the Provincial Paper Mills Company Ltd., in Toronto on Feb. 18th, indicated slightly larger profits during the past year as compared with the previous twelve months, and it was shown that the volume of business done compared very favorably with the record of preceding years. The total aggregate value of sales was $3,838,415 and these were confined to the Canadian market, although the directors reported that one of the company's customers was exporting an amount equal to about 2% of the total sales of the company. The demand for paper during 1919 was such as to keep the company's mills operating at full capacity and according to the directors' report the present market conditions indicate that a strong demand will prevail during 1920. It was stated on behalf of the Port Arthur Pulp & Paper Co. that that institution would be in a position during 1920 to pay all accumulated dividends on its preferred stocks, which will mean a substantial increase in revenue for the company. The directors further reported that during the year the balance of old loan from the Sterling Bank was paid off, and bonds amounting to $75,000.00 that were issued as security were cancelled and the mortgage discharged. During the coming year, the balance of $25,000.00 and an old loan from the Imperial Bank will be paid, and the bonds amounting to $50,000.00 that were issued as security will be cancelled. The dividend paid on the common stock for the past three years has been at the rate of 4% and the common stock dividend, payable January 2nd of this year was increased from the usual 1% to 1½%. All of the old officers and board of directors were re-elected. The officers are: President, I. H. Weldon; Vice-president, T. A. Weldon; Secretary-treasurer, S. F. Duncan.

PRICE BROTHERS PAID BONUS.

A stock bonus of 22 per cent. was declared by the directors of Price Brothers this week, payable on Feb. 25 to shareholders on record the same day.

The 22 per cent. bonus will be figured out on the present capitalization of $7,000,000. This is an increase of $2,000,000 over the old capital stock of $5,000,000, due to a bonus that was paid last year to the shareholders on acount of the company's timber limit holdings about 180 miles below Quebec on the Sault-au-Cochon River. It will be recalled that shareholders of Price Bros. were offered the right to participate in the syndicate that was formed to the extent of 10% of their holdings. The 22%, then on the $7,000,000 will represent $1,340,000 additional or a total now of $8,540,00. This will leave a balance of $1,460,000 still in the treasury.

MAY CHARGE PRICE BROS. WITH CONTEMPT

The Government may institute proceedings against Price Brothers for contempt of court, according to reports of the initial hearing at Ottawa, on Tuesday. Whether or not the Board of Commerce has powers of a high court to control the marketing of newsprint will be tested before the Supreme Court of Canada as soon as possible. But the case cannot very well come up before the end of March, when the Quebec cases have been cleared up.

The order of the Board of Commerce was framed to make it impossible for Price Brothers to market their commodity outside of Canada at a price higher than that fixed by the Government for the Canadian sale, namely $80 per ton. Hoarding of newsprint by the firm was specifically forbidden and the shipment of one carload of newsprint a week to three publishing firms in Montreal was ordered. Price Brothers have not shipped so far any of the paper ordered and one newspaper in Montreal, the Herald, announced that it must cease publication for lack of newsprint, unless a supply is received at once.

Heated Passages.

Chief Commissioner Robson informed Mr. Geoffrion that the board would not consider his application for leave to appeal, Price Brothers not having shown any inclination to assist the board in dealing with the problem of newsprint shortage. There were frequent heated passages between the short hearing. Commissioner W. F. O'Connor K.C., commented on Price Brothers' definitions of the board's order and on their open denial of the jurisdiction of the Board of Commerce as a court even while the recognized it by asking leave to apeal against its order. Price Brothers should obey the order and appeal against it afterwards, said Mr. O'Connor, and wished to find out whether Price Brothers considered themselves above the law Mr. Geoffrion replied that his clients were willing to obey the order if it is a law, but that he very much questioned. He ended his argument by threatening to show the board that it had no jurisdiction to enforce such an order.

All the commissioners agreed that the hearing should not be proceeded with until one of the Price Brothers was present, and Government counsel, Colonel Biggar, K.C., undertook to bring one of them before the board on Saturday morning. Asked by the board if his clients had considered the possibility of being brought to Ottawa by force. Mr. Geoffrion thought they had well considered such a possibility.

Permanent Clause.

Colonel Biggar supported the contention that the illegal price clause in the board's order should be made permanent by quoting figures to prove that during four months in 1918 Price Brothers made a profit of $34.11 per ton on newsprint sold at $80 per ton. The cost of production, it was then considered, could be reduced by $5.39 per ton. At its last annual meeting Price Brothers had informed its shareholders that "a profit of $5.64 per ton was most satisfactory." If this amount had been added to the profit by a reduction of cost the net profit per ton at the fixed price would be about $39.50, said the counsel. It might therefore be made a permanent provision in the board's order that any price higher than $80 per ton on newsprint from this mill be deemed to include an unfair profit.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Feb. 21.

Severe winter weather and the consequent partial tie-up of transportation by storms has had the effect of intensifying the already acute situation in regard to the shortage of paper supplies. Deliveries of coal have also been seriously affected and as many of the coal piles at the mills are getting low replenishment has become necessary. Many of the mills, in order to guarantee a good supply, paid a good price for the fuel and were requiring additional supplies just at the time when the railroads became blocked by the storms. As it takes about a ton of coal to make a ton of paper, the question of fuel supply is one which the paper manufacturers have to watch very closely. According to the testimony of most of the manufacturers of paper, wholesalers and jobbers, the situation as to shortage is not only unimproved but it is steadily becoming worse and this condition applies to most lines of papers. In a few cases, following recent decisions to withdraw prices, lists have been again sent out, but this week these were withdrawn and again orders are only being booked subject to prices prevailing at the time of shipment. Paper makers are fixing their prices in accordance with the cost of raw material which is hard to get and high in price. Groundwood pulp and sulphite, both bleached and unbleached, are hard to get. One Toronto firm state that they have been paying from $60 to $70 for ground wood and quotations have been made as high as $75.00. In pulp, as in the finished product. it is not a question of price but of getting supplies and this is becoming, in most lines, increasingly difficult.

Newsprint scarcity continues and the man or firm contemplating an excursion into the publishing game would do well to make sure that his sheets or rolls will be forthcoming. These days it is much easier to buy and instal printing machinery than it is to get paper to feed into the presses. It is on record that an eastern Ontario newspaper man has had his plans all laid for launching a new newspaper venture for some weeks but its birth is not likely to take place for some little time yet, owing to inability to secure the necessary swadling clothes in the form of newsprint. "Old customers first" is the motto of the mills who have all they can do to supply the demands of the established papers.

The big demand for newsprint seems destined to keep up for some years. The era of big advertising is on in the opinion of many. It is only just beginning. Big educational advertising campaigns have had their effect, timed as they were for the restablishment period, and the best opinion has it that with the vastly increased business coming to Canada in the next few years, advertising will play a big part, which will mean more newsprint and more business for the paper manufacturers and printers. The era of prosperity seems bound to continue. Not only the manufacturing firms have benefited by the prosperity wave, but, it is pointed out, the high prices obtained by the manufacturers have been off-set to some extent by the increased cost of production and the workmen have been able to get recognition of their demands for higher wages. In this connection it is stated that last May the International Paper Company signed an agreement with their employees adding a million dollars a year to its payroll. Further advances in wages may come when the agreement comes up again.

Book paper manufacturers, while recognizing the general shortage of papers, say they are doing their best to meet the demands made upon them. It was stated by one book paper maker that while there was more or less of a shortage in his line, yet it was not so great as sometimes appeared on the surface. These are days of delayed shipments, it was stated, and a printer who wants fifty reams of paper for catalogue work next summer orders right away and wants it now if he can get it. So he orders at once, keeps on prodding the sales manager of the mill and perhaps gets his shipment somewhere near the time he wants it. There is really no great row if he doesn't get it for two or three months, as he allowed that leeway anyway. It is not claimed that the wholesalers and jobbers are hoarding. That would be impossible with the present shortage, but it is claimed by some of the distributors for the book mills that a mortgage is being placed on the future, as it were, and that the users of their product have gotten into the habit

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, NEW YORK

We buy all kinds of Canadian WOOD PULP AT TOP PRICES. Write us and be Convinced.

of not looking for the goods for several months and as this works out all along the line, the book paper shortage sometimes appears greater than it really is.

In this connection it is interesting to note that coincident with the withdrawal of prices some of the book mills are ceasing to quote on the cheaper grades of paper, their groundwood sheets, it is said, costing about as much to turn out as the sulphite sheets. The Howard Smith Paper Company have advised the wholesalers that they will make only 101 and 102 grades, and will not accept orders for anything lower than 102. The Kinleith Paper Company also, have withdrawn their cheaper grades. Ledgers are being sold on prices prevailing at time of shipment and base prices only are quoted.

Kraft stock is beginning to come through a little more freely and milder weather, which appears to be on the way, will greatly improve deliveries from the mills to the wholesalers. Mills have already started to catch up with arrearages. In Manilas and fibres the demand is just as great and there is a difficulty in meeting it.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$55.00 to $65.00
Sulphite, news grade	$75.00
Sulphite, easy bleaching	$90.00
Sulphite bleached	$130.00
Sulphate	$85.00 to $90.00

Paper.

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) in less than carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload), No. 1	11½c
xBook papers (ton lots) No. 1	12c
xBook papers (carload), No. 2	11c
xBook papers (tons lots), No. 2	11½c
Ledgers	16c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tinted bonds	18c
White Wrappings	$5.25
Writings No. 2 (M.F.)	12½c. up
Coated book and litho, No. 1	$13.25
Coated book and litho, No. 2	$12.75
Coated book and litho, colored	$13.20
Grey Browns	$5.75
Writing No. 1 (S.C.)	14½c
Fibre	$8.00
Manila, No. 1	$8.00
Manila B	$6.25
Tag Manila	$7.50
Unglazed kraft	$10.00
Glazed kraft	$10.00
Tissues, bleached	$1.35
Tissues (unbleached sulphite)	$1.20
Tissues, cap	$1.00
Tissues, manila	90c.
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.

*Government fixed price to Canadian publishers.

xThese prices are for machine finish, super-calender one-half cent higher.

Paper bags, Manila (discount)	30—35 per cent
Paper bags (kraft)	40—45 per cent
Confectionery bags, Manila	34—35 per cent
Straw board	$80.00
Chip board	$80.00
Vat lined chip board	$87.50
Filled wood board	$90.00
News board	$87.50
Double manila lined board	$150.00
Manila lined folding board, chip back	$95.00
Pulp folding board	$103.00
Jute board, No. 3	$80.00
White patent coated board	$130.00
Grey folding board	$115.00
Pasted board	$95.00

NEW YORK MARKETS

New York, February 21.—With railroads placing embargoes on shipments in various directions owing to the congestion resulting from the severe storms of the past several weeks, and the consequent slow movement of paper from mills to consuming points a still stronger local situation has developed in the paper market. Buyers in and around New York are literally clamouring for supplies, and it can be said that stocks have become so seriously depleted that many printing establishments and other consumers of paper have been obliged to partially close down their plants. New England is practically cut off from New York, insofar as the transportation of freight is concerned, which means that writing paper mills in that section are unable to ship their product to this market for the present. Jobbers here have reduced their holdings to virtually nothing and can supply customers only as they receive consignments from mills, which at best are few and of small volume.

Demand locally is unusually brisk. Buyers who have their requirements for a time covered by orders placed sometime ago are anxiously looking in every possible direction to secure paper to take the place of supplies held up at mills, and the great majority of them are having scant success in doing so. Paper merchants are beseiged with entreaties from their customers for paper, but obviously are not in a position to fill the wants of the latter despite their efforts to acquire supplies from mills which are on railroads that will accept shipments. Prices on spot lots of all kinds of paper are mounting to unheard of levels, and indications are that unless some improvement in shipping conditions soon arises, a serious famine in paper will develop locally.

One of the pleasing features of the paper situation at present is that virtually all the paper being consumed is for useful purposes. Leading printers in this city say that about all the work they are turning out is printing of a necessary character. Buyers of printing are pursuing a careful policy, as would be expected when prevailing costs are considered, and are having only such work done as is an absolute necessity in the transaction of their business. It is this which leads printers to anticipate that activity in their line is here to stay for a long time. Periodically there are flourishes of business in the printing industry which come all of a sudden and disappear just as quickly, but printers look for the present period of brisk business to remain for months to come.

Another very active trade locally, which accounts in a large measure for the lively paper demand, is the paper box making business. Manufacturers of paper

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

containers of all kinds are extremely busy and are being obliged to turn down offers of additional orders. The average box making plant in New York is contracted ahead for several months, and, because of uncertainties surrounding the raw materials which they use, are decidedly reluctant to book orders very far ahead. Activity in this line of course only reflects brisk business in other commodities, particularly in the way of clothing. If manufacturers of wearing apparel were not actively engaged in marketing large lots of their product they would not be seeking so many paper boxes in which to pack their goods.

It is a fact that sizable tonnages of box board are practically unobtainable at the present time for prompt delivery. Board mills the country over have disposed of their entire product for from sixty to ninety days, and anyone looking to get fresh supplies of board is up against stiff difficulties in doing so. One of the largest distributors of chip and news board in the eastern part of the States declared several days ago that he could readily sell a thousand tons of board "over the phone" if he but had the stock to offer. He asserted that when any of the mills his firm represents advised of having a surplus tonnage of a hundred tons or so for shipment during this or that month, he looked upon this board in the light of "manna from Heaven," because it afforded him an opportunity to fill the pressing needs of several of his customers.

Ground Wood.—Prices on groundwood pulp have reached new high levels. Sales of freshly ground spruce pulp of prime quality have been reported at $68 per ton at grinding mills, and there have been rumors overheard of transactions up to $70. Demand is of an acute character, with buyers scrambling in all directions in an effort to unearth available supplies of pulp. Railroad embargoes up in New England have temporarily cut off a good many sources of supply in Canada, and consumers depending on this pulp are obliged to try to secure ground wood in the open market. Transient buyers are practically out of the running in obtaining pulp and it is indeed a question just what they are doing for want of supplies. Until weather conditions improve, thereby permitting grinders to resume operations on a more normal scale, and affecting an opening up of the arteries of transportation, the market is likely to continue in its prevailing state. What may happen to prices in the meantime can be conjectured.

Chemical Pulp.—There is a strong demand for all kinds of chemical wood pulps and prices are steadily hardening. The same conditions affecting mechanical pulp have their influence on the sulphite market, and consumers, in numerous cases, finding their source of supply temporarily cut off by railroad embargoes, are actively endeavoring to buy pulp elsewhere. How much success they are meeting with is problematical, for dealers and mill agents in New York say they have virtually no pulp to sell for prompt delivery and express doubt that buyers are obtaining any supply direct. Sales of domestic bleached sulphite are reported at 6.50 cents at pulp mills, while unbleached of newsprint quality is freely bringing 3.75 cents and domestic easy bleaching sulphite 5 cents. Kraft has strengthened in price and is now selling at 4 to 4.25 cents a pound, or at the same basis quoted on Scandinavian kraft pulp. Little foreign pulp is in the market and such limited lots as are available are held at firm prices, which consumers evince no reluctance to meet whenever they find the pulp to be had.

Rags.—Trading in papermaking rags has decreased to an extent during the past few days owing to the great difficulties encountered by shippers in moving stocks. Dealers who have orders from mills on their books are prevented in numerous instances by railway embargoes from making shipments, and are not exerting much effort to secure new orders, while paper manufacturers, appreciating that they will probably not receive the rags for some time, are holding back in buying in the hope that the lull in demand will result in lower prices when they again come into the market. There is, however, no sign of easiness in values in any corner of the market. Packers assert that collections are very nearly at a standstill because of weather conditons, and with few rags coming in they are not pressed to sell stocks on hand, so that available supplies in dealers' hands are held at firm quotations. Roofing rags are moving in possibly proportionately larger volume at the moment than other grades, this being mainly due to the fact that western felt mills are in the market and that shipments can be made out of New York in this direction. No. 1 roofing rags have been sold at very close to 4 cents per pound f. o. b. New York, while western dealers are reported to have secured this figure and, in out of the way cases, a trifle higher. Old whites are quotably strong as are all kinds of new cuttings. Old thirds and blues are difficult to move but rule steady in price.

Paper Stock.—Waste papers are sought in good tonnages and dealers here are readily disposing of about all the material they have to sell. Shipments can be made only on certain railroads out of New York, with the result that only mills situated on these lines are enabled to secure supplies in this production center, yet demand from such sources is ample to absorb the bulk of paper available. Newspapers are exceedingly firm in price and are consistently selling at higher prices. Flat folded news is bringing 2.10 to 2.25 cents f. o. b. New York, and overissue newspapers command 2.50 cents and more. No. 1 mixed paper is selling at 1.35 to 1.50 cents New York, old books and magazines at 3.40 to 3.50 cents, and ledger stock at 3.25 cents and up to 3.50 cents for special packing. Shavings are quotably firm at a basis of around 5.50 cents for No. 1 soft white and 6.50 cents for No. 1 hard white shavings.

Old Rope and Bagging.—Old Manila rope meets with a ready sale and prices are firmly maintained at an average of 7 cents per pound at shipping points. Comparatively large amounts of foreign rope have lately arrived at this port, yet consumers have not let up in their buying of domestic material and are absorbing supplies freely. Bagging is rather quiet and quotations are relatively low compared with other grades of papermaking material, No. 1 scrap bagging being available in good-sized tonnages at 3.25 cents per pound New York.

The Engineering Institute of Canada is to be complimented on the excellent report on and description of the great Quebec Bridge. The account is most interesting to an engineer, each part being shown in most painstaking detail. The arrangement of material and execution of the work is a great credit to the secretary and the printer.



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Review of Recent Literature

B-2. Reforestation in British Columbia. C. O. Marston. Wes. Lumberman, April, 1919, p. 37. Defines forestry and discusses the natural production of tree species. Advocates slash burning in order to reduce fire hazard. "After the first fire all fires are detrimental to reproduction in that seedlings are destroyed, seed trees are killed (weakened by the first fire), and in many cases the soil burned out."—C.L.

B-3. More efficient protection of our timber. J. B. Harkin, Commissioner, Dominion Parks Branch. Can. Lumberman & Woodworker, April 1, 1919, p. 32—C.L.

B-3. How to keep standing timber healthy. Can. Lbrman. & Woodworker, Apr. 15, 1919, p. 31. Bulletin by the Woodlands Section of the Canadian Pulp and Paper Association. Discusses slash disposal.—C.L.

B-3. Forest protection in British Columbia. Clyde Leavitt. Wes. Lumberman, October, 1918, p. 71. A plea for more adequate support by lumbermen and the public in the matter of forest protection in greatest forest province in Canada.—C.L.

B-3. Dominion forest reserves, British Columbia. D. Roy Cameron, Wes. Lumberman, Oct. 1918, p. 73. The purpose, value and administration of the Dominion forest reserves, and what is being done for better fire protection.—C.L.

B-4. Work of Forest Products Laboratories. Dr. J. S. Bates, Can. Lbrman. & Woodworker, May 1, 1919, p. 167. Scope and purpose of institution; testing various woods for pulp; scientific development of forest products.—C.L.

B-4. Needs of Canadian wood-working industries. Can. Lbrman & Woodworker. March 15, 1919, p. 37 Greater facilities required by forest laboratories of Canada; extra provision is necessary for adequate research work.—C.L.

B-4. How the timber is logged for the sawmills. G. A. Mulloy and W. M. Robertson. Can. Lbrman & Woodworker. May 1, 1919. p. 142. Reviews methods of camp construction, cruising, felling, hauling timber, skidding and scaling, in the Province of Ontario. —C. L.

B-4. Canadian woods, their quality and uses. Can. Lbrman. & Woodworker, May 1, 1919, p. 151. Adaptability of the various tree species; the unit of measurement and system of estimation; important facts for the foreign buyer.—C.L.

B-4. Rapid development of motor truck logging in the Pacific northwest. Wes. Lumberman, April, 1919, p. 39.—C.L.

B-4. Evolution of yarding methods at the Coast. Wes. Lumberman, April, 1919. p. 40. How machinery has usurped the place of the horse and ox. Description of systems now in use.—C.L.

B-6. How Canada's timber limits are cruised. P. L. Lyford. Can. Lumberman & Woodworker, May 1, 1919, p. 165. Describes modern method of timber cruising by trained foresters.—C.L.

B-9. Types of timber possessed by Ontario. E. J. Zavitz, Provincial Forester, Canada Lumberman & Woodworker, May 1, 1919, p. 198. Forest types; virgin stands of white and red pine; outstanding commercial trees; spruce and pulpwood; utilization of hardwoods.—C.L.

B-9. Keeping unimpaired Canada's timber wealth. Dr. C. D. Howe. Can. Lumberman & Woodworker, May 1, 1919, p. 204. How to increase the earning capacity of the capital invested in the forests. Fundamental objects in safeguarding great National assets. Primary object of forestry. Maintenance of capital stock; evil of political patronage; making the forests safe from fire; knowing results from cut-over lands; the mistaken idea of forest revenues.—C.L.

B-9. Ontario possesses great timber assets. Hon. G. Howard Ferguson, Minister of Lands Forests and Mines. Can. Lumberman & Woodworker, May 1, 1919, p. 163. States that the forests of Ontario comprise 80 million acres containing twenty billion five hundred million feet of pine, of which approximately two-thirds is on Crown lands. The amount of pulpwood in the province is estimated at 350 million cords, of which 250 million cords are reported as tributary to railways and waterways.—C.L.

B-9. Province of Quebec rich in timber resources. Avila Bedard, Can. Lumberman & Woodworker, May 1, 1919, p. 154. Describes forest zones and gives estimate of standing timber in the Province; total forest area 130 million acres of which 6 million acres are private forests, and 44,500,000 acres are leased as timber limits. Timber estimate shows 50 billion feet of white and red pine, 125 billion feet of spruce and balsam, 100 billion feed of pulpwood, 35 billion feet of hardwoods, and 20 billion feet of cedar.—C.L.

B-9. Splendid wooded wealth of New Brunswick. Hon. E. A. Smith, Minister of Lands and Mines, Can. Lbrman & Woodworker, May 1, 1919, p. 156. Discusses forest resources, forest protection and forest survey of New Brunswick. See also article on pages 157 and 158 by G. H. Prince, Provincial Forester.—C. L.

B-9. An accurate survey of the forests of Canada. W. Gerard Power President Canadian Lumberman's Association. Canadian Lbrmn. & Woodworker, May 1, 1919, p. 140. Shows the need for accurate information and presents graphic charts showing timber production of various species in Quebec.

B-9. The great need of national timber survey in Canada. Can. Lbrmn. & Woodworker, March 15, 1919, p. 27. The Commission of Conservation has already made a start in this direction.—C. L.

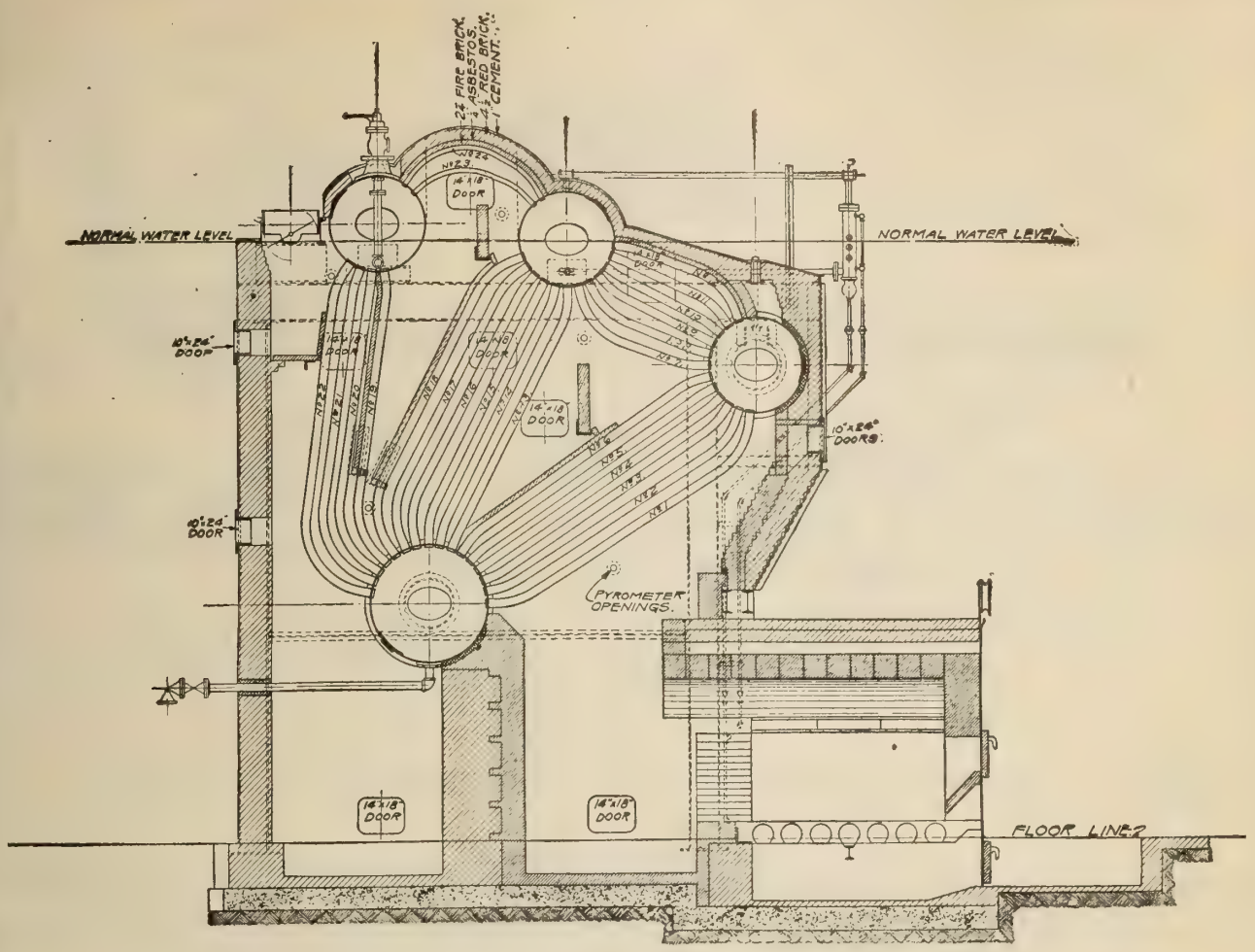
B-9. Australia discovering her timber resources. Timberman, Jan. 1919, p. 39.—C. L.

B-9. British Columbia's special timber licenses. Ralph A. Logan, Wes. Lumberman, October, 1918, p. 67. Stumpage values of special timber licenses have increased from three hundred to five hundred per cent in the last ten years.—C. L.

B-9. Forestry Association Conference, 1919. Can. Lbrmn. & Woodworker, Feby. 15, 1919, p. 43a. General review of annual meeting of the Canadian Forestry Association. Discussion of forest resources and forestry problems of eastern Canada.—C. L.

B-9. Forestry men discuss important topics. Can. Lbrmn. & Woodworker, March 1, 1919, p. 41. Report of proceedings of Woodlands Section of Canadian Pulp and Paper Association. Contains conclusions of W. R. Brown of the Brown Corporation as to the general principles most desirable to be followed in operating pulpwood lands in the Province of Quebec. Discussion of slash disposal, aerial photography, and utilization of hardwoods.—C. L.

B-10. Canada at disadvantage in export business. Timberman, Feby. 1919, p. 58.—C. L.



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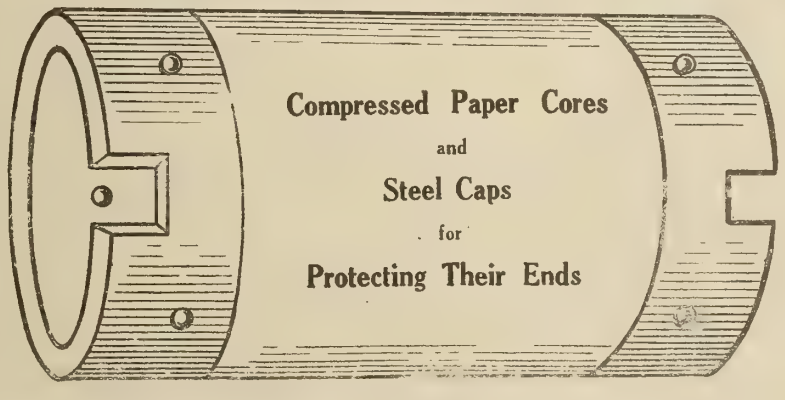
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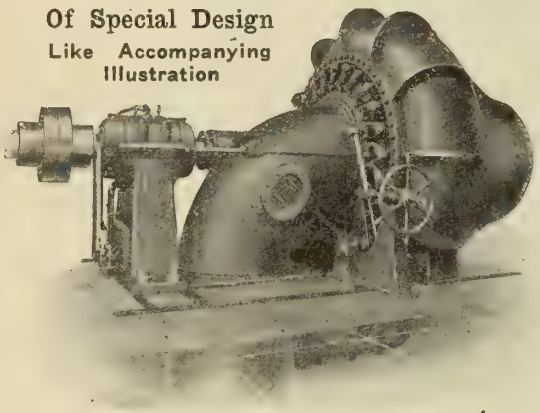
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDEN CITY PRESS, Ste. Anne de Bellevue, Que. No. 10

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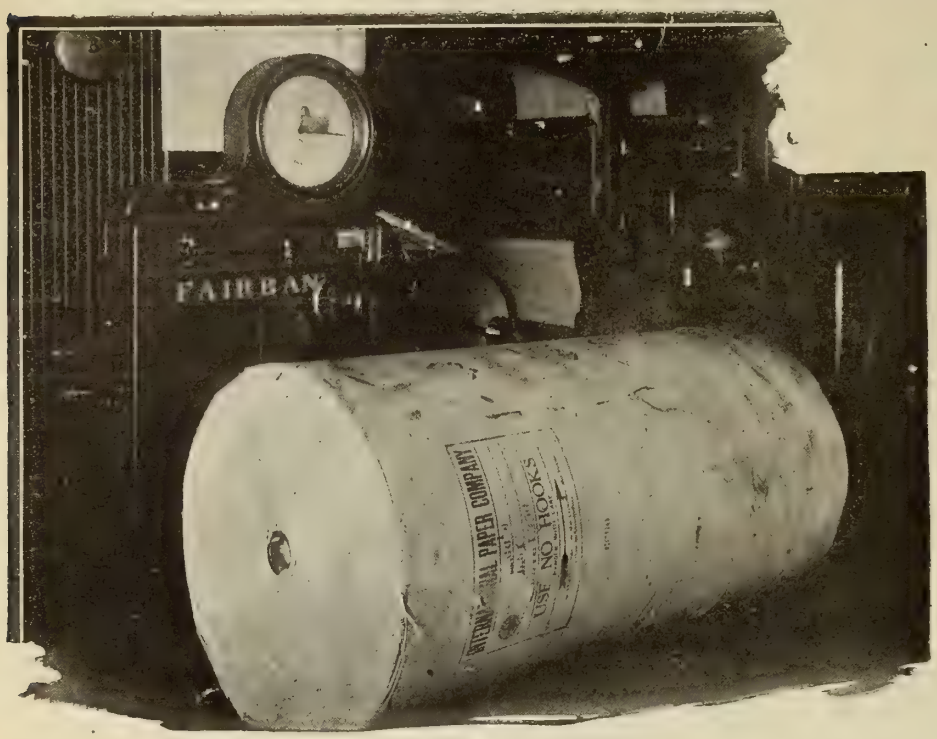
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J. NEWELL STEPHENSON, M.S., Editor.

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EDITORIAL

HE OUGHT TO BE ASHAMED.

The editor of the "Farmer's Sun" is a good friend of ours, but he missed a fine chance for a word on Forest Conservation when he received the following letter:—

"To the Editor of The Farmer's Sun:

"I see a Mr. Boyes and his club would like the U. F. O. to handle pulpwood in this North Country. Now, I would like to let you know I've cut two carloads on my farm and I can't get enough to pay me for cutting it, and it's the best wood in Canada. I don't see why the U. F. O. couldn't handle the settlers' wood and sell it to the U.S. people. They'll sure pay the price if the stumpage dues were taken off; and this country is all pulpwood, and we must sell it or burn it. Please try and help.—R. W. Kirk, Quibell, Ont., Feb. 3rd."

There are several things that strike us in this letter, in part humorously and part otherwise. To dispatch the former we would call attention to the ease with which the name of the town could easily be pronounced or mis-spelled to represent somewhat the thought of the letter.

I seems strange if a farmer living anywhere near a railroad cannot cut pulpwood at a profit unless he is either a very slow worker or has a particularly difficult piece of ground to operate on. We are sure that any Canadian mill within hauling distance would certainly pay enough for the wood to give the cutter a profit, but as we cannot find the town on the map it would be a bit hard to suggest a purchaser. Perhaps this note will reach some mill in the vicinity.

Another odd point is the intimation that a farmer is paying stampage dues on wood cut on his farm. This statement would seem to intimate that he was jobbing off some adjoining crown lands. The statement that the country is all pulpwood would cause one to wonder whether the ground under it would be entirely satisfactory farm land and the statement that the settler must sell it or burn it arouses a desire to use language that the composing room would probably refuse to set. The man who would suggest in these days, the burning of a single stick of growing forest should be jailed as a minimum punishment. How any man who writes as if he were a resident of Northern Ontario and thus even slightly acquainted with the ravages of forest fires and the destruction of property and life in the past few years, could make such a statement is entirely beyond our comprehension. It would look as if this is just the type of man that is causing so much difficulty in the prairie provinces by underhandedly setting fire to the forest under conditions that will clear his land, but without any consideration for the destruction of his neighbor's or the Government-owned forest in the neighborhood, that may or may not have been leased with a view to providing profit to the people and employment to Canadian citizens.

The Pulp & Paper Magazine is only too glad to serve any farmer or settler in disposing of his wood at a profit to Canadian pulp mills, but small as we are we would like to get our hands on the wretch who dares suggest burning a stick of it.

THE SWEDISH VISITORS.

Last week we mentioned the presence of two very distinguished gentlemen from Sweden who were entertained in Montreal by the executive of the Canadian Pulp and Paper Association. Those who had the pleasure of meeting them have remarked on what genuine pleasure their acquaintance brought and one Canadian particularly referred to the frankness of the visitors in commenting on and advising regarding the forestry situation in Canada. It appears that the present production of Swedish mills is practically all that can be properly supported by the forest resources of that country. It is understood that there does not exist the system of crown lands and timber leases with which we are familiar in Canada and over the cutting of which the government has some jurisdiction, but that even privately owned lands are subject to cutting and replanting regulations of the government. Furthermore the government is fully aware of the importance of proper forest measures and is fortunate in having the services of competent advisers and demonstrators of a sound forest policy. Canada is still following a happy-go-lucky method, or rather lack of method, in cutting down the forests and is rapidly making them of less and less value to the industries that depend upon them. In Sweden a man must provide a future generation with a tree for every one he cuts. This not only insures a future crop but a better crop of trees and the proper clearing of the ground which also encourages a better growth. It is eacy to misunderstand estimates of standing timber in Canada because it is hard to appreciate the enormous difficulties involved in logging remote areas where it not only takes several years to float out the timber but involves enormous expense in hauling in supplies and equipment for logging operations. Such points frequently are not considered in making statements of the quantity of standing timber and this failure to be specific has doubtless been one of the most fruitful causes of the lack of care in handling and caring for our most important natural resource.

A WELCOME VISITOR.

Anyone who thinks enough of the Pulp and Paper Magazine to take the half hour train journey from Montreal to Ste. Annes and make the editor a visit deserves a place on the front page. This week we had the pleasure of seeing and talking with Mr. Barnjum of Annapolis Royal, N. S., who came out and spent a couple of hours discussing the very interesting problem of the conservation of our pulpwood and the extent of Canada's supply of this important raw material. Mr. Barnjum's broad experience in lumbering operations and his keen interest as a lumberman and a loyal Canadian in the perpetuation of our forest makes him a very interesting man to listen to. One of the interesting statements made by him was that the article published in the Pulp and Paper Magazine for January 1st, has apparently aroused more interest in the United States than in Canada. We also, have had more comments from Americans than from Canadians on the subject of this article. The question comes to mind as to whether the Canadians prefer to close their eyes to the situation or whether there is a desire to gloss over the facts and maintain the impression unfortunately so prevalent that the Canadian forests are almost without limit. Mr. Barnjum is doing a good work in attempting to arouse the people whom he may be able to reach, to the seriousness of the timber situation and being unhampered by association directors or political connections he will doubtless accomplish some things which an organization might not so readily do. On the other hand he is not only ready to co-operate with existing associations in carrying forward organized work along these lines, but he is ready to assist them in doing so.

In the course of our conversation it was learned that the Maine poplar and birch forests are very nearly depleted and New Brunswick sources of supply for these woods are none too plentiful. The wood seems to occur in clumps rather than extensive forests and those readily accessible are pretty well cleaned up. There is a misconception of the rate of growth of these woods similar to that regarding spruce and fir so that reproduction there is not so rapid as many people have thought. New growth sets in very rapidly but development to trees large enough to cut is a rather slow process. The reforestation of poplar and birch opens up the possibility for useful research in the cross breeding of such trees as was suggested several years ago by Prof. McKee of Columbia University. So far as we are aware there are no such investigations being carried out at the present time although this would look like a very fruitful field for forestry research.

It is said that the German buyers of fur recently purchased large quantities of skunk hides at an auction. Most appropriate!

BUYING GOODS FROM BRITAIN

If a farmer had some carpenter work to be done and a local carpenter owed him money for vegetables, would it not be perfectly proper and sensible for him to employ that carpenter for his work rather than another man whom he already owed?

This is just about the situation as to the commercial relations of Canada with Great Britain and the United States. We already owe the United States a lot of money and Great Britain owes Canada a considerable sum. Canada needs considerable quantities of machinery and other manufactured goods and supplies. In large part the Canadian buyer has a choice between Great Britain and the United States in making his purchases. Some of these materials can be had only, or at least most conveniently, in the United States. Where there is practically even choice as to quality and delivery of product, the fact that Great Britain owes us for foodstuffs and other materials would seem to favor the purchase of supplies in that country. There are some commodities which the United States could most conveniently get from Canada so that there is no likelihood of any very great disruption of trade relations with our neighbors to the south. There is a very distinct tendency for Canadians to buy in Britain. This is no doubt largely due to economic reasons, although there may be some sentiment in it as well. The discount in Canada on British funds is just about equivalent to the import duty on a number of manufactured lines while the premium on American funds in Canada adds about an equal amount to the duties on American goods. There are, therefore, several good reasons why more goods should be bought in Britain. An important difficulty arises, however, in the fact that many of the British producers are already booked up to the limit with orders. For instance one paper machinery house is said to have work on hand for the next six years and the cry at the present time is for early delivery.

There is a large domestic demand in the United States for American products and so long as Canadians have the amount of cash in their pockets that most of them have at the present time they too will buy a good many things from the United States in spite of premiums on exchange and tariff duties. Looking at the situation as a whole it would certainly seem that Canada is fully justified in switching some trade to her countrymen across the sea.

It is a pleasure to hear that our many friends who were so unfortunate as to contract the "flu" are recovering.

It is amusing to note the thoughtless manner in which newspaper headlines mix the terms pulpwood and wood pulp in referring to the Underwood resolution. No doubt the situation is as little comprehended by them as the meaning of these terms.

Heating Water with Surplus Hydro-Electric Power

By H. A. WINNE.
Power and Mining Engineering Department, General Electric Company.

There are a number of industrial plants in this and other countries which have isolated hydo-electric generating stations. In almost every one of these plants the generating capacity exceeds the actual power requirements during the major portion of every day. Usually the water necessary to develop the surplus capacity is available during the greater portion of the year. The generating plant can be operated at full capacity at almost no increase in expense over that required to operate it at eighty per cent, or ninety per cent, or whatever percentage of full capacity is required in the off-peak periods. Therefore, if this surplus or "dump" power can be used or sold, the revenue obtained from its use or sale is practically one hundred per cent profit.

For industrial purposes, many of these plants require hot water or steam, and employ fuel-fired heaters or boilers to produce it. If the surplus or "dump" electric power were converted into heat and were used for heating the water in a simple rugged heater, the cost of the amount of fuel saved less the capital and depreciation charges on the heater, would represent a net decrease in operating expenses.

Pulp and paper mills are representative of the type of plant under consideration. These usually obtain power from individual hydro-electric plants. They require steam for drying paper and numerous other purposes, and some require hot water for washing pulp in the blowpits. An electric water heater can be utilized either to heat water for direct use in washing, or as a "temperature booster" in the boiler feed water line between the usual feed water heater and the boilers.

Description of Heater.

A very simple rugged and inexpensive electric water heater can be built of ordinary standard wrought iron pipe. Briefly, the heater consists of a length of iron pipe, through which the water to be heated flows and through the walls of which an electric current is passed. Since iron pipe has a considerable electrical resistance, the flow of a current through its walls generates heat which is transmitted to the water.

A heater designed to absorb 1000 kilowatts of three-phase power is shown in plan and elevation in Fig. 1; while Fig. 2 is a diagramatic sketch of the complete system of water and electrical connections.

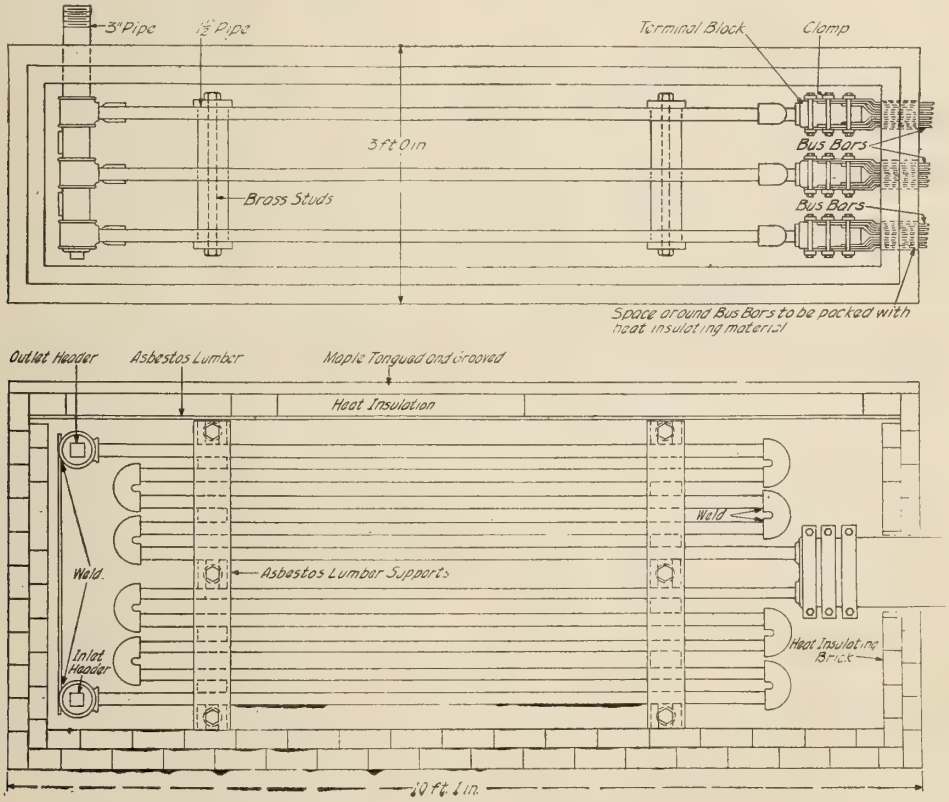


Fig. 1. Plan and Elevation of a 1000-kw. Pipe-type Electric Water Heater.

This heater consists of three sections, in multiple so far as the hydraulic connection are concerned. Each section is built up of ten lengths of 1½-inch wrought iron pipe, eight standard return bends, and one special return bend arranged for connection to busbars. These three sections are mounted side by side on asbestos lumber or other insulating supports, and are connected to the inlet and outlet headers E and D.

* In discussing this subject with W. W. Cronkhite, the editor was told of the demonstration of the feasibility of this application of electricity which is the basis of this article, for which we are indebted to the General Electric Review. The subject should be of great interest to many Canadian plants with more power than coal.—Editor.

All joints between the heater pipes and bends or headers, in addition to having standard pipe threads, are arc welded to prevent any possibility of water leakage. The welding of the joints also provides good electrical contact, eliminating any possibility of overheating.

The heater is enclosed in a chamber the walls of which are built up of heat-insulating brick, with a cover so arranged as to be readily removable for inspection. Owing to the relatively small dimensions of the complete heater this is an inexpensive method of reducing to a minimum the loss of heat due to radiation.

As shown in Fig. 2, the heater may be connected in an existing water system to "boost" the temperature with almost no disturbance of the system. The insertion of two pipe T's and the valve A are the only changes required in the existing piping. The inlet and outlet pipes I and O, of the heater are connected one to each of the T's and have a valve in each pipe to provide a means for cutting the heater out of the system. When the heater is in use, valves B and C are open, and valve A is either wholly or partially closed, depending on the volume of water flowing through the main.

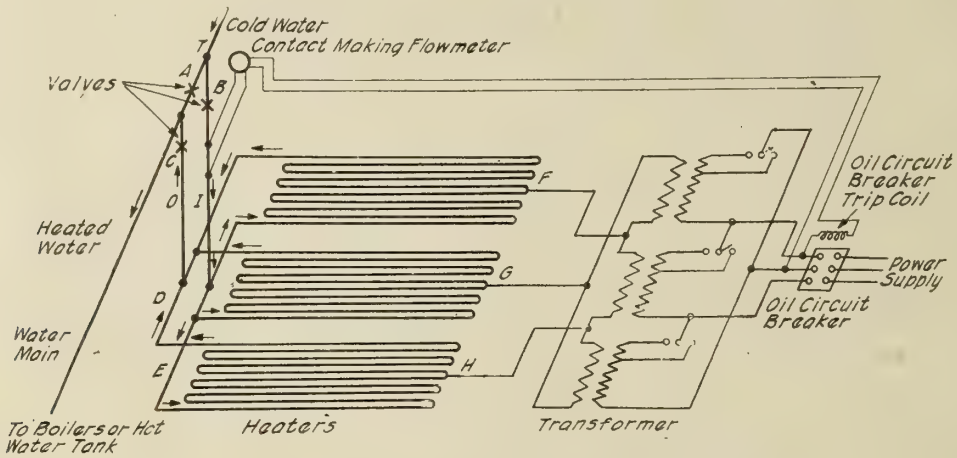


Fig. 2. Diagrammatic Representation and Electrical Connection of Pipe-type Electric Water Heater.

The circulation of water through the heater is assisted by the fact that the cold water enters at the bottom and the heated water leaves at the top.

The system of pipe connections shown applies particularly where the heater is to be used as a "temperature booster," as in a boiler feed water line or in the feed pipe to a tank supplying hot water for general purposes throughout the plant.

Flowmeter.

An indicating flowmeter is connected in the inlet pipe, I, of the heater. This affords an easy means of determining the correct opening of the valve A to give the desired water flow through the heater.

In addition to being an indicating instrument, this flowmeter is provided with electrical contacts which open the electrical circuit whenever the flow of water decreases to a certain predetermined minimum value. The contacts are so designed that they may be easily adjusted to open the circuit at any water flow within the range of the instrument. They are connected with an auxiliary trip coil on the oil circuit breaker, in the power supply line, in such a way that when they open the oil circuit breaker will trip out. This automatic cutting off of the power, in case of reduction of water flow below a safe value eliminates the possibility of overheating the heater.

If the flow of water through the main is not continuous and the heater is to be used intermittently, the flowmeter may be made to close the oil switch when the flow goes above the minimum safe value as well as to trip it when the flow stops. This makes the operation of the heater entirely automatic.

Transformer and Switchboard

From the electrical line terminals F, G, and H, the three heater sections constitute three lectrical resistances, connected together at the ends opposite the line terminals by the headers E and D. Since the three sections are similar, their resistances will be equal; and if the terminals F, G, and H are connected to a three-phase supply of suitable voltage, the power-input will constitute a balanced three-phase load. Owing to the size of the pipes used, the voltage required will obviously be of a comparatively low value, and can best be obtained from a step-down transformer. On this 1000-kw. heater, 50 volts is required across the heater terminals. The step-down transformer is provided with taps for obtaining a lower secondary voltage so that the power input can be produced to 666 K.W. when the full 1000 K.W. of power is not available.

The transformer is a water-cooled three-phase unit, and occupies little floor space. Its low-voltage terminals are arranged for easy connection to the busbars leading to the terminals of the heaters.

The control equipment consists of a small panel mounting an oil switch, ammeter, watthour meter and three double-throw disconnecting switches for changing taps on the transformer. These tap-changing switches are placed in a grille-work enclosure, the door of which is so interlocked with the oil switch that no manipulation of the tap switches is possible while the oil switch is closed.

The entire equipment, heater, transformer, and switchboard, occupies a floor space eight by twelve feet and a height of nine feet.

Operating Characteristics

At first thought it might seem that the operating power-factor of any apparatus using iron pipe to carry a heavy alternating current must necessarily be very low, but this is not the case. It is true that at current densities of the usual magnitude the ratio of reactance drop to resistance drop is high, with a consequently low power-factor. However, as the current

density is increased the increase in resistance drop is at last as great as the increase in current density and usually greater, owing to the increase in temperature and consequent increase in resistance of the conductor.

The reactance drop, however, does not increase in proportion to the current density for the reason that the iron gradually becomes magnetically saturated as the current density is increased. Therefore as the current density is increased the ratio of reactance drop to resistance drop gradually decreases, with a consequent increase in power-factor.

This effect is well brought out by the curve in Fig. 3. This curve is plotted from actual test results on a pipe-type water heater, operating on a 40-cycle circuit. The heater is designed to operate at current densities high enough to take full advantage of the foregoing characteristic, with the result that a power-factor of 90 per cent is obtained on a 40-cycle circuit. On a 60-cycle circuit a power-factor of at least 80 per cent would be realized, while of course on 25 cycles the power-factor would be well above 90 per cent.

The operating efficiency of the equipment depends of course on the difference in temperature between the heater and the air of the room in which it is installed, the efficiency of the heat insulating inclosure and the losses in the step-down transformer. Under average conditions the overall efficiency including transformer losses should always be greater than 90 per cent.

Economics.

The saving that can be effected by the utilization of "dump" electric power to heat water that would otherwise have to be heated by purchased fuel is in most cases sufficient to make the installation of a heater of the described type well worth while.

For example we will consider the case of a certain paper mill. This particular mill has a hydro-electric generating plant having a total capacity of 6750 kw. The peak load on the plant at present is about 7200 kw., this peak lasting about two hours. During 15 hours of the day the plant operates at an output at least 1000 kw. below its capacity, and during six additional hours at least 666 kw. below capacity.

The paper mill operates five and one half days a week. Water is available for operating the plant at full capacity during thirty weeks of every year.

Calculating the total kw. hours of "dump" power available in one year we have the following:

Per day
1000 kw. for 15 hours=15,000 kw-hr.
666 kw. for 6 hours= 3,996 kw-hr.

Total per day =18,996 kw.-hr.
Per week 5.5 X 18,996= 104,478 kw-hr.
Per year 30 X 104,478=3,134,340 kw-hr.

One kw-hr is equivalent to 3412 British thermal units. Assuming that the electric heater operates at 90 per cent efficiency a figure which will be exceeded in practice, we have as the total number of B.t.u. delivered to the water by the above amount of power

3,134,340 X 3412X0.90=9,625,000,000
B.t.u. per year.

To determine the amount of coal that this amount of electrically generated heat will save, we will assume that the coal used has a calorific value of 14,000 B.t.u. per pound and that it is burned under a boiler at an efficiency of 70 per cent. Then, the useful heat generated by the combustion of one pound of coal is

14,000X0.70—9,800 B.t.u.

Therefore the total number of pounds of coal saved per year will be

$$\frac{9,625,000,000}{9,800} = 981,000 \text{ pounds or } 490 \text{ tons.}$$

With coal at $6.00 per ton the saving in cost of coal will be 6 X 490=$2940 annually.

If sufficient water power were available so that the heater could be operated throughout the entire year on the outlined daily duty cycle the annual saving in cost of coal would be $5096; while if the heater could be operated at full load during the entire time of operation of the mill throughout the year, the saving would be $6430.

The first cost of a 1000-kw. heater installed complete, including transformer, switchboard, and all bus, cable, and piping connections is approximately $7500.

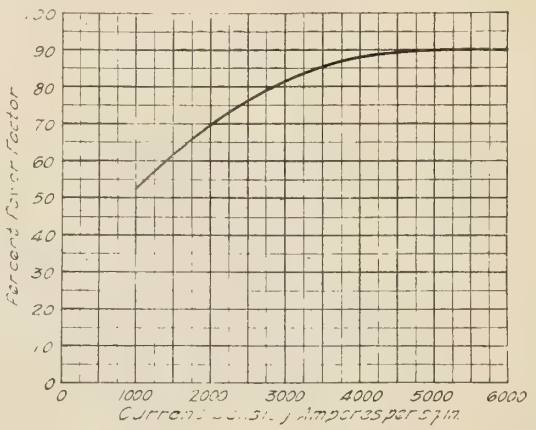


Fig. 3. Power-factor of an Iron-pipe Electric Water Heater for Various Values of Current Density in the Pipe.

Allowing capital and depreciation charges totalling 20 per cent the net annual return on the investment, if the heater is operated only 30 weeks per year and on the daily duty cycle outlined, will be $1440, or 19.2 per cent. If operated 52 weeks per year the return will be 48.0 per cent and if operated at full load, 5½ days per week 52 weeks per year the net annual return will be 65.8 per cent.

Of course in these calculations the cost of power for the heater is assumed to be zero. This is the correct basis, where the heater capacity is only a small portion of the generating plant capacity, and where it is a question of running the generators partly loaded without the heater or more nearly fully loaded with the heater.

On the other hand, if additional generating capacity must be installed to take care of the heater, then the fixed charges on the power plant will be increased, and the heater must be charged with its share of the power costs. Under these conditions it would become a question of balancing the saving in fuel against the cost of power for operating the heater. If, owing to the geographic location of the plant the cost of fuel is high and the cost of power low, the installation of a heater will even more prove economical.

Do you know how important it is to be careful? Stop and think.

British Trade News

(From Our London Correspondent.)

London, February 16, 1920. The Underwood resolution in the American Senate which asserts American paper mills' right to draw raw material from lands on lease in Canada, has some analogy with the position of British paper mills and their raw material sources in Norwegian territory. We know from experience that war confiscates private interests in many instances. An illustration is to be found in the paper mill interests close to Constantinople, belonging to Britishers, who have suffered considerable financial loss. The enemy in this case tried to obliterate British enterprise. But in the case of America, a friendly and civilized nation, she has leased lands which are subject to Canadian Government supervision in a time of emergency or shortage of raw materials and consequently in leasing the lands their conservation was not purchased. A contingency has now arisen and an embargo enforced to preserve Provincial rights, apart from the industrial point of view, and the contention in London today is that America must abide by the embargo. It might as well be contended that ifNorway put up an embargo today British mills could import from their leased Norwegian property. It is Canada's right to dictate her policy in her own land and Englishmen as well as Americans must adhere to that policy.

Paper Prices Soaring

The office of Paper Controller is now completely abolished, we were informed this week by an official announcement. This time last year newsprint was selling at 7½ cents per lb., and a few months later it dropped to 6 cents. Today the price is 8 to 8½ cents per lb. and a morning paper this week made the startling announcement that the price would jump to 24 cents a pound. The recent increase in price was due to advanced transport charges and the rise in pulp. Up to the present time there are no signs of newspapers in the United Kingdom cutting down their sizes. They have the same number of sheets as they had three months ago, and the warning is now sounded in the consumers quarters that economy in paper of all kinds must be rigidly exercised. It is pointed out that in England there is no attempt being made to "corner" paper to enhance prices and Canada, U. S. A., Norway and Sweden are quoted as having reported the demand exceeding the supplies of paper. Very few mills here are keeping reasonable stocks, for the reason that as soon as the paper is produced it is transported to its destination, the demand being so great. During January the imports of paper were below those of December by 14 per cent. This falling off is due to Canada and America. Exports of British mills, however, advanced 12 per cent over December figures but these figures relate mostly to papers of a fine grade.

The Cause of Increased Prices

We are hearing a great deal in England about increased prices, but few people ever analyse the cause of them. The paper mill owner grumbles when his pulps go up and the pulp men grumble over the shipping and labor and incidentally their Governments, whle the consumer of paper wages war against both parties. In England today the paper industry is doing very well. But in these post-war days the paper producer has no end of difficulties compared with pre-war days. He has increased railway rates, slow transport, uncertain shipping, dearer pulps and chemicals, and a wages sheet double to that of 1914. When he surmounts these difficulties he has to please the buyer, or consumer, and sell in a market with foreign competition opposing him. The pulp man has his shipping and transport troubles, increased rates and scarcity of labor if not labor troubles. His raw material is costing him more and consequently there is increased cost of production. When he gets into the market the rate of exchange arises and then he is on the look-out to see if Canada, America or the Scandinavians, or other Britishers are selling at a better price than he is asking. His trouble is to strike a happy medium and at the same time please the consumer and the public and if he fails paper goes up in price. When we consider all the elements against the paper and pulp men nowadays it is remarkable that paper mill products are so cheap. Certainly the ratio of increase is not so great as in the textile and cotton trades—two industries which go hand-in-hand with that of paper in supplying the public.

The Paper Market

Moist groundwood is selling at $57.60 a ton today in London and for the time being Canada is out of the market, which is much regretted. Because there is a slight falling off in groundwood imports a rumor is current that sellers are holding back supplies to bring prices on a higher level. Imports for January and December last were as follows:—

	Dec. Tons	Jan. Tons
Sweden	30	2,875
Norway	29,497	20,208
Canada	9,088	
Other Places	1,201	217
Total	39,816	23,300

Here we get a falling off of 6,516 tons in a month, and we see the effect Canada has on the market. Scandinavians are undoubtedly trying to force up prices unnecessarily. Things have not been going on well with them and they must make money. British mills, however, are hoping that Canada will put the market right. The supplies of sulphite etc., during December and January were as follows:—

	Dec. Tons	Jan. Tons
Bleached Sulphite	3,930	3,755
Unbleached	58,964	63,637

Bleached newsprint sulphite is selling at £30 a ton, easy bleaching at £37 10s., and bleached at £45. For any odd parcels going in the market buyers must pay above these quotations.

Notelets

The North of Ireland Paper Mill has made a profit during the past year of £35,233.

There is a scarcity of coated papers in England today.

A net profit of £48,381 was made last year by the East Lancashire Paper Mill.

The Woolfold Paper Mills (Messrs. Olive Bros.) in 1919 made a net profit of £16,627.

The Powell River Mill of Canada, supplies nine-tenths of the newsprint to the Australian Commonwealth. Newsprint is scarce and dear in Australia, post-war quotations being 400 per cent above pre-war.

Germany is sending small parcels of chemical pulp to England. In January they sent 71 tons of bleached sulphite,.

British Columbia Timber Land Titles

By P. L. LYFORD, of Clark & Lyford, Ltd., Forest Engineers, Vancouver, B.C.

No doubt the readers of the Pulp & Paper Magazine will be most interested in the forms of timber land title known as "Pulp Lease" and "Pulp License."

Pulp Leases.—There is an area of approximately 350,000 acres held under pulp leases at the present time in British Columbia. These were formerly on a much more favorable basis than timber licenses as regards annual rental and royalty charges, but carried obligations for the operation of manufacturing plants for the utilization of the timber from the leases. Practically all of the pulp leases were taken out between 1901 and 1903, for a period of 21 years, and are now (December, 1919) near the end of their terms. These pulp leases will be placed on the same basis as timber licenses (see definition of timber licenses below) upon renewal after the expiration of the 21-year period from the date of issue.

Pulp Licenses.—The pulp license is, in effect, the same as a timber sale, except for the larger area and longer period of time, etc. (see definition of Timber Sale, below). The sale of a pulp license is limited to purchasers who have either already expended at least $350,000 in the erection of a mill for the manufacture of wood pulp or paper, which is not appurtenant to any

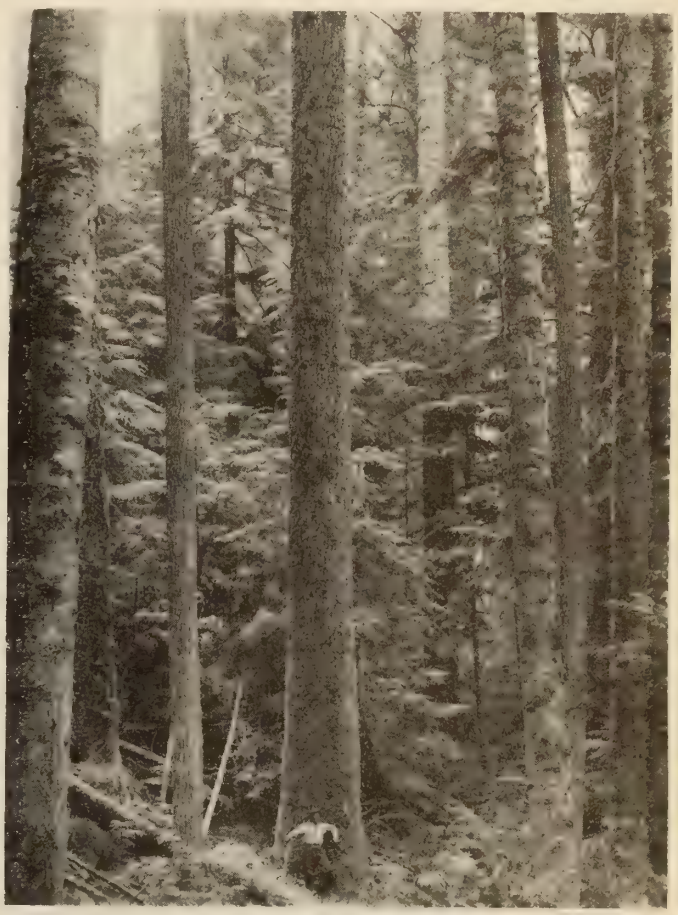


P. L. LYFORD.

existing pulp lease, or who are prepared to execute a guarantee bond of at least $50,000 that such a mill will be built within three years, not less than $100,000 being spent during each of the first two years for that purpose. The amount of the timber to be taken up is determined by the capacity of the mill, not more than 30 years' supply being allowed at any one time.

The rental payable by lessees operating a pulp-mill is one-half that on special licenses, namely, $70.00 per square mile on the coast and $50.00 in the interior. The royalty on pulpwood cut from these pulp licenses is 25 cents per cord of 700 board feet, B.C. log rule. When saw timber is cut from pulp licenses, the lessee pays, in addition to the ordinary royalty on saw material, the difference in rental. Using 15,000 board feet as the equivalent of one acre, this would be approximately 1½ cents per thousand board feet. This arrangement enables the lessee to use the timber for the most suitable purpose, and, at the same time, does not give the pulp any advantage over the timber license.

Timber Sales.—In December, 1907, all timber lands not already disposed of were reserved from sale. In the Forest Act of 1912, however, provision was made for the sale of areas of timber for immediate operation. Usually these were small areas adjacent to active logging operations. The pulp licenses (see above) were larger in extent, and, of course, different in several respects.



About 90 feet of the trunk of a 64 inch balsam tree, 245 feet high, on British Columbia coast.

Method of Conducting Sale.—The legislation governing these timber sales has been revised nearly every year to facilitate the disposal of timber in this way. Its chief features, as applied today, are as follows: The timber is first selected, cruised and surveyed by the Forest Branch, and full information as to the kinds and quantity of timber is supplied to prospective purchasers. The Forest Branch fixes an upset stumpage price which must be offered over and above the royalty.

The sale is then advertised in the "British Columbia Gazette" and local newspapers for two months if the amount of timber is over 1,000,000 b.f., or for one month, if between 500,000 and 1,000,000 board feet. When the stumpage value is less than $100, advertisement is not necessary. Sealed tenders are accepted up to a certain date, then the tenders are opened, and the license awarded to the highest bidder. Small sales are handled directly by the local officers of the Forest Branch in the district where the timber is situated.

Usually there is not much competitive bidding and the upset stumpage price set by the Forest Branch is the actual price paid, although recently (October, 1919) competitive bidding ran the price from $2.25 per thousand feet (upset price) up to $3.25 on a scale of about one million feet of cedar, and in another case of a similar amount of cedar, from $2.50 to $4.15.

Payment on Timber Sales.—A deposit, covering the cost of cruising, surveying and advertising, and 10 per cent of the estimated total stumpage value, must accompany each tender. The time allowed for cutting in ordinary timber sales is definitely fixed at the time of sale, usually one or two years, and seldom over five years, based on the understanding that the tract will be operated immediately. Rentals and royalties are due on the same scale on these timber sales as on special timber licenses. The stumpage and royalty are collected as the timber is cut and scaled by the Government scalers, so that the purchaser pays only for the merchantable timber which he actually secures.

Before proceeding with the definitions of other forms of Timber Land Titles, the following tabulation may be of interest:—

> The total area of the Province of British Columbia is 355,855 square miles, or 227,747,000 acres. Of this total area, the lumber industry has at various times selected and acquired title to the timber on nearly eleven and a half million acres, or about 5 per cent of the total area of the province. The respective areas held under the different forms of timberland title are as follows:—

	Acres.
Timber licenses	8,374,200
Timber berths (railway belt)	1,123,117
Crown grants	922,206
Timber leases	619,125
Pulp leases	354,399
Timber sales	143,612
Tan bark leases	32,252
Total	11,568,911

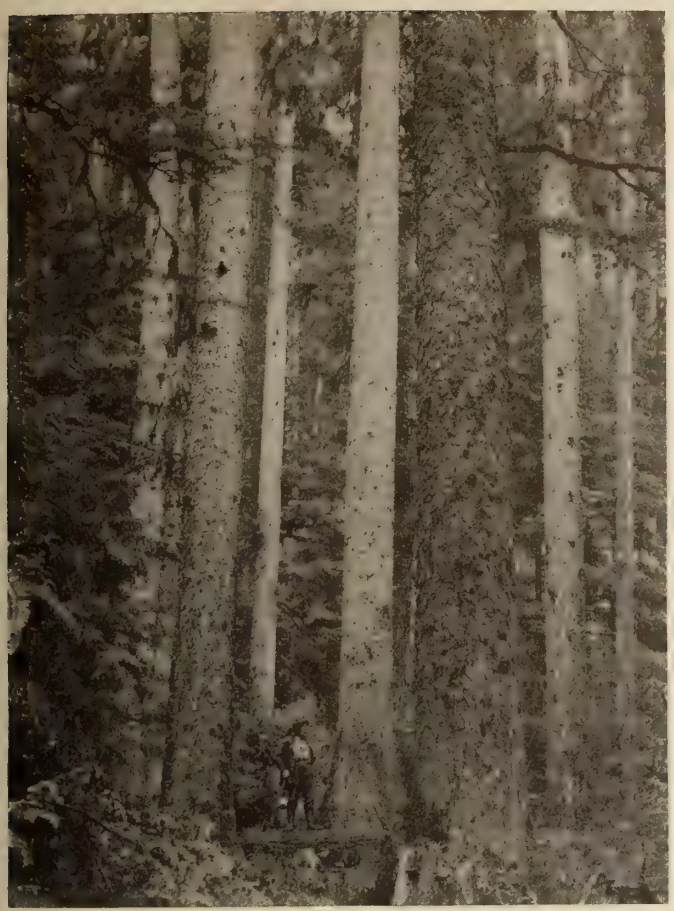
It will be observed that pulp leases and timber sales (including pulp licenses) form a very small percentage of the areas held under the various forms of Timber Land Titles. As a matter of fact, the pulp and paper mills have used large quantities of logs from timber licenses as well as from pulp licenses and pulp leases.

Timber License.—Or as termed in the Forest Act "special timber license," is the form of title under which about four-fifths of the privately owned timberlands of Canada are held. The British Columbia timber license vests in the holder all rights of property whatsoever in all trees, timber and lumber cut from the "timber limit" to which the license applies, whether cut by the authority of the holder of the license or any other person, and gives to holder the right to seize wherever found any logs or any product manufactured from logs taken from the limit, also to institute actions for trespass and to recover damages for such trespass; the license holders' rights in these regards being the same as if the lands were owned in fee simple . (See Forest Act. Sec. 18).

The British Columbia timber license is perpetual; that is to say, the holder's rights remain unimpaired



Pulpwood stand. Another view of Hemlock several years after cutting out of Douglas Fir and Cedar.



Clump of Spruce Timber on British Columbia coast. Diameter breast high runs from 27 inches to 47 inches.

"so long as there remains on the ground merchantable timber in sufficient quantity to make it commercially valuable." When, however, an owner has cut all the timber he desires to cut on any one timber limit, he may allow the title to that limit to lapse through the non-payment of the annual taxation without prejudice to his title to the other limits in the group. (See Forest Act, Sec. 21.)

License Fee.—The license fee is similar to what is known in eastern Canada as the "ground rent" and is the annual taxation payable on a timber limit. The amount of the license fee is $140 per timber limit west of the Cascade range, and $100 per timber limit east of the Cascade range and in the district of Atlin, and these figures are the *maximum* which may be charged up to December 31, 1954. The license fee is a flat tax per timber limit, regardless of whether or not the timber limit has full acreage (640 acres) and regardless of the amount or value of the timber standing thereon. In general this fixed annual taxation amounts to from ½ to 1 cent per thousand feet per annum on well selected timberlands.

Timber Limit.—This is a term applied to the timberland held under a single Special Timber License, and has a normal area of one square mile, being in this respect equivalent to a section, or 640 acres.

Timber Berth.—Just as "timber limit" designates an area held under provincial timber license, so the term "timber berth" designates an area held under Dominion timber license. The government of the Dominion of Canada owns all timberlands for a distance of twenty miles on either side of the main line of the Canadian Pacific Railway. This 40-mile wide strip across the province is known as the "railway belt," and all timberlands alienated by the Dominion Government are known as "timber berths." The only essential differences between a timber berth and a timber limit are the difference between the Dominion and Provincial regulations regarding lands held under timber license. Both titles are perpetual so long as merchantable timber remains on the ground. In the case of the provincial "timber limits," the taxation, both as regards annual license fee and "royalty" has been definitely fixed until December 31, 1954, whereas the Dominion Government has so far reserved the right to vary the taxation from time to time.

In fact, the taxation and royalty charges were altered as recently as May, 1919, as follows: The "license fee" or "ground rent" was changed from $5.00 to $10.00 per square mile on berths east of Yale (i.e. the interior region) and from 5 cents to 10 cents per acre on berths to the west of Yale (i.e. the Coast region). The royalty on sawlogs of all kinds was advanced from 50 cents per thousand feet to 75 cents per thousand feet, with the exception of Poplar, which remains at 50 cents. Shingle bolts advanced from 25 cents to 50 cents per cord, and ties, posts, poles, etc., were all advanced correspondingly. Doubtless such changes as are made in the future will be in line with the similar changes provided for in the regulations governing Provincial timber licenses.



Pulpwood stand. View showing lands cut over for Douglas Fir and Cedar, the Hemlock remaining. The timber in this picture runs from 25 to 40 inches in diameter. (Group of small trees standing very close together.)



Felling operations in heavy stand of Hemlock. British Columbia coast region.

Crown Grants.—The term "Crown grant" as applied to timberlands signifies that such lands are held by the owner in fee simple. Timberlands have not been sold in fee by the Province of British Columbia since 1896. The total area of fee lands in 1916 is reported at 922,206 acres. The annual taxation on Crown granted land varies with the assessed value, as is the case with similar lands in the United States, and the tendency in recent years has been to increase the assessed valuation of Crown granted lands with a consequent increase in the amount of the annual taxation.

Prior to March 9, 1887, lands sold in fee were not subject to a royalty reservation, which was first established at that time. All timber cut from lands Crown granted since March 9, 1887, is subject to a flat royalty of 50 cents a thousand, regardless of species of log grades. As already noted, the sale of timberlands in fee was discontinued in 1896. Since that time, however, considerable areas have been Crown granted for agricultural purposes, and these lands frequently carried more or less timber, which timber was also subject to the flat royalty rate of 50 cents per thousand. With the enactment of the Timber Royalty Act on April 30, 1914, timber standing on agricultural lands granted subsequent to this date was made subject to the same royalty charges as obtained on timber limits.

Timber Lease.—Before the standard timber title known as "special timber license" had been adopted there had been alienated some 600,000 acres of British Columbia timberlands by leasing. Unlike "timber licenses," all of which are subject to the same terms and conditions, these leases differ greatly from each other in the matter of annual taxation (varying from 5 to 25 cents per acre), length of term (varying from fifteen to thirty years), and in other respects.

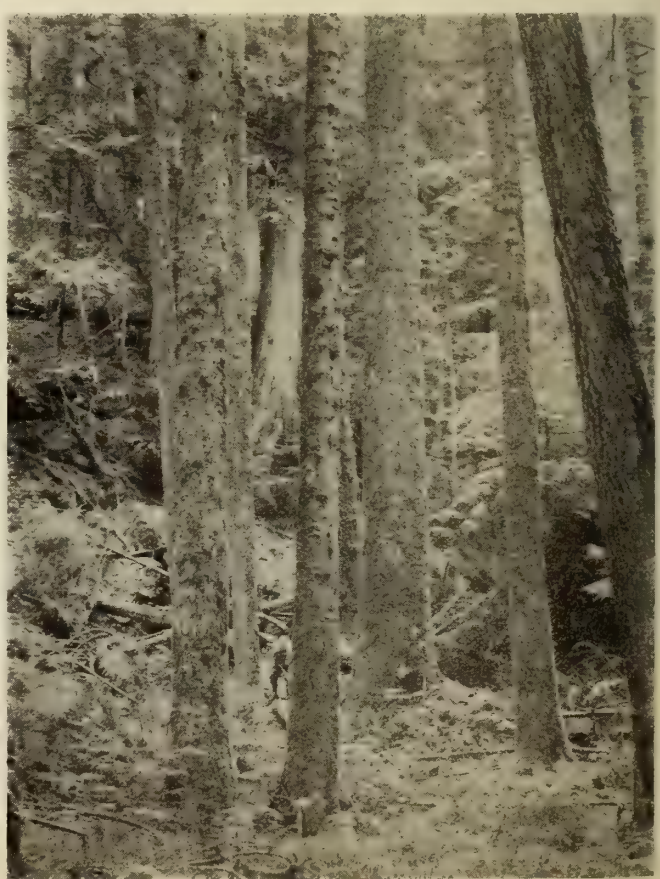
With few exceptions timber leases were made renewable in perpetuity under the legislation of 1901, or were converted into special timber leases under legislation of 1915, and thus made perpetual to the timber land owner. Timber leases are of interest in that the terms under which they are held differ somewhat from the standard terms of the special timber lease. In determining the value of these differences the owner must always carefully read the text of the lease contract in question.

Fire Protection Fund Tax.—All timberlands in British Columbia, whatever the form of title under which they are held, are assessed 1½ cents per acre per annum for the purpose of providing a fund for the protection of the timberlands from fire. The provincial government contributes an additional sum equal to that contributed by the timberland owners, and the fund is administered by the British Columbia Forest Branch.

Royalty.—The "yield tax," payable when the timber is cut, is known in British Columbia and elsewhere in Canada as the "royalty." The term "royalty" is an inheritance from ancient times when royalties were payable to the kind. Now, of course, the royalty is the property of the province, and is one of the chief sources of provincial revenue.

As in the case of the annual taxation, the "yield tax" or "royalty" has been fixed in advance until Decem-

(*Continued on Page* 252).



Heavy stand of Balsam and Hemlock (Pulpwood) on B.C. coast

A Comparison of Wide and Narrow Machines

(Continued from last issue.)

Mr. Stadler had taken the chair to permit Mr. Shipman, the new chairman of the Technical Section to make a few remarks from the floor. Mr. Ball had given some operating costs and Mr. McInnis was asked to give some more data on machine efficiency, which he did, as follows:

am very much disappointed that Mr. Mason did not continue his talk. We are trying to find out frankly and fairly the difference between the wide and narrow machines. Mr. Mason has said that the Laurentide has decided to play with speed, and they certainly did not decide that by simply giving the matter the "once over." Now, what are his reasons for turning from wide machines to speed? I think that would be very interesting.

In regard to the chairman's question on machine efficiency I have the figures here for about eight months. I have taken the operating efficiency in each case, which, as I have termed 'operating efficiency' eliminates the time down. I will take the figures at random,—for comparison of the wide and narrow machines.

On June first, the operating efficiency of our wide machine (No. 1) was 87.2%, the operating efficiency of our No. 4 machine was 78.9; of our No. 3 Machine, 86.3. That was for a week. I will take another period when the operating efficiency of our No. 1 machine was 89.4; our No. 4 was 92.3; and the week following, No. 1 was 89.1, and No. 4, 89.6. The week following that again No. 1, 85.9; No.4, 84.4 and a couple of weeks after, 90.5 for the No. 1, and 89.0 for the No. 4. The week following, 89.0 for the No. 1 and 92.0 for the No. 4. That shows they run very closely together

Mr. Ball's figures on the 202 inch machine and the 156 inch machine were taken over the same period in the same year.

With reference to the question of clothing which Mr. Ball raised: On our wide machines for 1919, a whole year, we got eighteen days on our No. 1, machine out of our wire, also eighteen days on our small machines, and that eliminates immediately the question of high cost, because all wires are sold on the same unit basis, and as there is naturally a larger percentage of trim on the wide machines than on the smaller machines, consequently the cost per ton must be slightly the less.

Mr. Stadler: In regard to the cost figures. I might add that the cost for wires and dryer felt has been a little higher in the wide machines, due to the fact that we are charged a little more per unit. In other words, a square foot of wire, or a pound or dryer felt costs more for the wider machines, and hence there is a difference on account of that. This difference is almost proportional to the additional cost of equipment.

Mr. McInnis: Mr. Chairman, while I don't want you to call me up any more, I will give you these figures while I am here. I will settle that question of clothing with some figures for 1918 and 1919.

Machine Clothing 1918: Average Days Run.

	No. 1 Days.	No. 2 Days.	No. 3-4 Days.
Wires	20	18	19
Jackets	50	100	60
1st and 2nd felts	23	29	32
3rd felts	25	50	43
Dryer felts	37	55	65

Machine Clothing 1919: Average Days Run.

	No. 1 Days.	No. 2 Days.	No. 3-4 Days.
Wires	18	17	18
Jackets	30	140	96
1st and 2nd felts	27	32	27
3rd felts	56	57	52
Dryer felts	35	42	53

Now the breaks over aperiod of eight months are a little high by reason of the facts with which we are all familiar. Our breaks on the No. 1 machine averaged 14.4 per day, as against 14 on the No. 4. I have already explained to you in my previous statement that repairs were less; I have not figured it out in tons, although that can be done but it actually cost us $800,000 last year for repairs to No. 1 machine less than No. 4.

The statement was made that it costs more for labor on the ibg machines than on the small ones. We find that the cost of labor varies from thirty to seventy per cent in favor of the large machines.

Mr. Ball said: overwork the wet felts, getting about twelve days on the wide machines, and then get a hundred days from the dry felts and on nine hundred pounds of coal per ton of paper. This is found by taking the whole mill, with seventy thousand tons of paper, using so much coal, and from this finding the number of pounds of coal per ton of paper.

Answering a criticism that in his first statement he said the cost was greater, Mr. Ball said, "It takes more horse power to drive a large machine than a small one." To this Mr. Stadler remarked, "Per pound production, I don't think it takes any more power."

High Speed Men Slow of Speech.

The Chairman: We have heard about the wide machines, and have heard a lot about the medium width machines. I supose that it would be quite in order just now, in order to give us a little more inspiration, to hear from the Laurentide Company as to what led them to go in for high speed, and I think Mr. Mason is going to tell us something on that subject. They must have certain basic figures which influenced them, or did at the time they decided to go in for speed rather than for width.

Mr. Mason: I am sorry I have not any facts at all. However, we are going to play with speed.

Mr. Campbell: It was stated that the drying efficiency of the dryers was in direct ratio to their width, minus the radiation. Now, there is another factor, and that is the factor of power. That would be in direct ratio to the width of the machines plus the additional weight, but what is the extra power taken to drive the machine at a higher speed? Does that increase with the square of the speed?

Professor Keay. The member is laboring under a misapprehension. We have not gone into that phase of the situation at all. I think that is up to Mr. Mason and Mr. Wardle, as they are more capable of speaking about that than I am.

Mr. Wardle: As Mr. Mason said, we have not any facts at all. Personally, I used to think that the three-roll machine was the thing. I don't know but what it is yet, and I would go further in regard

to speed, and go away up towards five thousand feet a minute speed, but you will increase your trouble at high speed, and you will have to operate the machine almost automatically as far as handling the sheet goes.

One of the nice things we think about the narrow machines, that is, about the two-width machines, is that it would be easier to change the clothing, and easier for our men to handle a 166-inch wire than a 206 or a 246-inch wire. We get to about the same point theoretically, if we can hold up to the efficiency, as Mr. McInnis has said. We expect to make from seventy to seventy-five tons per day on our machines, which will have 166-inch wires, and we figure they will run at about a thousand feet, and we figure that we can drive at fifteen hundred, if we want to do it. We spend about as much money one way as the other, because while the narrow machines mean cheaper formation, much less expensive, lighter trusses, and much less expensive crane overhead, we hope to be able to make a considerably cheaper production. On the other hand, we have to put about the same money into such machines, in order that they may stand the increase in speed. We are figuring on going the limit in bearings and gears to try and eliminate the trouble with the pulleys, and we will be very glad to answer any detailed questions about the machines which we can, because, as Mr. Chahoon has said a good many times, we have no secrets whatever—the Laurentide has no secrets at all.

The chairman: It seems that the wider machines seem to stick at about two hundred and two inch widths, at the present time, and that the wider machines do not represent the same difficulties as the medium width machines, therefore, it seems to me almost personal choice whether we take a 164-inch or a 202-inch machine. However, when we look into that, it would appear that four 202-inch machines would be about equivalent to six 164-inch machines. Now, I think, since McInnis has both of these machines, that he could give us a pretty close estimate whether the first cost and the operating cost would be in favor of the wide or narrow machines, and which would be the more expensive, the four large or the six small machines.

Mr. McInnis: I have no figures on the original cost, and the reason we decided to put in two 202-inch machines, I think is perfectly obvious. We assumed, in the first place, there was no difference in operating as compared to the narrow machines, and we have proven by actual facts that the figures are in favor of the wide machines. Now, we want to install two 232-inch machines, to give us six rolls of paper, and some one else wants to install three two-roll machines to give them six rolls, but they will have to have a larger building for the reason that they have got to have one more drying space and more machine space, and in addition to that, while I suppose it is possible to get prices on machines on a competitive basis today, yet, under normal conditions, I understand the machine builder's cost for three machines of two-rolls each as compared with two machines of three-rolls each, would be greater per inch of trim for the narrow machines than it would be per inch of trim for the wide machines. Thus it comes right down to the initial cost of construction and the initial cost of the purchase of the machine.

Now, we have three companies, the Spanish River, The Laurentide and Price Brothers, all going in for high speed. Those companies must have some specific reason for that, and the object of the discussion is to find out what those reasons are. Mr. Mason said a while ago it was to make more money. It is too bad that we cannot get anything more specific on this subject.

Mr. Thorne: I think it would be quite in order to let the Chairman tell us of the difficulties in the construction of these machines. Why can't we make a 300-inch machine, and why not make it a 5000-foot speed? He told us he has a machine in his mill, which, if he constructed, would be constructed in a different manner than it is. Now, why? Can he not give us a little philosophy on construction of machines?

The Chairman: It seems to me that I am a kind of a shock-absorber here. When nobody else has any thing to say then the Chairman has to speak. However, I will try and answer Mr. Thorne's question. I told you before that I was not called to build machines for width, but only for speed. One thing, however, that is well known to all of you, is that whenever you go into speed it is an experiment, and your troubles with speed are multiplied proportionately with the speed. I am sure that those gentlemen who advocate speed, must have given this matter due consideration. I have given it some consideration within certain limits, and I saw no serious difficulty. What the limits are is something that has to be determined by practical observation. As far as the width of the machine is concerned, my present view is—now understand that this is my personal view, and is not worth a damn—(laughter)—but you can take it for what I give it to you—that just today I would rather build machines three rolls in width, than to have one built for a thousand feet a minute. The diffieulty in the wide machines, according to my observation, has been particularly at the drying end of the machine Mr. McInnis's statement has contradicted such observations, he said that he had no difficulty in winding the rolls; that it depends on how many rolls you go to put on, and when you have as many as six rolls on the 202-inch machines, you sometimes have a little difficulty in getting the six rolls wound up. However, with the efficient sales organization to educate the publishers in the use of rolls 72 inches wide, when you have three rolls on a 232-inch machine, I suppose the difficulty will be largely overcome. So that my personal view, as I get it out of this discussion and combined with some of my personal observations, is that for important work I would say I would rather have a machine of three-roll width than to have one running a thousand feet a minute, and my reason for that probably needs to be explained.

You know perfectly well that the efficiency of a paper machine depends to a very large extent on the human element, and the human element is a factor in the operation of these machines. Now, we go to the thousand-feet-a-minute machine, and we were even speaking of five thousand feet a minute. I think, about that, we will have to change our view. If we go to that speed, we will have to disregard the human element entirely. We believe that with a machine running at a thousand feet a minute,—no man can handle the paper, and the whole thing will have to be mechanical. I may say that I have looked over a machine running at a thousand feet a minute. I was told it was running at 950 at the time, but a pocket tachometer showed that it was only running about 750 feet a minute. I wanted to see how they handle the paper. I was told they handled it perfectly. But unfortunately a demonstration could not be given. So there is still a doubt in my mind, but we do know that

the speed has developed to such an extent that everything is practically automatic. If this is developed to such an extent, then personally I would have no choice in the matter at all, and I will say, "Give one or the other, or both."

Mr. Mason: I have only just a word to say, and that is, that to a certain extent our proposition is in an experimental stage, but we have all got to take chances if we are going to get anywhere, and we are quite willing to do a little work in that direction, and take those chances.

If you analyse the whole situation, it is a question of efficiency of operation. The interest on the capital invested, and the little difference in machine clothing and the difference in the cost of repairs, etc., are really very small when you come to analyze the whole thing, if there is a big difference in the efficiency of operation. If there is not, I don't think there is very much choice between the two, but unquestionably, the future will tell whether the additional speed is more efficient than the additional width.

I am sorry that I had no facts to give, not but what I would be glad to give them if I had them, as we have nothing we want to keep to oureslves, and we issue an invitation to anybody to come up and see these machines when we get them running. We do not propose to start at a thousand feet, but we do propose to get a little fun in business, and we don't want to go on as we did ten years ago.

Mr. Stephenson: Mr. Mason has brought out a statement that comes pretty near hitting the nail on the head. So far, no machine has been run, to make paper satisfactorily for a continued length of time, at a thousand feet a minute, so that it has been impossible to get the facts from observation. Our Chairman has given you his observations of a machine which was said to have been operating at 950 feet a minute, but was not. I happen also to have observed a machine that was said to be running at a high rate of speed, but when we boiled down the facts, it was running about 725, and just as luck would have it, there happened to be a break and the automatic device worked very nicely.

Mr. Mason: I will make the statement that I timed 164-inch machines when they were running at 840, and they were operating very nicely and successfully, and the superintendent told me that their daily average production for the previous month, was better than 70 tons. That is about the only information which I have received.

The Chairman: Seventy tons! I think we should give credit to those fellows who have the ambition to tackle a thing that goes that fast. Apparently the fast machine is a little more in the experimental stage than the wide machines, and if both of them are considered quite seriously, I think there is very little difference. One may give just as much trouble as the other, and I think, that they will both get there

Head of 52 inches in Machine at 975 feet.

Mr. Buncke: Mr. Chairman, I have compiled some statistics here regarding the three-roll machines, and the two-roll machines, based on the statistics and the conversation I have had with different people who have had experience with both types of machines. There were several points which make up the present operating difficulties, and I think if we could have some of these things explained perhaps, a method might be devised for overcoming these difficulties.

Going down the line, I have compared the two-roll machines and the three-roll machines, and I find that a three-roll machine running at 650 feet a minute would require, for an equivalent production, that the three-roll machines would require a speed of 975 feet. In order to get the stock on the wires at the same speed as wires moving forward at 650 feet a minute, a head of 23 inches is required and in a two-roll machine running at a speed for equivalent production would require a head of 52 inches. That brings up a very interesting point, that is not altogether sure in the minds of the paper makers. I can tell you that you have to get stock on the wire somewhere near the speed that the wire is moving forward, and when you get up to this high speed, it will play a much more important part than it does on the slower speed, around 650 feet per minute. So the 52-inch head is one of our present problems, and that is one of the things we would like to hear about.

I will now pass along to the pitch of the wire. This is something else that has caused a considerable amount of interesting argument and discussion. Talking to machine builders, some say that the pitch is not important. Of course, it will depend—assuming that you get stock on the wire, in order to maintain the velocity you have to overcome the friction resistance of the air. In the case of a machine running at 975 feet a minute, the speed is approximately eleven miles an hour, as compared to the three-roll machine running at 650 feet a minute, which runs at approximately seven and one-half miles an hour.

As to whether the friction of the air on this sheet of paper moving forward is a determining factor or not, I am not quite sure. It seems to me that as we increase the speed, this question is more and more important, just as some high-speed automobiles take considerably more power in increasing their speed from fifty to sixty miles an hour.

There is another thing that seems to be of importance, and that is the table rolls. As you increase the speed of the wire, the table rolls travel at a much higher speed, and the water coming through the wires is thrown from the back roll onto the roll in front of it. It is carried in a sheet and interferes with the formation of the paper on the wire. There must be some way of overcoming that. Insofar as the relative length of the wire is concerned, in the case of the 650 feet a minute, three-roll machine, I assume that the wire is eighty-two feet long. In order to get the same volume of water per square foot of wire surface per minute through the wire of the high speed machine, the wire would have to be one hundred and twenty feet long. That would necessarily mean a higher cost in wires, because in addition to increasing the number of revolutions per minute which the wire would have to make, there would be a higher strain because of the more suction boxes required in taking out the same amount of water.

Coming to the presses, I don't know how many presses are required to do business on the high-speed machines, but certainly it is very evident that as the speed goes up the pounding of the water carried up by the press rolls in the pinch of the presses will be greater, and what will the effect of that be on the crushing of the sheet? Of course, there are ways of overcoming that. I don't know whether suction control will be the answer to that, or not.

Mr. McInnis has pointed out that there must be sixteen more dryers in case of the high-speed machines, to do the work.

Now, coming to the winders: You all know that you frequently come up against trouble in the wind-

ers. Running over six hundred and fifty feet a minute,, you have trouble with the winders and at a speed of 975 feet a minute, you would have to have at least one and probably two more winders, which would involve that much more help.

These questions are all very important to us, and if we can have something pointed out in connection with them, it will be better for all. The modern tendency seems to be the question of whether the increased width will best give us increased production, or the increase of speed. Of course, there are more or less mechanical things which may or may not interfere with the production of the paper. I would like to hear some of them explained.

Mr. Wardle: As to Mr. Buncke's questions: Some I can answer and some of them I cannot. As to the head of the wire: To get the same speed you have to have your 52-inch head or whatever the figures are. As a matter of fact, I think we will start up about 650 feet per minute and probably with a head on the breast roll on the slices, something about 27 inches; and with the pitch on the wire 27 inches from the breast roll down to the suction boxes to try and get the water out of the sheet. Our wire will be from one hundred to one hundred and ten feet long, and we are separating the rolls so as not to throw the water back. We are planning to install presses—suction presses—where the press-rolls will take care of practically all the water. You are all endeavoring to see that no water comes out of the nips, but we are planning on making some experiments through a different method.

As far as the dryers go: There cannot be any question there. If you want to dry paper at speed, you have to dry it on the drying surface, and we are planning some 40 six-foot dryers.

As far as the winders go: We are planning to install a third winder either at the end of the machine or at the separate room, we have not decided which as yet.

I think the solution of this whole question will come in the next two or three years in a combination of width and speed, not alone with two widths, but with perhaps three widths and with a speed of from nine hundred to a thousand feet. In any case, it is going to mean an increase in the dryers. You cannot run a 230-inch machine, or a 164-inch machine the same way as regards the dryers. The trouble with the present dryers is that you have got to limit the speed. I think that is pretty generally conceded. You will have to have a new type of dryer, no matter what the width of the machine is.

In connection with the plan of increasing the speed at some later time, it will necessarily involve the construction of a machine, having a very high head box. In other words, if you started in with a head on at the slices of 27 inches, something will necessarily have to be done to get a surface sufficient to accommodate the head required at the higher speed.

In connection with the variation in the pitch of wire: There has always been rather an uncertainty about that, and since that point is up, I feel that it would be a good time to get the information available on it as well as the opinions of different people on the effect of the variations of the head in the slice bar. Of course, we all know that the head is necessary to get the stock on the wire at the same speed the wire is moving forward, but what is the effect, in the operation of the various machines, in not putting the stock on the wire fast enough, or putting it on too fast? It seems to me that putting the stock in too fast might carry the stock down over the suction box and cause trouble there. I think this could well be discussed more fully.

The Chairman: Will any one give us some observations on that subject? Actual experience, I think, is the best. Is anybody here willing to give an answer to the questions just put forward, as to the difference between the hydraulic head on the wire slices in proportion to the speed of inclination of the wire. Surely there are a good many here who have gone into this subject. Mr. McHenry, have you anything to say on this subject?

Mr. McHenry: Well, the head carried upon the the slices is affected by the stock. If the stock is slow, your head will have to be changed, and so on, and that influences the pitch of the wire a great deal. Personally, I think the pitch of the wire on most machines is less than it really should be.

Opinions differ, but I think the stock should be travelling just a trifle slower than the wire. If you get it travelling at exactly the same speed your stock will come down standing up. You govern by the speed of your stock the head carried on the slices.

The Chairman: It is too important a question from the beginning to be pre-digested in that way, and I am fully convinced now that both of these propositions require a certain amount of following up, and a certain amount of development; I think it is very satisfactory to know that there are two factions here, one supporting the speed, and the other one supporting the width. When we have the two of them combined, we will have a wide machine running at a fast speed. I think that is a satisfactory condition to be in. It is only a question of time, and I don't think it will be very long before we hear something. We know that the Abitibi will soon tell us something of the wide machines, and that the Laurentide will soon tell us something about the fast ones. It is only a question now of "Watchful Waiting."

Spanish River Figures Storm-bound.

The meeting was greatly disappointed that Col. Jones was unable to arrive in time to present figures showing why Spanish River is going in for a fast machine.

The Chairman then announced: There are, on the table in the back of this room, a few copies of the report of the Special Committee on Standard Unit Weights of Pulp of the Connecticut Valley Branch of the Cost Association of the Paper Industry. I have a copy here, and it is certainly very interesting. Those of you who are interested in this subject can take one as you leave the room. It seems to cover such points as we have not covered this morning, having reference to pulp which is shipped, and received by the purchasers, and they seemed to have outlined various facts which ought to be of interest, especially to the committee on Moisture Tests, etc., and we shall all perhaps become very much interested in it.

The discussion of Mr. Hoxie's paper will follow.

MUST PAY FOR CUTTING TREES.

In a judgment rendered by the First Division of the Court of Review, the Bell Telephone Company of Canada was condemned to pay the Country Club of Montreal $592.01 damages in compensation for the cutting of a number of trees on their property situated at St. Lambert. This judgment reversed one of the Superior Court, and the Bell Telephone Company was also condemned to pay the costs in two courts.

"Amen" says every forester. Preserve the trees.

Annual Business Meeting of Technical Section

(Continued from last issue.)

Report on Committee on Testing Moisture in Pulp.

By E. B. SLACK, Riordon Pulp and Paper Co. Chairman.

Your Committee are of the opinion that the following methods which they have reported on in the past year, and which have been on trial for a year, therefore should now be adopted by the Technical Section and brought before the main body of the Canadian Pulp and Paper Association as standard methods for the testing of such pulp.

1.—That the Strip method for testing wet lap pulp should be adopted as the Universal Standard Method.

2.—That the Strip method for wet sheets from Rogers Wet Machine should be the standard for testing such shoots.

3.—That the Wedge system as previously illustrated should be the standard Method for Testing Hydraulic Pressed Pulp

Discussion

Before adopting this, I think we should go a step further, and that we state that the report be adopted, but that the Committee shall make up full specifications in detail, as to how these tests are to be made, and with other details and specifications in general, to form a basis of tests, which will be the standard for tests of pulp in Canada.

Mr. Carruthers moved that complete specifications be embodied in the report, as a basis for standard tests in Canada.

The dialog that followed between Mr. Crossley and the Chairman contains many interesting points and is too good as it is to be "edited."

Mr. Crossley: Mr. Chairman, I think in addition to these specifications, that specifications in great detail as to the psychology and of the man's ability who is to make these tests be appended to the report, before it is accepted.

The Chairman: I believe your suggestion is a very good one, and we shall see that the Committee will cover all the phases of intelligence in their report, I think that will be the best thing. I believe it is too far-reaching to go into in detail—we would be here until morning—but I think you can trust your Committee to cover this matter properly, and I am fully convinced that after three years work on the part of this Committee, their conclusions, as arrived at in this summary, are just.

There may be some who think that when they sell the pulp they ought to use one system, and when they buy the pulp they ought to use another, but this Committee does not look at it in that way. They came to the conclusion from an entirely disinterested point of view. We instructed them to see if they could come to some standard method of testing pulp in various forms, and here are their conclusions, and, therefore, I think in justice to everybody we should adopt this report, and have detailed specifications as to how the tests are to be made, and as to how the samples are to be drawn, and the quantity of the samples, and everything in detail, and then those mills who want to incorporate in their Sales Contracts, clauses referring to such specifications, they can do so, I think the Committee are trying to do their best in a fair and just way, because the findings of three years work are the basis for such specifications.

Mr. Crossley: Just in connection with reference to the findings of the Committee on the strip method in wet pulp, in which the Committee said that they had come to the conclusion that the strip method was the best. They said they studied some forty cases, and out of the forty cases, there were four cases in which there was a variation of one per cent; some eight or ten cases where there was a variation of .75 per cent, so this does not appear to me to be a method that is absolutely correct. I do not think our Committee has reported definitely on any other method of testing wet pulp, and yet they have been supplied with a great deal of information on certain other methods of testing the pulp, which they have not discussed, and before adopting a method which shall be used as a standard, and as a basis for the settlement of claims, I believe we should go a little slowly.

The Chairman: Don't you think that three years' work is a little slow on this thing? It seems to me that after three years, the Committee have certainly the right to publish their findings. These are simply their conclusions. I personally believe that if any two men were to take samples from the same sheet of pulp, there would be as much variation, as one per cent, in certain instances. If you want to go right down to basic figures, and go down to the fractional percentage, the only thing would be to take a whole carload of pulp and follow it through.

Mr. Crossley: That is why I raised that objection, because the strip method is clumsy. It is asking too much of the mill, and it is conceivable that a better method, if not perhaps any more correct, can be devised. Better methods of getting the samples have been devised.

The Chairman: Have you made that suggestion to the Committee?

Mr. Crossley: Yes, I have written the Committee quite a long letter with a number of illustrations, which they have not referred to in any way, but I think it is a pity that such a clumsy method should be standardized. It puts a premium on testing at the selling end, not at the receiving end, and the receiving end has to suffer for the clumsy methods, because it is not always easy for the mill to hold its pulp for the more laborious method, if a simpler method can be devised.

The Chairman: Has not that been adopted by all the European buyers of pulp?

Mr.r Csosley: I believe it has, but I don't see why it should.

The Chairman: If they are satisfied, why should we not be?

Mr. Crossley: They have adopted it, because they found that a certain scientist found that it gave a greater mathematical proportion of moisture in that bale, but I do not think that the wedge method can be made to apply in every case, any more than the strip method. I personally feel like asking the Committee to hold this back, and that we should not adopt this as a standard method for the adjustment of claims, and I think all these methods are subject to human weaknesses, which should be considered.

The Chairman: I believe the human factor to be the best, but in this case, it is not the intention of the Technical Section to force this method of testing on any one who does not want it. You know the old saying that "You can take a horse to water, but you

can't make him drink." The same thing applies here, and we consider that the findings of the Committee are justified. We have this recommendation now, because careful investigation has shown it to be feasible, but if anybody else has any suggestions to make, they will be carefully investigated, but for the time being I would suggest that we simply stick to this Committee's findings. If anything comes up in the future, that make it desirable, we can change it. Perfection is hard to obtain. In this case you have the findings of a number of men who have investigated it. I would like to hear from somebody else.

Mr. Mason: Would it not be well to make this adoption contingent upon its adoption by the same committee in the American Technical Association, so that the method would be considered the same on both sides of the line? I think they are about ready to do that, and if these two Committees get together and agree upon it, it would add considerable weight to the resulting recommendation.

The Chairman: As I say, we are not going to force this upon the industry. We simply have this matter standing on our statutes until such time as we have something better. We are always willing to improve. If somebody finds a better or a simpler method, or a more accurate method, we are willing to adopt it. This is the analysis of the situation as it stands from the Committee today. I think in order to get any action at all, the report should be adopted. In fact, you have had two parties already who moved its adoption. Now, what do you want to do?

Mr. Shipman: I would like to make the statement that the manufacturers of pulp who sell the hydraulic pressed, will have to furnish on the average about seventy-five pounds per ton of pulp more than they have previously had to furnish for the same ton.

Mr. Stephenson: If that is the case, then somebody has been getting stung, and it is about time we got down to business and put this back on a fair selling basis, in selling our pulp. It simply causes a readjustment of relations.

The Chairman: Well, it is very interesting to know that other sellers are getting that seventy-five pounds too much, or that the fellow who purchased it did not get what he paid for. It is a question of going half and half. We started out to find a just method of testing moisture, and apparently we are not just now.

It is immaterial what methods the buyer and seller use, the object is to get a standard on which certain work could be carried on. Now, if one mill thinks they can get more in a car by using a different method, well, they are at liberty to use it.

Mr. Carruthers repeated his motion which was carried, 38 to 4.

Report of Committee on Publications and Abstracts.

By J. N. Stephenson, Pulp and Paper Magazine, Chairman.

The Committee on Publications and Abstracts of the Technical Section in making a report for the year 1919 can do no more than refer to the abstracts that have appeared practically every week in the Pulp and Paper Magazine. The co-operative arrangement with the corresponding American Committee on Abstracts as outlined in our last annual report, continues to work out with entire satisfaction on both sides.

The Chairman of the American Committee and the Chairman of your Committee are at present endeavouring to work out a plan whereby more reviews of books of interest to members will be available. At the present time such reviews as appear are done at the instance of the Pulp and Paper Magazine and Paper, Inc.

A few minor changes have been made in the classification of abstracts and, while no special bulletin of this has been issued, the revised classification was used in the preparation of the 1918 index of the Pulp and Paper Magazine. As an appendix to this an index to the classification headings was also given so that the classification of a particular subject or topic could be more readily found.

Copies of this index are available to members on request and those members who are keeping a card index can obtain headings for the cards by clipping several copies of the index and pasting at the head of the card.

The publication of Transactions of the Section has progressed no further than a year ago, largely because the Chairman of your Committee has all he can do to keep up with regular work on the Magazine and the additional labors involved in connection with the text book.

Report on the progress made in the preparation of the text book is submitted separately. It has been suggested that proceedings of the past year including the present meeting should be issued as soon as possible after this Convention and should be accompanied by a revised biographical list of members.

It is hoped that work will proceed on this immediately after the publication of the minutes, papers and transactions in the Pulp and Paper Magazine.

Discussion.

Mr. Stephenson: I may say that the Committee on Publications, particularly, has been neglectful of its duties in not having placed in the hands of its members a complete publication of the Transactions of the Technical Section. There has been a lot of valuable matter brought up here in the form of papers and discussions, and it would be handy to have these in your libraries, and we still have hopes of getting them to you before any of you get so old that you cannot read them. The situation is clearing up at our plant in Ste. Annes, and we have pretty good prospects, if the text books matter does not take up too much of our time, of getting some of this stuff collected and in your hands before the next meeting. Our plans are, at any rate, to collect the proceedings of the present meeting, and issue them at the earliest possible date. The abstracts are going forward in the usual manner.

A great many times during the year we have had requests for original articles that have been abstracted, and I have sent out a good many Scandinavian, French and British journals, as well as American journals for this purpose.

NEW MEMBERS OF THE TECHNICAL SECTION.

The membership list of the Technical Section continues to grow and the latest advise from the secretary is that Mr. E. Rossiter of the Brompton Pulp & Paper Company, East Angus, Quebec, is the newest member and that the last student member to be elected is Mr. H. F. Robinson, Westmount.

WINNIPEG PRESS RECEIVES PAPER.

Winnipeg, March 2.—Winnipeg dailies will resume the publication of normal sized papers today with the prospect of normal conditions for the remainder of the week, a supply of paper having reached the city this morning and the assurance that more was on the way having been received from the East.

Since last Wednesday all have been publishing six page editions without advertisements.

AMERICANS ENJOY MONTREAL MEETING.

American praise of the proceedings at the recent convention of the Engineering Institute of Canada held in Montreal, is contained in the latest issue of the Engineering News-Record of New York, which informs its readers that "as to the conduct of the meeting as a whole we can well take a leaf from our Canadian friends' book."

"After attending all the functions incident to the annual meeting of the American Society of Civil Engineers, one could not help contrast the two—and the contrast favors our Canadian brethren," says the American report in its opening paragraph, and goes on to point out that the Canadian institute has made a great success in developing its branches, and that "our gathering had a funereal cast, contrasted with the enthusiasm and sociability of the Montreal events. The proceedings went with a snap that left nothing to be desired. The serious parts of the program were relieved by entertainment, both frequent and varied, resulting in a sustained interest and spirit that are difficult to describe without suspicion or exaggeration. The smoker-concert we might particularly copy. On the tables were bottled goods that cheered—and the entertainers were first class.

"We do not see how Toronto can possibly excell the hospitality and enthusiasm of Montreal, but the Toronto men somehow, we will wager, will do it as well. But whatever the program, if the Lord spares us, we mean to be there."

The same sort of comment is also heard regarding the pulp and paper conventions.

HOWARD SMITH HAVE BIG YEAR.

A period of record achievements in all departments of its activities is disclosed in the annual statement of Howard Smith Paper Mills, Limited, to be submitted to shareholders at their annual meeting next Monday. Total sales, net profits and working capital position all show substantial increase over the work of the preceeding year, the gains in all the directions mentioned being of considerable size.

J. FORD & COMPANY BUILDING NEW MILL.

J. Ford & Company at Portneuf have about completed a two story solid concrete building for their No. 2 mill. The new structure is 80 by 200 feet and is very well arranged and well lighted. Space is provided for a 120 inch Fourdrinier machine to manufacture hanging and negotiations although the company anticipates some difficulty in getting an early delivery of a machine. The present machine is operating in the old mill but will be moved into the new building as soon as this is complete. An extension to the boiler room is also a part of the general development of the property. In addition to the expansion of the mill the company intend to develop the water power which they control on the St. Annes River so as to provide them with about 3000 H.P.

PULP MILL FOR FORT WILLIAM.

It is reported that a branch of the Detroit Sulphite, Pulp and Paper Company, at Fort William, on the Mission River will commence immediately weather conditions permit, to erect their docks and loading machinery.

BEAVER BOARD CONCENTRATES AT THOROLD.

The Beaverdale Board Mill near Ottawa, which is one of the Beaver Board Companies finishing plants, has been moved to Thorold, and will be operated in conjunction with the Beaver Wood Fibre Co. The entire operation of dismantling the Ottawa plant, the loading of the machinery on the cars, the trip to Thorold via the Grand Trunk and the unloading of the machinery, required less than ten days. This is considered quite unusual in view of the present railroad situation and the shortage of cars.

With the fibre mill and the laminating plant operating as a single unit, tremendous advantages are gained. Scrap and waste costs are reduced through the lessening of the handling of the rolls, which weigh from 2,000 to 4,000 pounds each. It also does away with excessive freight charges and delayed shipments, which decrease production in the finishing plant by being held up through the lack of fibre board.

It is planned to put into effect this single unit idea throughout all the Beaver Board operations, that is with the paper mill and the finishing plant at the same place.

The plant at Ottawa formerly supplied all the Canadian and export trade but with the increased demand it has been unable to supply the finished beaver board in sufficient quantities for either the domestic or foreign trade and during the past year or more a large part of this trade has been handled through the Buffalo plant.

At Thorold a new finishing plant, 125 x 362 feet of brick, steel and concrete mill type construction, has been built. With the additional machinery and increased manufacturing facilities and advantages, the production will be greatly increased.

It is understood the new Laminating Plant will be operating by March 1, providing employment for over 100 men. The mill will be put on a production basis of 5,000,000 square feet of finished board per month. This quota will gradually be increased later and then all Canadian and export demands will be supplied through the Thorold operation.

The companies are also building a new office 48 x 80 feet of brick, wood and concrete. This building will probably be ready by the middle of March. The company housing proposition is also being pushed with all possible speed. At present eight company houses are occupied by employees. In addition, three single and eight double houses are nearly completed. There being a decided house shortage in that vacinity, considerable building is being done by the severel industries to remedy the situation.

ASSISTANT NEWSPRINT CONTROLLER RESIGNS

Ottawa, Feb. 28.—J. L. McNichol, assistant controller of newsprint, has resigned. His resignation was given the Government yesterday and has been accepted.

Mr. McNichol was appointed as assistant controller of newsprint some time ago and was concerned largely with the case at Fort Frances. When the office of the Controller of Newsprint was abolished he became attached to the Board of Commerce, to which the question of paper control was referred.

UNITED STATES NOTES

The W. B. Oglesby Paper Company, of Middletown, Ohio, undertook temporarily to manufacture newsprint recently in order to come to the relief of a newspaper that was hard hit by the print paper shortage. This departure on the part of this firm marked a revival of the news print industry in the Miami Valley, the last plant turning out this product in that section having shut down fifty years ago. Whether or not this enterprise is to continue has not been announced. It is conceded on all sides that there is a crying need for one or more newsprint mills in that part of the country, but because it is remote from the sources of raw material conditions have been rather unfavorable for the location of large mills there. It is believed, however, that the higher price now obtainable for the finished product may induce some of the paper manufacturers in the valley region to seek a solution of the problem of raw material supply. The closest possible source is in the timber tracts of Tennessee, North Carolina and Georgia which could be made to yield a sufficient output of pine and other soft woods. A direct railroad connection with Cincinnati makes this field about the most successful, though the high freight rates may enter to make the costs of raw material prohibitive.

Writing in reply to a request for information from the Senate agriculture committee, David F. Houston, formerly Secretary of Agriculture, urged the passage of Senator Miles Poindexter's bill which provides plans for relief of the wood pulp shortage. The bill would also authorize the Department of Agriculture to investigate causes of the shortage. In his letter Mr. Houston pointed to Alaska as a source of relief. Eastern pulpwood areas have been heavily overcut in recent years, wrote Mr. Houston, but forests in southeastern Alaska alone would supply at least half of the national demand if drawn upon. The Department of Agriculture, if authorized, would survey existing pulpwood areas, investigate those on the Pacific coast and in Alaska and consider methods for reforestation of the Eastern and Great Lakes States where, according to Mr. Houston, the industry has become unduly centralized.

The Wheat Paper Company and other local industries of Elkhart, Ind., have been absorbed by the recently incorporated Lincoln Paper Mills. Attorney Edward B. Zigler and H. A. Bardee, both of Elkhart, will be respectively president and treasurer of the new concern. Its directors will consist of Cyrus E. Frye of Elkhart, S. B. Monroe, A. B. Constable, H. B, Hoyt B. Hopper, W. E. Kidder, Henry L. Vander Hearst and G. A. Gilman, all of Kalamazoo, Mich.

Newsprint on International Paper contracts will be 5 cents per pound for the second quarter of 1920 as against 4½ cents per pound for the first quarter, an increase of 11 per cent. The new price is effective April 1. The company contracted in December for the disposal of practically its entire output for this year. Last year International Paper produced 314,000 tons of newsprint, and this year it is estimated its output will be in the neighborhood of 300,000 tons. A $10 advance in price per ton in car load lots means, therefore, an increased income of approximately $750,000 a quarter for the company.

As a result of operations in the year ended December 31, 1919, the United States Envelope Company returned a balance after charges and Federal taxes of $343,963, equivalent, after preferred dividends, to $6.38 a share, $100 par, earned on the $1,000,000 common stock, against $637,100, or 47.60 a share on $750,000 outstanding common in the preceeding year. After $351,250 in dividends had been deducted the report for 1919 disclosed a $7,287 deficit. After this loss had been taken from the previous balance surplus was $1,217,294.

Increase in the production of newsprint paper in January, 1920, over January, 1919, amounted to 11 per cent for print and more than 8 per cent for standard news, according to the Federal Trade Commission. Production of both grades for January also showed an increase over the preceeding month. Production in January was 129,663 tons of print and 114,957 tons of standard news. Stock in mills at the end of the year totalled 169,934 tons of print and 14,576 tons of standard news paper.

A social hall and rest room attractively appointed for use of its young women employees has been established in the basement of the Kalamazoo Paper Company's building at Kalamazoo, Mich. Mrs. Elizabeth Stone, who is in charge of the big plant's welfare work, plans a further feature in addition of a kitchenette as part of the equipment, together with a complete outfit of cooking utensils and serving dishes. A branch of the Kalamazoo Public Library will also be established in the rest room for the exclusive use of the company's employees.

BELGO BULLETIN SAYS "PRENONS GARDE".

In the last number of the Belgo Safety First Bulletin there is an interesting list of safety suggestion which employees have turned in to the committee. One hundred and five suggestions are listed which altogether have been received by the committee. While all all of the suggestions will noot receive prizes, yet the thought which prompted a man to make one and send it in makes him a more valuable man to himself and a safer man for his fellows to work with. It is not always possible to folow what would be the best course from a single point of view as it is necessary to consider mill matters from many angles. As the title implies, their motto is "Let us be careful".

Most of the suggestions described are, of course, of purely local application but there are a number that might be of interest to other mills. Among these we find: the use of a ladder instead of a rope for working on digesters; to advise by sign that no one but experienced and authorized men be allowed to use certain machines such as the planer and band saw; to remove icicles from the roofs. There are a large number of suggestions for guards for belts, pulleys and other dangerous places.

PULP AND PAPER NEWS

Barber-Ellis Elect Officers.

The annual meeting of the Barber-Ellis Company, Limited, manufacturing stationers, was held in Toronto on Feb. 20th, when, in addition to the directors and shareholders present, the managers of the branches at Vancouver, Calgary, Winnipeg, Brantford, and Toronto, were in attendance. Satisfactory reports of the years business were read and there were interesting and profitable discussions concerning the business policy and the future program for expansion. All of the old officers and members of the boad of directors were re-elected. The officers are: President, J. G. Ellis; Vice-President, F. M. Ellis; Secretary-Treasurer, H. Holt. The various branch managers were also elected to the board of directors as follows: Brantford, C. G. Ellis; Toronto, E. H. Ellis; Winnipeg, W. Murphy; Calgary, Garfield Graham; Vancouver, Lorne Graham. The new building being erected at Brantford for the company is 100 x 100 feet, two storys high and is being constructed of reinforced concrete. The addition is expected to be ready for occupancy next month and will add twenty five per cent. to the company's output.

"Western Canada" succeeds "Rainy River".

The Western Canada Pulp and Paper Company, Limited, with head office in Toronto has been granted incorporation. The new company, which is capitalized at $1,000,000, was organized to take over from the bond holders in British Columbia, the Rainy River Pulp and Paper Co., which plant is already being improved. The company will also acquire the McNeill timber tract in British Columbia. The president of the new organization is Everley M. Davis of New York and the Vice-President is H. J. Daly of Toronto, with J. A. Kent of Toronto secretary. Among the other directors are Robert Sweeny of New York, S. Casey Wood, barrister, Toronto and A. H. Douglas of Vancouver.

The death took place in London last Saturday of John Stronach, who for some years has been connected with the editorial staff of the London Advertiser. Three days previously his wife had passed away and both were victims of the flu. Before going to London the late Mr. Stronach was on the reportorial staff of the Woodstock, Ont. Sentinel Review. He came to Canada eighteen years ago from Scotland, where he graduated from Edinburgh University.

J. G. Gibson, Secretary of the Spanish River Pulp and Paper Co., Limited, is back at his desk in the Bank of Hamilton Building, Toronto, after two weeks illness with the flu.

Professor Wade Toole, head of the Animal Husbandry Department at the Ontario Agricultural College, Guelph, Ont., has resigned his position and will accept the post of managing editor of the Farmer's Advocate at Winnipeg.

The Fraser Company, Limited, are increasing their pulp capacit yat their mill in Edmundston, N.B. by about five per cent. They have four digestors in their plant now and plans are being made for the installation of three additional barking drums which will be put in shortly, by the Canadian Barking Drum Company, Ltd

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Arrangements for the entertainment of the Imperial Press Conference delegates in Toronto were advanced at a meeting of newspapermen and other prominent citizens of the city this week. The delegates will arrive from Ottawa on Sunday Aug. 8th. They will then take boat to the Falls and will be motored through the Niagara fruit district, returning to Toronto over the Hamilton-Toronto highway in motors. In Toronto they will be guests of the city, the Harbour Board, the R. Y. C. the Board of Trade the golf clubs and other organizations. One of the features will be a complimentary banquet. The delegates will remain in Toronto for two or three days and will then leave for Port Arthur.

The estate of the late Walter James Bell, the well-known Toronto wholesale paper dealer, who died a few days ago, has been entered for probate. The estate is valued at $74,719 and, after a bequest of $20,000 has been made to the daughter the remainder of the estate is left to the widow.

Letters of incorporation have been issued to the Standard Paper Boxes, Limited, of Toronto. The company has been formed largely to supply the Dominion ConeCompany, 14 Morrow Avenue, with boxes, although the product will also be manufactured for the trade. The heads of the Doninion Cone Company are Percy Heyes and Clarence Heyes and the operations of the new company will be carried on in the Dominion Cone Company's plant.

Charles E. Allen who recently served his connection with the Buntin-Reid Company, wholesade stationers, with which firm he served for upwards of twenty years, chiefly as travelling salesman, has purchased the paper stock of J. M. Dent & Sons, Limited, Medinda Street, and will conduct the business under the name of the Allen Paper Company. Mr. Allen started in the paper game with W. J. Gage & Co., Limited, in 1895 as a messenger boy and rose to be superintendent of the envelope manufacturing department. In 1900 he jointed the Buntin-Reid forces, going on the road for the company in 1906 and travelling from coast to coast. He is widely known in the paper trade in Ontario and Quebec and his connection through long service on the road will be a good asset to him in his new enterprise. J. M. Dent & Sons, Limited, are an old established paper jobbing firm in Toronto.

Lorne Gardener, General Manager of the Garden City Paper Mills, St. Catherines, is laid up as a result of a broken leg sustained in a fall while coming out of the theatre which he had been attending along with Mrs. Gardner.

The O'Brien interests of Renfrew state in a letter to the New Liskeard, Ont., Board of Trade, that three

plans for a pulp plant at North Temiskaming and a power plant at Des Quinze, Quebec, are ready and in a short time operations will be commenced. The plant promises to be one of considerable extent and the Board of Trade officials will impress on the T. & N. O. the necessity of pushing ahead the Nipissing Central extension to be ready to take in supplies and material. A strong move is to be made to have the road built at once.

That the year was the best in the company's history, the profits exceeding those of 1918 by $110,921, is the statement made by President S. J. Moore of the American Sales Book Company, Limited, in his annual report for the current year just issued.

Profits for the year were $427,237, compared with $316,316. Dividends on preferred were continued at 7 per cent., amounting to $215,131. The transfer to reserve for depreciation was $129,073, compared with $75,000 a year ago. The reduction of patent account was unchanged at $50,000. The balance brought forward from the previous year was $269,897, and the balance carried forward this year was $270,851. The profit and loss balance is still subject to a deduction for United States' Federal taxes for 1919. Current assets amount to $1,083,327, and current liabilities $286,405, compared with $1,311,074 and $581,129 respectively a year ago. This large reduction in bills payable is one of the most gratifying features of the report. This is the first report to be received by former Carter-Crume Co. shareholders since the American Sales Book Company took over that concern.

Sixteen cars of pulpwood went into the ditch last Sunday morning in a freight wreck on the T. & N. O. near New Liskeard.

EXPORTS CONTINUE INCREASING.

Canadian exporters of pulp and paper in December, 1919, reached a tital value of $9,796,372, an increase of $3,333,428 over those of December 1918 and of $779,385 over those of the preceeding month. The principal gain was in the value of paper which amounted to $6,212,430 in December 1919 compared with $3,783,240 in 1918. The details are as follows:

December	1918	1919
Paper and mfrs. of	$3,783,240	$6,212,430
Pulp, chemical	2,314,212	2,766,250
Pulp, mechanical	365,492	817,692
Total	$6,462,944	$9,796,372

Newsprint paper accounted for the larger part of the paper exports, there being 1,370,526 cwts., valued at $5,051,898, of this class of paper exported during the month, some of the principal importing countries being: The United States, 1,082,294 cwts. valued at $3,993,155; Australia, 167,801 cwts., valued at $579,826; United Kingdom, 51,231 cwts., valued at $189,626. Newsprint was also shipped during the month to the Argentine Republic, Brazil, British South Africa, China, Cuba, New Zealand, Peru and other countries. The paper exports also included wrapping paper to the value of $307,282 and boards to the value of $564,845.

The total value of pulp and paper exports for the first nine months of the fiscal year amounted to $74,424,912, a gain of $14,006,984 over the corresponding period of last year and of $26,973,523 over 1917, as follows:

Nine Months	1917	1918	1919
Paper & mfrs. of	$27,441,852	$32,669,360	$44,198,106
Pulp, chemical	14,634,884	24,074,950	23,850,652
Pulp, mechanical	5,374,650	3,673,618	6,376,154
Totale	$47,451,389	$60,417,928	$74,424,154

There were 46,747 cords of unmanufactured pulpwood valued at $480,669 exported in December 1919, against 72,468 cords, valued at $748,364 in Dec. 1918. For the nine months' period the unmanufactured pulpwood exported was valued at $6,802,209, compared with $11,595,228 in 1918, a decrease of $4,793,019.

GRANT PRICE BROTHERS' APPEAL.

Ottawa, February 27.—On condition that the firm of Price Brothers and Company commence immediate delivery of newsprint paper to Montreal firms, Mr. Justice Anglin, of the Supreme Court, has granted the application of their counsel, Aime Geoffrion, K.C., for a hearing to test the jurisdiction of the Board of Commerce in its control of the sale of newsprint. The company must supply newsprint at the Canadian fixed price, but the difference between the Canadian and UUnited States prices must be paid into a trust company pending the result of the hearing.

The application was heard by Mr. Justice Anglin this afternoon, following the grant of a stay of proceedings against Price Brothers for contempt of court by Mr. Justice Audette in the Exchequer Court. Colonel O. M. Biggar, K.C., who appeared for the Attorney-General, agreed to a brief adjournment of the Exchequer Court proceedings, during which he had previously asked that means be granted to compel Sir William Price and one other member of the paper firm to apper before the Board of Commerce, in order that Mr. Geoffrion might file his application with the Supreme Court.

In the ordinary course, the Supreme Court will reach the Board of Commerce case about March 16.

FOUR LIVES LOST AT IROQUOIS FALLS.

Four lives were lost in the deplorable accident which carried away the sluice gate of the dam at Iroquois Falls an February 12th last. The men were standing on the gate when the accident occurred and went down in the rush of the water which poured through the gap.

It is a long time since Iroquois Falls has been so deeply stirred. News of the drowning spread rapidly through the community and the banks of the Abitibi were soon crowded with eager men anxious to render assistance, but no sign could be found of the missing men, and so far their bodies have not been recovered.

Mr. John L. Currie, one of the deceased, had but recently come to the Falls from Couchiching where for the past four and one-half months he had been engaged in successfully excavating rock and clearing the channel at that point. He leaves a wife and four grown children.

Mr. Arthur Hamel, 20 years of age has a mother and four small brothers in Fielding Siding, Ontario, and half-brother who is in the employ of the Abitibi Company at Iroquois Falls. Mr. Hamel had but recently returned from overseas service in France.

Mr. August Decary, 33 years of age leaves a wife, two small daughters and a baby son, in Fielding Siding, Ontario.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, February 28.—Rising prices a shortage of raw material and ever increasing demand for all classes of paper continue to characterize the Canadian paper trade. Stocks in practically all lines are rapidly becoming depleted and deliveries from the mills to the warehouses are being passed along to customers, in many cases, without storing. A couple of carloads of flat papers reached Toronto this week and very little of it found its way to the warehouse shelves. Every bit of paper the mills can turn out is claimed by orders that have been put in weeks and in some cases months, and all of it is being bought at prices prevailing at time of shipment, which in many instances is considerably beyond what it was thought likely would have to be paid. It is the general verdict that the paper market is in a very bad way, largely owing to the shortage of raw material which is hard to get. Newsprint users are getting anxious as to the likely outcome of the prevailing conditions and this anxiety is not confined to the smaller publishers. Even at the Government-fixed price of $80 a ton, which is an advance of over a hundred per cent on the open market price of 1916, some of the Canadian papers are not able to get away from the spectre of a famine which may strike them at any time and cause their printing presses to cease operating. Some publishers have been curtailing on their news pages and are wondering what they will have to pay for their paper after July 1st, this year, the Government-fixed price expiring then, while in the meantime they are pushing the advertising end of the business in an endeavor to reimburse themselves for the increased cost of paper. Across the line it is stated that some United States papers are paying as high as $120 a ton for their paper and would be willing to pay almost any price for Canadian paper if it were available in unlimited quantities for export.

The box board branch of the paper industry is worrying along under very trying circumstances owing to the shortage of raw material and decreased production due to the severity of the weather and the shrinkage of labor through the prevailing epidemic. There is a greater demand than ever for paper boxes and the supply has not by any means kept pace with the demand, while rising prices have followed in the pathway of the shortage. Commodities which require paper receptacles are constantly increasing and it is said that a suggestion made a short time ago in the United States that no parcels under twenty-five pounds be accepted for shipment, unless they are enclosed in a carton, will eventually be adopted in Canada, in which case there will be a still further demand for box board. Such a move is not looked for for some time, however. In the meantime production has been hampered by the difficulty of the mills in getting ground pulp and rag and waste stock. Owing to the severity of the weather rag and waste paper, which are used largely in box board have not been collected in the quantities required and some mills have only been forty per cent effective through lack of help, while low and frozen water have caused considerable difficulty in operating some of the mills. It is known that at least one mill is faced with the possibility of shutting down for a time until it can replenish its raw stock supply and the same conditions, in a measure, face the paper makers. With the mills paying in some cases $60 a ton for groundwood pulp in the the open market, the distributors are predicting still higher prices for the finished paper receptacles. It is almost impossible at the present time to get shipments from the mills. The mills, both at Montreal and Frankfort, are loaded up with orders and new business is constantly being turned down, while no promises are being made to the old customers.

The big demand for book papers keeps up and further increases in prices are predicted. In this and other papers Canadian wholesalers are turning down fancy price offers for export. An offer was recently received by a big Toronto paper firm offering a good price for everything there was on the firm's floors for shipment to Australia, but with the home market already depleted and customers clamoring to have their orders filled, the foreign order was turned down.

Kraft is still selling at 10c a pound f. o. b. mill and kraft pulp at $95 to $100 a ton. All of the mills are booked away ahead and are considerably behind in

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, **NEW YORK**

We are always in the market and ready to pay good prices or

SULPHITES

Bleached and Unbleached of Canadian manufacture. Write and let us show you what we can do.

their deliveries largely owing to the difficulties in securing raw material. Those mills, however, which have their own timber limits are in better shape and are keeping up fairly well with the demand.

Cotton twines are steadily advancing in price due to the cotton shortage or manipulation in the raw cotton market. Canadian prices appear to be pretty much governed by the English prices which are on the up-grade.

The chief difficulty being encountered at the present time by the producers of pulpwood is the shortage of cars. The severe weather has tied up some of the lines in the vicinity of the timber limits and the production of pulp has fallen off in consequence. With lumber going up out of sight in price the pulpwood producers are beginning now to feel the pinch and despite the fact that labor in most districts is available and big money is being paid, the production is still considerably below the demand and the pulpwood dealers are doing their best to compete with the lumber industry in making the pulpwood end of the operations attractive.

The rag and paper stock market continues brisk with a tremendous demand. Enquiries are coming to the dealers from all over the country and great difficulty is being met with in supplying the demand. United States paper mills are urgent in their calls for Canadian waste but aside from some shipments that go across from some of the border centres like Windsor and Niagara where there are freight rate advantages, very little Canadian stock is being exported, the dealers having their hands full serving the Canadia ntrade although there is a profitable export trade waiting them across the line.

Rag and Paper Stock Prices.

F.O.B. Toronto.

No. 1 white envelope cuttings	$5.25
No. 1 soft white shavings	$5.00
White Blanks	$3.25
Heavy Ledger Stock	$3.75
No. 1 magazine	$3.50
No. 1 book stock	$2.50
No. 1 Manilas	$3.25
No. 1 print Manila	$2.00
Folded news	$1.90
Over issue, news	$2.25
Kraft	$3.75
No. 1 clean mixed papers	$1.60
No. 1 shirt cuttings	17½—18c
No. 1 unbleached cotton cuttings	14—14½
No. 1 fancy shirt cuttings	12½c
No. 1 blue overall cuttings	12c
Bleached shoe clip	14c
White cotton hosiery cuttings	16c
Light colored hosiery cuttings	12c
New light flannellette cuttings	12c
No. 2 white shirt cuttings	12½c
City thirds and blues (repacked), No. 1	5—5¼c
Flocks and satinettes	$4.00
Tailor rags	$4.00
Gunny bagging	3¾—4c
Manila rope	7—7¼

NEW YORK MARKETS

New York, February 28.—The paper market continues strong in tone and the severe weather over most of the Eastern section of the States and resultant railway embargoes and transportation difficulties make for a tighter supply situation than has possibly ever before existed. Buyers are finding it next to impossible to obtain prompt deliveries, mills in general being prevented from effecting shipments to consuming points, and demand of a pressing character prevails for practically all kinds of paper and board. Matters of price are very nearly entirely overlooked by buyers in their anxiety to secure supplies, and premiums are being readily granted for spot lots of paper.

Developments in the national capital during the past few days indicate that unless the shortage of newsprint is speedily relieved Congress is likely to take action limiting the size of the larger newspapers in big cities of the United States. Reports from Washington are to the effect that senators and representatives are daily receiving numerous protests from the publishers of small town newspapers in their States complaining that the shortage of newsprint and the high prices of what is available are driving them into bankruptcy. All these protests, it is said, call for legislation limiting the use of newsprint in the large cities. According to the complaints made by the small publishers, several hundred of them will be forced to suspend their publications unless the situation improves.

Much interest was manifested by local paper trade men in the action of New York publishers in cutting down further the size of their papers last Sunday. Every paper reduced the number of its pages to some extent, and several of them discontinued indefinitely their magazine sections. But it is generally believed that, even if this action is kept up, it will not prove adequate to materially relieve the newsprint shortage, especially as it effects the small town publishers. While the small papers may not seem very important when the amount of newsprint they consume is compared with what the large publishers use, their influence in their respective localities, where thy are regarded as essentials, is very great. Members of Congress depend largely on them for keeping in touch with their constituents and have a great respect for them, and the legislators will surely listen to their plea unless the big publishers take heed and limit their consumption of paper.

Senator Underwood's joint resolution, introduced at the request of newspaper publishers, proposing a commission to confer with the Canadian Government in an effort to have the embargo removed on pulpwood, book bindings and print paper, was reported favorably on Tuesday by the rules committee, and was adopted by the Senate on Friday. The resolution provides that if the commission fails in its efforts to have the embargo removed, it shall formulate retaliatory measures.

The International Paper Company is reported to have advanced its contract price on newsprint for the second quarter of this year to 5 cents per pound at the mill, an increase of half a cent over the price for first quarter contracts. The increase become effective on April 1. This will doubtless result in other manufacturers of newsprint advancing their contract basis to the same level, which, to say the least, is very attractive when compared with the prices ruling on news in the open market. Sales of spot lots of newsprint have been reported this week at as high as 11 cents a pound, and there is little question that hundreds of tons could be easily marketed at this price were the supply to behad.

Book papers rule strong in price and are equally

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as scarce as newsprint. With the supplies of many publishers temporarily cut off by railway embargoes, fresh demand of broad proportions has sprung up which dealers and mill agents are not in a position to fill. Quotations are steadily hardening and buyers are meeting almost any figure asked to get needed supplies. Tissues and wrappings are firm in price and eagerly sought. Fine papers are actively inquired for, and the market locally is about bare of available stocks. Writing paper mills in New England are practically cut off from New York by transportation difficulties, and shipments are limited, with those getting through greatly delayed.

The board market is strong and active. Mills continue to exert efforts to discourage buying owing to their being sold ahead and their inability to accomodate more business at this time. Quotations are maintained on high levels and tend strongly upward.

Ground Wood.—With supplies of mechanical pulp from Canada inaccessible to many consumers because of rail embargoes and shipment delays, demand of pressing character has developed in the domestic market, and the trade has experienced one of the liveliest weeks in its history from the point of brisk inquiry. A major portion of the demand remains unfilled **and** seems likely to continue so until transportation conditions improve. Sales of spruce pulp of No. 1 quality freshly ground have been recorded at $70 per ton at grinding mills, and consumers have shown willingness to pay this price for all the supply found available for prompt delivery.

Chemical Pulp.—Chemical wood pulp is in strong demand and prices are being gradually pushed up by the insistence of consumers on larger shipments. Producers in this country are sold far ahead and have little or nothing in the way of spot lots of pulp to offer, and fresh supplies from Scandinavia are at a minimum. In fact, all indications appear to point to America receiving but slight amounts of Scandinavian wood pulp for some months to come. Advices from Sweden state that manufacturers there are sold out for three or four months, with some of them unable to offer for the balance of the year. Production at best on the other side is limited, and mills have contracted to sell the bulk of their output for some time to consumers in England, France and other European countries. Sales of domestic bleached sulphite are reported at 6.25 cents a pound, and higher, while kraft pulp of domestic make is selling at 4 to 4.25 cents, newsprint sulphite at 3.75 cents and domestic easy bleaching at 5 cents.

Rags.—Prices on certain kinds of papermaking rags, particularly low grades, have eased off a trifle this week, this being apparently due to dealers concentrating their shipments on mills which have been able to receive stock respite the general tie-up of railroad transportation in the East. Roofing rags, for example, have been provided with an outlet only in certain directions—other felt mills being cut off by embargoes—and with shippers all moving supplies to the same limited number of manufacturers, the latter have acquired large enough stocks to warrant them cutting prices to an extent. High grades of rags continue steady in price however, and seem likely to remain so until collections increase. New cuttings are firmly held and packers are refusing to shade quotations notwithstanding the difficulties encountered in effecting shipments to many consuming points. Sales of new white shirt cuttings of No. 1 quality at 20 cents a pound f. o. b. New York have been noted, while old No. 1 whites are quoted at around 15 cents at mills, repacked thirds and blues at 5.25 to 5.50 cents, and No. 1 roofing rags at 3.50 cents f. o. b. shipping points.

Paper Stock.—Waste paper prices are maintained on high levels and the market has displayed consistent activity this week The same drawbacks to trading in the way of shipping obstacles that have affected other commodities have been prominently in evidence, yet those mills so situated that they have been enabled to receive shipments have bought in large enough volume to absorb most of the supply offered and the market seems fully as bare of sizable accumulations as previously. Newspapers are one of the most actively sought grades of old paper, and flat folded news has sold at better than 2 cents a pound f. o. b. New York, while overissue newspapers have fetched .75 cents and No. 1 white news cuttings 3.50 cents. Shavings are quotably firm at around 6 to 6.25 cents and 5.50 cents New York for No. 1 hard and soft white shavings, respectively. Old books and magazines are in pointed demand and are freely selling at 3.50 cents at shipping points, and No. 1 mixed paper is firmly priced at 1.50 to 1.60 cents New York.

Old Rope and Bagging.—Old Manila rope is in steady demand and is readily commanding 7 cents per pound at shipping points from paper manufacturers. Supplies at best are light and sellers are cautious about making commitments. Old bagging is a bit softer in price, this being due evidently to the arrival of fair-sized lots of imported material and to difficulties in making shipments to many mills. No. 1 scrap bagging is quoted at about 3.25 cents a pound New York.

RAILWAY WOULD HELP DES QUINZE PULP-MILL PROJECT.

Haileybury,—With the aproach of Spring the question of what is to be done in conection with the opening up of that part of the Province of Quebec lying to the east and north of Lake Timiskaming, promises to become one of the leading matters of interest in this part of Ontario. With two railroads investigating the matter and the Provincial Government of Ontario holding authority to decide that the Nipissing Central Electric Railway shall be the first to build into the territory in question, it is probably true that something of a definite nature will be made known at the first session of the Ontario Legislature. It is reported that engineers representing the C. P. R. have recommended the extension of the Kipawa branch north some sixty miles to Des Quinze and that matter is now under the consideration of the directors. The matter likely to have considerable bearing on the decision reached by the C. P. R. is the question of whether or not the M. J. O'Brien interests will proceed with the developments of power at Des Quinze and the construction of a large pulp mill estimated as likely to be built at a cost of four million. As to this, interests are contemplating the incorporation of a new company for the purpose of handling the Des Quinze enterprise. The belief, therefore, is strong that the construction of the C. P. R. may be commenced this year. On the other hand, in conection with the Nipissing Central, it is understood that the engineers of the Commision have recommended that this road should be extended from New Liskeard to Des Quinze, the distance being only one third as great as that confronting the C. P. R. This matter as well as



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an extension of the T. & N. O. Railway from Elk Lake to Gowganda promises to be among the most important with which the United Farmers' government of Ontario will have to deal in the course of its first session.

Were the Nipissing Central to be extended to Des Quinze, as part of the scheme to develop that territory inclusive of the harnessing of the great water power there, as well as for the purpose of co-operation with those who propose to erect large pulp mills, the project would appear destined to bring a large amount of trade to Ontario for the reason that the district would have no other natural outlet except through Ontario, with the exception of course of the water route down Lake Timiskaming or the extension of the Kipawa branch of the C. P. R. In all events it is believed that the question will be settled this year.

PULPWOOD IN BRITISH COLUMBIA

In this same number of the Pulp and Paper there is an article on "BRITISH COLUMBIA TIMBER LAND TITLES," by Mr. P. L. Lyford of Clark & Lyford, Forest Engineers, of Vancouver, B.C.

This should be of great interest to all those who are looking to British Columbia for pulpwood. Later on there will be other articles describing lumbering operations in British Columbia.

The firm of Clark & Lyford, Ltd., consists of Dr. Clark, Mr. P. L. Lyford and J. E. Tucker. They describe themselves as Forest Engineers. They are pioneers in the standardization of cruising and the mapping of timber areas to insure the handling of timber most economically and with the greatest possible despatch.

Dr. Judson F. Clark is a native of Prince Edward Island, graduate of Ontario Agricultural College at Guelph, Post Graduate at Cornell University, Ithaca, N.Y., and Professor of Forestry at that institution, and afterwards with the Forest Service at Washington, D. C. Later he was Provincial Forester for the Province of Ontario. Dr. Clark came to British Columbia in 1906.

Mr. P. L. Lyford is a native of Waverly, N. Y. He studied forestry in Cornell University, was manager of the Eastern Lumber Company, Huttonsville, W. Va., and later engaged in forest survey work for the Riordon Pulp & Paper Company, Ltd., and making of timber and topographical maps of the Geo. H. Perley holdings. He was manager of Lyford, Clark and Lyford at Montreal. Mr. Lyford came to British Columbia in 1912 and has since covered a large portion of the Province on foot, launch, steamer, canoe and automobile, investigating timber conditions.

Mr. J. E. Tucker, the other member of this firm, has spent the past ten years in the woods investigating timber and studying logging operations. Mr. Tucker handles the cruising department in a most efficient manner.

The manufacturers of pulp are looking toward British Columbia to keep up the supply, and with the knowledge and experience of such a firm, who have scientized timber cruising and logging operations, their assistance will be much sought after. It means efficiency, and every big operator knows the value of such assistance in big undertakings such as the securing of pulpwood.

BRITISH COLUMBIA TIMBER LAND TITLES.

(*Continued from Page* B36.)

ber 31, 1954. The present scale of royalties for the British Columbia coast is 85c a thousand feet log measure (as measured by the British Columbia log rule), on No. 1 and No. 2 Fir, Spruce, Cedar, Pine and Cottonwood logs, and 50 cents a thousand feet for all other logs, including all grades of Hemlock, Balsam and Cypress. The rate of royalty payable to the government may not be increased until the five-year average wholesale selling price (f.o.b. mill) of all lumber cut in the province exceeds $18 a thousand feet. Whenever the 5-year average wholesale price for all grades of lumber shall exceed $18, the royalty will be automatically increased according to a schedule in the act, which provides for a sharing of excess profits between the province and the lumberman, the province's share being 25 per cent of such excess until 1924, 30 per cent from 1925 to 1934, 35 per cent from 1935 to 1944, and 40 per cent from 1945 to 1954.

From the standpoint of the timberland owner, the reservation of a royalty or yield tax by the government is of great advantage, inasmuch as it makes the state a partner with the investor in the ownership of the timber, thus reducing the amount of investment required to control a given amount of stumpage.

The royalty on timber has been increased 37 cents per thousand feet for all species and grades for the coming 5-year period, beginning Jan. 1, 1920. The following is a statement of the details of quantities and prices of lumber over the past 4½ years:—

Average wholesale selling price of lumber for all districts throughout the Province of British Columbia free on board point of manufacture from January 1st, 1915, to June 30th, 1919 inclusive.

Year.	Quantities Ft. B.M.	Amount Received.	Average per M. ft.
1915	747,096,710	$9,307,408.27	$12.46
1916	1,010,427,819	15,012,050.67	14.86
1917	1,166,489,300	23,165,129.54	19.86
1918	1,208,201,605	31,094,178.08	25.74
1919*	620,307,280	14,079,740.25	22.70
	4,752,522,714	$92,658,506.81	$19.4967

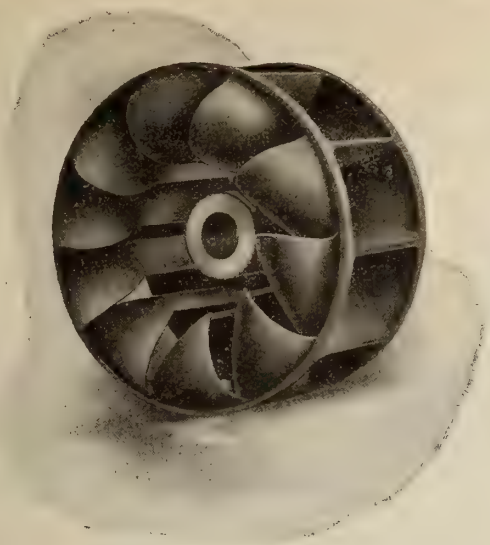
* Six months.

Average wholesale selling price of lumber covering 4½ year period	$19.4967
Base average price defined by Timber Royalty Act	18.0000
	$ 1.4967

25 per cent of 1.4967 = .374175c.

Increase provided in Section 7 of Timber Royalty Act from January 1st, 1920, for a period of five years = .37c per M. feet.

There will undoubtedly be a substantial increase in the royalty charge as a result of the high average selling price of lumber which at present prevails, and which will doubtless prevail over a large portion at least of the next five-year period. This royalty charge, however, can never become a dangerous burden to the lumberman. The interest of the Province as impersonated by the government, is so bound up with the interest of the lumberman, that nothing can be done to suppress in any degree the activity of the latter without endangering the chief mainstay and support of the former.



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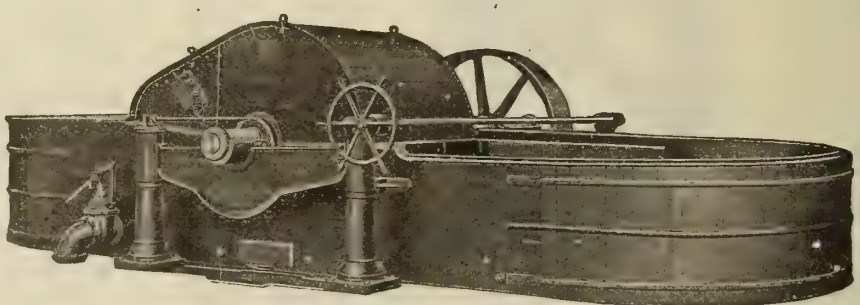
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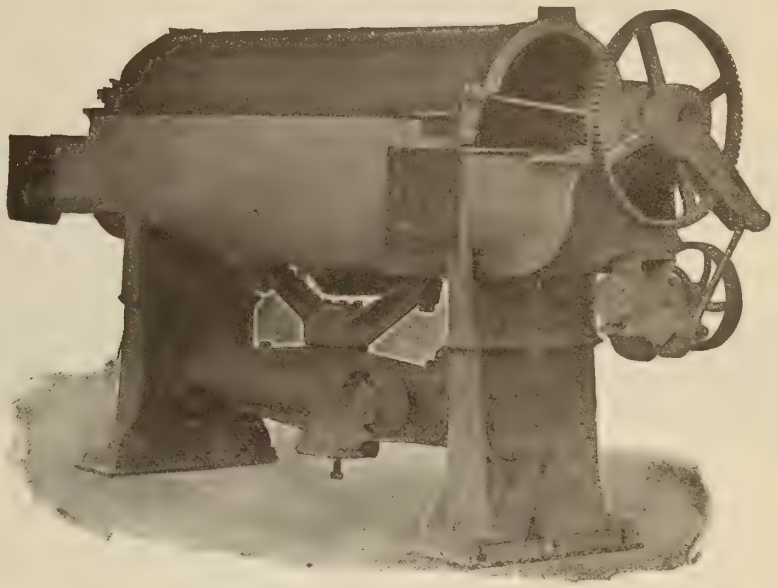
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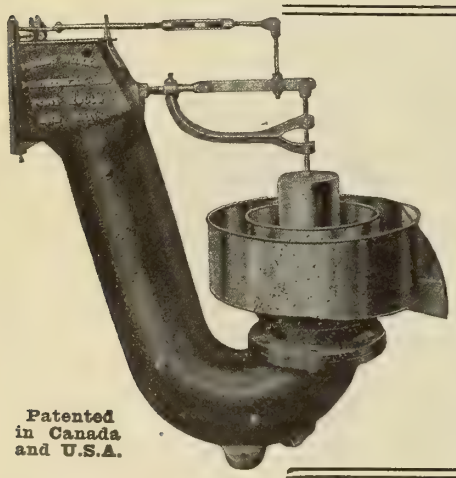
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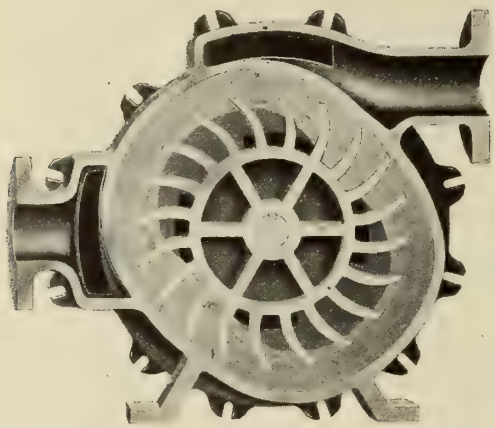
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EDITORIAL

LOSS TO CANADIAN UNIVERSITY.

A serious loss to the educational interests of the Dominion will be the result of the appointment of Sir Auckland Geddes to the post of British Ambassador to Washington. A sincere compliment is paid both Canada and McGill University in the selection of Sir Auckland Geddes for this post. It is stated that one of the considerations weighing largely in favor of his appointment was his connection with McGill University as principal-elect. Such an honor is of course one not easily declined and an obligation which one competent to assume could not honorably fail to accept. The selection should please all parties. In congratulating Sir Auckland on his appointment there is a feeling of regret that he is not to be the leader of activities at McGill University.

The present is a time of need in educational work for broad-minded and strong-minded leaders. The older educational policies have proved not entirely adequate for present and probably future conditions and changes in many a curriculum will be necessary to meet the requirements of the times. It was felt that Sir Auckland would be such a leader and it was hoped that under his guidance it would be possible to establish at McGill such courses as would more directly fit the students in science and engineering for service in the pulp and paper industry. That hope has by no means gone, but the recent development may cause it to be postponed. There must be provided proper opportunities for students to become familiar with the principles and fundamental processes on which our important industries are based and much good can be accomplished by providing opportunities for them to become acquainted at first hand with some of the problems.

We were somewhat astonished by the statement of a student that he would not have to carry out an original research as a partial requirement for his degree. There is certainly need on the part of those who are likely to become pulp and paper mill chemists for some practice in research work so that they will at least be familiar with the rules of the game, as it were. It is not to be hoped or expected that a student will all at once, through the part of a university course, become a thoroughly proficient researcher or even a fully qualified routine chemist, but he should at least have a chance to become acquainted with the properties of the substances used and produced in the industry and some knowledge of the types of apparatus and testing instruments required for the operation and control of the mill. Such training could without great difficulty be made a part of courses in chemical and mechanical engineering which would not in any way interfere with the development of such technical schools, or rather vocational schools, as Canada is likely to have and should have in the very near future. Such university work is really necessary as a fundamental step in the general development of common school technical training and it is to be hoped that McGill will soon succeed in obtaining a worthy successor to Sir Auckland Geddes and his immediate predecessor, and that developments along this line will be made.

CANADIANS INTERESTED IN AMERICAN FORESTS.

A great deal is heard of American interest in Canadian forests, while Canadians have fully as much interest in American forests, although in a different way. Americans are, and have been for some time, obtaining control of Canadian woodlands so that as the available wood is exhausted, they may either ship the wood to their American mills or partially convert it here for ultimate consumption across the line. The action of the eastern provinces prevents the export of wood from Crown lands, although it has been intimated that, because of inadequate or inefficient supervision and other causes, much wood from Crown lands finds its way over the border. But so far there is no restriction on the export of wood from private or fee lands and the depletion of these sources of supply constitutes a very serious menace to the future of the wood using industries of Canada. The reason is found in the incentive of the present high prices of pulpwood (and these are likely to go higher) to induce the farmer and squatter and lumberman to skin the forest, not only leaving no provision for future growth but actually leaving a handicap to future growth. If the farmer wants his land for cultivation, well and good, but if he is stripping the hillsides so the decay of the forest roots and the loss of forest shade convert the soil to a loose mass of debris instead of a tough, absorbent, protective sponge, so that the whole mass may wash down on his and his neighbor's farm, leaving bare rock behind, then the public has a right to call a halt. If an embargo or an export tax is necessary, then let us have it. Other means will doubtless help and should be tried, but the situation is very serious and must be relieved.

Now for the other side of the matter. American users of wood are in a far worse plight than those in

Canada. Many of them realized it long ago, but only a few took heed to the warning of danger. Steps to remedy the situation have been deliberately neglected, about as one postpones taking out life insurance. The prophets have gone unheard and all have gone practically unheeded. The doom of many wood using plants has already been struck and of most of the others it is not far off. Frantic wails are now being heard that something be done. The situation may not be entirely saved, but it can surely be much relieved and perhaps in future be reconstructed on a replanted forest. In the meantime, the Canadian forest will be exploited to the limit.

The Paper Trade Journal, New York, under the title, "Forestry Legislation," says:

"The appeal from the American Forestry Association for aid to secure the passage of important legislation pertaining to forestry by Congress should meet with a hearty response from members of the pulp and paper industry.

"Our forest resources are being depleted from two to three times as fast as our forests are growing. The supply in our eastern section is rapidly approaching exhaustion; the forest supply in the South will be exhausted within twelve or fifteen years; much of the timber in the Lake States is gone, and that on the Pacific Coast is being steadily cut.

"Measures for reproduction, for fire protection, and for other features of a national forest policy, to provide forests for the future, are absolutely essential at this time.

It is necessary, for the successful operation of a national forest policy, to have a series of forest investigations in order to develop the best method of reproducing, growing, and protecting timber on denuded lands, for cutting and protecting timber on timber lands, and for investigating other forest problems.

"It is necessary, in order to conduct such forestry investigations, to have forest experiment stations located in various sections of the country and also to provide existing stations with more funds."

All these measures that are called for in the States are life savers to the Canadian forests and life insurance to the wood using industries of the Dominion. The steps taken across the line should only spur us on to greater efforts to perfect our inheritance in every possible way, now, thank God, that we are beginning to wake up to the situation. Every success, then, to the American Forestry Association and the other agencies and individuals who realize that the conservation of the forest is a sacred trust.

Mingled with our appreciation of the excellent work done by the Abitibi Power & Paper Company in so quickly repairing their dam and getting the mill back practically to normal production, is the sincere regret at the loss of life caused by the breaking of the gate.

COBWEBS.

The C. P. R. has ordered $15,000,000 worth of equipment, the National Railways have put in a big order and Japan has placed an order with a Canadian steel company that will occupy a couple of departments for several years. This looks like a sign of prosperity.

Some newspapers referred to Price Brothers' recent dividend as a "melon". It is about time the industry had some dessert after the cabbages of past years. Sometimes there wasn't even that humble fare, and then it was a case of taking up another hole in the belt and going back to work.

Bunker coal is so scarce and high that ocean freight rates are almost sure to go up. The same is true of railway freights. As a paper mill pays freight on from three to four tons of raw material for each ton of outgoing product, the price of paper will not go down because of changes in carrying charges.

A news dispatch last week intimated, in connection with his appearance before the Board of Commerce, that Mr. R. A. Pringle, K.C. was retained by a paper manufacturer. The fact of the matter is that Mr. Pringle was requested to make a statement of fact before the Board as to how he handled a specific situation while he was paper controller. On being given to understand that his presence was "imbarrassing" to a member of the Board, Mr. Pringle politely withdrew.

Howard Smith Paper Mills, Ltd., have sent us a copy of their book, "Paper Costs at a Glance." The title is accurate. A comprehensive and well arranged table enables one to find immediately the cost of 1, 2 or 5 quires or 1 ream of paper of 16 to 80 lbs., by half-pounds, with a simple rule for quarter-pounds if necessary and prices in half-cents from 5 to 50 cents. Heavier weights and higher costs are readily calculated. The book contains 264 pages, of convenient pocket size, 3⅞ by 7¾ inches and will be sent to readers of this magazine who can really use it. The superintendent of our printing plant says it is fine.

A noted Frenchman is credited with saying that the purpose of language is to conceal the facts. Just so. In reporting the case of Price Brothers and Co., with regard to their appeal to the Supreme Court, the statement was made that a condition affecting the grant of the appeal was that the firm supply newsprint to certain customers. The price was not specifically mentioned, but sufficient is said in connection with the case to give the impression that the paper was to be furnished at the controller's price of $80. As a matter of fact, we are reliably informed, the export price rules and the difference is deposited with a Trust Company, pending the decision of the Court.

The Theory and Art of Coloring Paper

By OTTO KRESS.

This article was prepared for the Textbook on Pulp and Paper Manufacture, under the direction of a Joint Educational Committee representing the industry in Canada and the United States. It is also published in the official organs of the Technical Association of the Pulp and Paper Industry and the Technical Section of the Canadian Pulp and Paper Association as an assistance to the work of the Committee. The reason for thus publishing this and perhaps, at a later date, other portions of the textbook, is to obtain as many criticisms and suggestions as possible at this stage, so that the books will be practically correct when they appear.

. . . . . .

Before the introduction of aniline colors, paper was colored by means of pigments, dyes derived from either vegetable or animal sources, or color lakes. These lakes are made from either vegetable or animal dyes, to increase their tinctorial power, resistance to fading, etc. Many of these products were very permanent; but in view of the cheapness, ease of application, and uniformity in strength and shade, the aniline dyes, insofar as American practice is concerned, have with a few minor exceptions replaced both the pigments and natural dyestuffs. During the period of the late war, when a decided shortage of dyestuffs occurred, the paper mills largely reverted to the use of pigments and natural vegetable dyestuffs. The latter appeared on the market in the form of concentrated powders, pastes or lakes, made from osage orange, fustic, quercitron, hypernic, black oak, logwood, etc.

By a lake is understood the coloring matter produced by precipitating a dye as an insoluble or practically insoluble compound upon an inert base, by means of acids, salts, or alkalies or by means of the base itself. It is of interest to know that such material as aluminum hydrate, certain clays and green earth have the property of fixing small amounts of basic dyes upon themselves with the formation of lakes.

The important lakes of the basic dyes are compounds of the dye with tannic acid, tartar emetic, etc., formed in the presence of certain bases such as blanc fixe, barytes, whiting, china clay, green earth or aluminum hydrate.

Lakes of acid dyes are generally compounds of barium, calcium, aluminum, lead, iron or chromium, precipitated by means of the metallic salts, in the presence of the base or simultaneously with the formation of the base. Certain insoluble dyes, such as paranitraniline red, when produced on a base, are sometimes called lakes, but do not properly come under this definition.

Color lakes made from the vegetable dyestuffs, while important during the recent aniline dye shortage, will not be used in the future, to any extent, as American dyes are now being made in sufficient quantity and quality to satisfy all the needs of the paper industry.

Pigments

Pigments used in the coloring of paper pulp are of three types; insoluble mineral products, ground either in their natural state, such as ochre, raw umber, etc., or heat treated products, such as burnt turkey umber, etc.; colored insoluble inorganic compounds, such as Prussian blue, lead chromate, ultramarine, etc., or as insoluble organic compounds which are true aniline dyestuffs such as the vat dyes, which find application in the paper industry by being used as true pigments. These latter dyes will be included under the aniline dyes. On the border line between insoluble pigments and soluble aniline dyestuffs may be considered such products as soluble Prussian blue.

In general, the coloring of paper stock in the beater by means of pigments depends on the mechanical entanglement of the insoluble pigment with the paper stock, there being no direct coloring or absorption of the colored pigment. The depth of the coloration of the paper, therefore, depends largely on the degree of sizing, the character of the stock (slow stock retaining larger amounts of the pigment than a free stock), character of the pigment, and also on the type and operation of the paper machine. Strong suction, either at the suction box or by the suction roll, tends to produce a two-sided effect on the paper, the top side of the paper being more strongly tinted or colored than the wire side. With strong suction or with a free stock there is a tendency to lose a higher percentage of pigment in the back water, the pigment behaving exactly like clay or other loading material. Pigments, if used in large amounts, have a decided weakening action on the paper, acting in this way like ordinary loading materials. Pigments such as the ochres and the other earth colors should be tested for grit as when used in large amounts, for deep shades, this grit may cause pinholes in the paper, causing frequent breaking of the paper while it is going over the machine; the grit has also a tendency to wear the felts and wires, and to scratch the calender rolls like a gritty clay when used for loading purposes.

Pigments as a rule are very low in tinctorial power. The following comparisons obtained by laboratory trials will give some idea of the tinctorial strength of a few pigments in comparison with aniline dyestuffs. Four hundred parts of turkey umber were matched with 100 parts of a fast aniline dye mixture or with 18 parts of a cheaper and less permanent basic dye mixture; four hundred parts of red oxide were replaced with 84.4 parts of a fast aniline dye mixture or with 34.6 parts of a cheaper basic aniline dye mixture. Four hundred parts of French ochre could be replaced by 8 parts of an aniline dye mixture while forty-eight parts of chrome paste were replaced with 1 part auramine conc.

Certain of the pigments, such as red oxide, for example, are characterized by great permanence and resistance to light and chemicals. Their low tinctorial power and other drawbacks have gradually, to a large extent, caused their substitution by aniline dyes.

The inorganic pigments used as colors to tint or color paper stock in the beater are of very minor importance in comparison with the aniline colors and the individual pigments will receive only a brief consideration.

Chrome Yellow (Canary yellow, Canary paste).

This yellow pigment usually appears on the market in the form of a paste or the mill may color the stock by adding a solution of lead acetate (sugar of lead) to the beater and, after a short time, when some of the lead acetate has penetrated the fibre, precipitating it in place by means of a solution of sodium or potassium bichromate. If the color is made in the beater, it is difficult to hold the shade of each individual beater uniform, as the temperature, concentration ad alkalinity of

the water tend to vary the shade. Heat and alkali especially change the bright lemon shade to the orange cast, while hydrogen sulphide darkens the color.

Yellow ochres and siennas are natural silicates, the ochres containing hydrated oxide of iron, the siennas containing manganese oxide. The color varies from yellow to brown, the tinctorial power being very low. While these pigments are of permanent shade, not being affected by size, alum and alkalinity of the water, their action, insofar as the coloring of paper is concerned, is very similar to clay. If used in large amounts, in order to produce a deep shade, these products have a decided weakening action on the strength of the finished sheet. Freedom from grit is also important.

Umbers are complex natural silicates of a brown shade containing a higher percentage of manganese oxide than is found in the siennas. The general remarks relative to the disadvantages of using ochres and siennas apply to the use of umbers.

Sap brown, which is a brown coloring agent, is used at the present time to only a limited extent. Sap brown is used by the paper mills as dyestuff rather than as a pigment and is low in tinctorial power, difficultly soluble, sensitive to hard water and difficult to apply so as to obtain even dyeings.

The various kinds of lamp or carbon blacks produced as soot by the incomplete combustion of various oily organic compounds are used to some extent for the production of black grey papers. Lamp black, when used in large amounts, has a tendency to streak and speck the paper, makes it rub badly and is a decided nuisance in the beater room, as due to its fine state of division and low specific gravity, it is apt through careless handling, to get into the air of the beater room and later settle in the form of soot. In order to avoid this nuisance it is a good plan to weigh the requisite amount of lamp black into a paper bag and to throw bag and all directly in front of the roll so that it is incorporated at once with the pulp; another method that is sometimes used is to make the lamp black into a paste by means of hot water. Uniform results as regards depth of shade are practically unobtainable with lamp black due to the variaton in length of time and manner of beating. To obtain efficient results the lamp black should be thoroughly beaten into the stock. As low as two pounds of lamp black per thousand pounds of stock will give a grey, at low cost, that will serve as a base to be topped with aniline colors. Mixtures of basic dyes are gradually replacing lamp black, while for higher grades of paper direct blacks shaded by direct yellows or other shading dye are used.

Red oxide, which is an oxide of iron, is used to some extent for the coloring of cheap roofing, red rosin-sized papers, and a few other paper products. The various kinds of red oxide, while very permanent and unaffected by alkali, have the general drawbacks of other pigments.

Various Prussian blues, both as pigments and in a soluble form, are used quite extensively for the tinting and coloring of paper, these blues being fast to light, but very sensitive to alkali. This is especially important in oatmeal wall paper and hanging papers colored with these products as with freshly plastered walls, or with alkaline glues, the color of the paper may be affected.

Ultramarine, a double silicate of sodium and aluminum containing some sodium sulphide, is used quite extensively for the tinting of higher grades of white paper. Ultramarine has the decided drawback of being sensitive to acids and alum, the color being affected by these agents. The so-called alum-resisting ultramarines are superior in this respect to the ordinary ultramarines.

A pigment green made by coloring stock in the beater with chrome yellow and Prussian blue is occasionally used. The green obtained by this mixture is not nearly as satisfactory as that which may be obtained by aniline colors. The tinctorial power of the mixture is low.

Aniline Dyestuffs

With the discovery of mauve by William Perkin in 1856, whle experimenting on the possible production of quinine, there originated the synthetic coal tar dye stuff industry. Insofar as the American paper industry is concerned at the present time, the aniline dyes are used almost exclusively for the tinting and dyeing of pulp and paper.

The aniline dyes have the following decided advantages over pigments and natural dyestuffs: (1) Great tinctorial power; (2) ease of application and uniformity of the product, both in shade and strength, so that the dyeing of the pulp or paper is very much simplified; (3) The dyestuffs now available cover every range of color and shade and can be chosen according to cost, tinctorial power, resistance to various factors, such as fading, alkali, alum, etc.; (4) the aniline dyes do not decrease the strength of the dyed sheet as do the pigments.

Aniline dyes, mainly of German manufacture, that satisfied every need of the paper industry, were on the market before the war. When no further importations could be obtained, due to war conditions, the paper industry reverted to a considerable extent to the use of pigments and vegetable dyes or lakes prepared from them. The American dyestuff industry has developed until today it is possible to secure practically all of the colors available before the war.

Nomenclature of Dyestuffs

The same dyestuff was often placed on the market by various manufacturers, each using his own trade name to identify the dye; for example, the vesuvines, Bismark browns and Manchester browns were practically identical, but were sold under these various trade names.

Some of the larger American dye houses have adopted certain trade names to identify the various classes of dyes following the practice adopted by the large German manufacturers. For example, the DuPont Company uses the prefix "DuPont" for basic dyes, "Pontacyl" for acid dyes, "Pontamine" for substantive or direct cotton dyes, and "Ponsol" for vat dyes. The National Aniline and Chemical Company is following a somewhat similar procedure, using the trade name "Erie" or "Niagara" to describe their substantive colors. Thus, the "Cotton Black E Extra" of pre-war times is manufactured and sold by these American manufacturers under the respective names of "Pontamine Black EX" and "Erie Black GXOO."

Further, some confusion exists in regard to the letters or designations added to the name of the dyestuff. As the manufacturing process involved in the production of a dyestuff becomes more standardized and intermediates are obtained in a purer and more concentrated form, it is often possible to produce a more concentrated brand. In general, the terms conc. or X, as for example, Victoria blue BX or Victoria blue B Conc. indicate that these products represent the stronger brands of Victoria blue. The letter "R" usually indicates a reddish shade, "G" or "Y" yellowish and

"B" a bluish shade of the dyestuff. Often two dyestuffs practically identical insofar as the method of application and use are concerned, are placed on the market, the difference between them being one of shade; for example, Soluble Blue 2 R and 2 B, indicate soluble blues respectively of a reddish and greenish shade. Often the letters or numbers after the name of a dyestuff are misleading, as there is no uniform method of nomenclature adopted by all the manufacturers.

Dyestuffs, with very few exceptions, are never placed on the market as 100 per cent pure dyestuff but are always mixed with dextrine, salt, Glaubers Salt, soda ash or other dilutent. This dilution in some cases being as low as 1 to 2 per cent cannot be considered as adulteration, since it is impossible to control the complex organic reactions involved in dye manufacture so as to obtain a 100 per cent yield of the dye. Different batches of dye produced at the plant, therefore, vary in tinctorial strength and the dyestuff manufacturer, after careful testing, standardizes his product by grinding and mixing together different lots of varying shades and then adding his standardizing medium such as salt, dextrine, etc. (the choice depending on the particular dyestuff) in order to produce a product of standard strength as well as shade. Naturally, unscrupulous dealers occasionally adulterate with an excess of dilutent, but the consumer, if at all experienced in dye testing, can readily determine such adulteration.

Many of the dyes on the market have had mixed with them slight additions of other dyes used to shade the mixture to the desired standard shade. Other dyes are mixtures of two or more dyes, mixed for the purpose of producing a definite new color.

Such mixtures or the addition of a shading dyestuff can readily be detected by following directions given under dye testing. In general, it is desirable to avoid purchasing mixtures of aniline dyes, as the tendency for variations in shades due to variations in specific gravity or poor blending and mixing of the admixed dyes often causes a decided difference in shade. By separation of the heavier and lighter dyestuffs (due to difference in specific gravity) the first and last sample drawn from a keg or barrel of dyestuff will sometimes show a variation in shade. The average paper mill should not require more than a dozen standard colors for the production of all of the current shades.

The aniline dyes are usually placed on the market in the form of finely ground powders and to a very limited extent for tinting purposes in the form of solutions. Certain dyes, such as some of the basic greens, magenta, etc., are placed on the market in the form of crystals, since the consumer has been educated to believe that no adulteration can occur of such a crystallized product. Further, the trade demands that certain brands of nigrosine should have a peculiar fracture and appearance, in the belief that this obviates the possibility of adulteration.

Classification of Dyestuffs

Dyestuffs are not classified from the standpoint of practical application according to their chemical formula or derivation but rather into large groups according to their general behavior. These divisions are:

1. Basic Dyes.
2. Acid Dyes.
3. Substantive or Direct Cotton Dyes.
4. Pigment Dyes and Vat Dyes.

The basic dyestuffs appear on the market in the form of salts such as the hydrocloride, acetate, oxalate, nitrate, double zinc salt, etc., of certain color bases. The basic days are characterized by great tinctorial pow.. but as a class are not fast to light. All basic colors can be mixed and dissolved together but should not be mixed or dissolved with acid or substantive colors as they would thereby be precipitated as color lakes and not only would the color be wasted but the precipitated dye would be apt to produce color spots on the finished paper. Solutions of basic dyes should not be boiled and they are best dissolved at temperatures not to exceed 180°—200° F. Auramine is particularly sensitive to heat, and therefore, should not be dissolved at temperatures to exceed 160° F. When dissolving mixtures of dyestuffs, and especially with basic colors, care should be taken that all of the component colors are completely dissolved to avoid variations to shade. Further, it is good practice to strain the solutions through a fine sieve. The writer realizes that the majority of mills do not dissolve their dyes but sprinkle them into the beater in the dry state; better results, however, are obtained by dissolving the dyes.

Basic dyes, such as methyl violet and the blues, safranine, etc., have a tendency to mottle or dye unbleached sulphite more deeply than groundwood, as they have a greater affinity for chemical than for mechanical pulp. In etxreme cases, this can be overcome by adding the solution of the basic dye in a very diluted condition to the beater furnished with the groundwood stock, and then thickening the furnish by adding the sulphite stock in lap form. In general, a tendency to mottle can be overcome by adding the dye in a very diluted condition. Another means of preventing mottling is to precipitate basic dyes on china clay which is used for tinting purposes. Many of the basic dyes used for tinting purposes have the property of coloring clay, forming a clay-dyestuff compound, which readily dissociates in the presence of the large volume of water in the beater. By gradually and uniformly coloring the sulphite stock in this way, mottling can be prevented in a groundwood-sulphite furnish. A similar difficulty of mottling by basic dyes is sometimes experienced in papers made on a furnish of unbleached and bleached sulphite pulps.

In general, acid colors appear on the market in the form of a salt of the free color acid. The most characteristic property of acid dyes is that their full tinctorial strength must be developed by acid, which, in the coloring of pulp in the beater, is accomplished by using a slight excess of alum. Metanil yellow is an exception to this rule as an excess of alum weakens the color. The acid colors, as a class, are of lower tinctorial strength than the basic colors, but are faster to light. Acid colors can be mixed with the substantive colors without the precipitation of a color lake occurring, but cannot be mixed with basic dyes. This class of colors, like basic colors, are in mill practice usually added to the beater in the dry form; better results will be obtained if the dyestuffs are dissolved. Acid dyes are not very sensitive to heat and can be dissolved at a temperature a little below the boil. These colors are not particularly sensitive to alkalinity of the water due to calcium or magnesium bicarbonate, but some colors are precipitated by dissolved calcium or magnesium salts in the form of insoluble calcium or magnesium salt of the color acid.

Papers colored with acid dyes tend to bleed in contact with steam or water: this is important in paper used for textile cones. Acid colors tend to produce strongly colored back waters which in long runs, especially if the water is used again in the beaters, must be

considered and allowed for, as otherwise too strongly colored paper will be produced.

To increase fastness to light and to obtain deeper and more brilliant shades, pulp is sometimes dyed with a bottom of acid colors and topped with a basic dye. This color lake produced from acid and basic colors makes a fuller dyeing than can be obtained by acid colors alone, and is cheaper than if acid colors were used. Further, the dyeing is far more light-resistant than it would be if made from basic dyes.

The substantive or direct cotton dyes are salts of color acids which do not require acid (or in the paper industry, alum), to develop their tinctorial powers. As a class, substantive colors are of lower tinctorial power than acid or basic colors, but those that find application in the paper industry are in most cases faster to light and other agencies than either of the other two classes. Substantive colors are sensitive to hard water, some of the colors being precipitated in the form of insoluble lime or magnesium salts. Substantive colors have the property of dyeing cellulose directly without the addition of any mordant or fixing agent and are best dyed at about 140° F. with the addition of common salt in order to exhaust the color more fully. In general, paper mills do not follow this procedure, even though it would save some of the waste of color occurring in the back water. This class of colors is, therefore, largely used to dye unsized blotting and the colored stock used in mottled envelope, blotting, cover and similar papers. The substantive colors readily dye the cellulose fibre so that in producing light shades care must be taken to avoid mottling of the paper. The substantive colors as a class are also remarkable in that they give practically colorless back waters and a small excess of alum will often tend to clear up the backwaters though in some cases the shade is changed.

The pigment and vat dyestuffs are synthetic organic dyestuffs, which insofar as paper dyeing is concerned, are used in the form of insoluble pigments. These products, which appear on the market either in paste or powder form, are, due to expense, usually used only in the tinting of high grade paper or for producing light-colored shades. The importance of these organic pigments lies in their great resistance to light and chemical agencies.

General Notes on Coloring.

Paper may be colored by dyeing the pulp in the beater or by coloring the paper in web form on the calender. As over 95 per cent of all paper is colored by dyeing in the beater, calender coloring will be considered as of minor importance and at a later date.

The operation of manufacturing colored coated paper, in which the color is added directly to the mixture of casein, clay, etc., and applied on the coating machine, is discussed elsewhere. Considerable coloring is done by means of color tubs or vats in order to economize in dyestuff for the production of deep shades. The stock is first partly colored and sized in the beater and is then put over the paper machine in the usual way, but only partially dried on the first section of the dryers. The paper is then passed through a color tub and squeeze rolls and finally dried over the balance of the dryers. In this way a deep shade covering just the surface of the paper can be more economically produced than would be the case if the stock was entirely colored in the beater. Certain specialties such as foam and spray dyeing are of such minor importance that they will not be considered.

In the matching of any dyed shade, the first consideration is the character of the stock, the finish and the class of dyestuff to be used. General experience will usually determine the furnish of the stock to be matched; if not, a little practice with the microscope will enable anyone to identify and roughly estimate the percentage of various stocks to be used in the furnish. If the sample to be matched is calendered heavily, then the sheet should be steamed for a few minutes in order to remove the finish, so that the true color of the paper can be noted. If the sheet is water finished, allowance must be made for the darkening of the sheet by this treatment. It is advisable in matching any new shade or in making runs even if a formula from the previous run is available, to start the color matching in the day time so that the paper can be judged by daylight. The various daylight lamps on the market are valuable for matching shades, but daylight is to be preferred. The changing of colors under artificial light is well known to all beater men, as for example violet shades made with methyl violet or blues made from it and basic greens are very difficult to match and hold uniform on the machine under artificial light.

The paper industry does not make use of mordants to combine with the dye so to make a color lake to increase the fastness of the dyeing, as do the textile, leather and other dye-consuming industries. There are, of course, certain exceptions, such as the eosine, phloxines, rose bengals, and erythrosines, which are usually after-treated in the beater with lead acetate in order to improve their brightness and fastness. Similarly, certain direct blues are decidedly improved, insofar as fastness to light is concerned, by the addition of copper sulphate. There is no question that after-treatment of the dyed stock with the proper mordant would in many cases improve the fastness of the dyeing. This would be especially true if the basic dyes were after-treated in the beater with tannic acid or some cheap extract containing tannin.

Considerable controversy exists as to the proper order of the addition of color, size and alum to the beater. The author believes that, with very few exceptions, the dyes should be added first and mixed with the pulp, after which the size and then the alum should be added. This appears to be particularly true for the substantive colors, as the precipitated size appears to coat the fibres, making it difficult for the dye to color them. Comparatively little difference, however, would be made by varying the order of addition with any of the different classes of dyestuffs, except the basic dyes. With basic dyes, in order to prevent any possible precipitation of the free color base, the author considers it advisable to add the dye after the stock is sized and alumed sufficiently to avoid any danger of alkalinity in the beater. The various dye manufacturers can give the consumer the best directions in regard to the order of addition of color, size and alum to the beater and advantages should be taken of their specialized knowledge and experience.

The kind of stock used in the furnish has a decided influence on the brightness and depth of shade obtained. It is out of place to consider in this brief chapter the various theories advanced in regard to the fixation of colors. In general, the more impure the fibre, the deeper and duller will be the resulting shade. Unbleached sulphite pulp, for example, will give a deeper but duller dyeing than is obtained by using the same percentage of dye on bleached sulphite. Certain stocks,

for example, jute, contain a percentage of tannin-like material having a strong affinity for basic dyes.

The pulp obtained from different cooks from the same digester will often show a decided difference in the way in which they dye. It may, therefore, be advisable to store the hard or raw cooks that may be produced by the mill and use only pulp of the same quality for any one run.

In this connection the treatment of broke returned to the beater room might be considered. From 10 to 20 per cent of the beater content should be furnished with broke and the beater colored in the usual way. The broke on repulping in the beater loses approximately one-third of its color so that additional dye must be added to allow for this loss. Some mills pulp all broke from one color in some form of pulper and store the pulp as such or run it over a wet machine, in the form of laps for future use.

THE UNDERWOOD RESOLUTION.

The Journal of Commerce, Montreal, has the following editorial in the issue for March 2, which gives the valuable opinion of Hon. W. S. Fielding on a question of great present interest and importance.

Mr. Underwood of Alabama has had passed in the United States Senate and sent to the House of Representatives for concurrence a resolution which is not likely to accomplish any good purpose, but may be the cause of considerable unpleasantness between the United States and Canada. The resolution calls for the appointment of a Commission to visit Canada and enter into communication with the Canadian authorities respecting the restrictions on the export of forest products and paper, and to suggest remedial measures.

The trouble is not a new one. For a long time many of our American neighbors have been looking to Canada as a source of material for their pulp and paper mills. Much American capital has been invested in Canadian woodland. In several of the Provinces the Provincial Governments, as owners of the land, have granted leases on the condition that the logs shall be manufactured in Canada. It is this restriction that is complained of. When the Reciprocity agreement of 1911 was negotiated the Americans made urgent representations that the restriction should be removed. The Canadian Ministers pointed out that the regulations complained of were made by the Provincial Governments, whose right to stipulate the terms of leasing could not be questioned.

The importance of the Canadian supply of wood and paper to the States has been felt with increasing keenness during the past few months, and naturally the desire to have the Canadian regulations removed has been stronger. The situation was made more difficult by certain regulations of the Federal Government, respecting the shipment of newsprint paper. For the protection of the Canadian users of paper the regulations required the manufacturers to reserve 15 per cent of their product for the Canadian market, and to supply this quantity at a stipulated price. One American company, operating at Fort Frances, Ontario, had some difficulty with the Federal Government respecting the application of this rule, and for a few days there was an embargo on all the product of that mill. The incident, affecting as it did the interests of a number of American newspapers which had contracts with the mill, was widely published and discussed, and caused much irritation in the States. That particular trouble was speedily adjusted, and the embargo was removed. But the irritation arising from the incident remained and probably was the chief cause of Senator Underwood's resolution.

It is much to be regretted that on the adjustment of the trouble at the Fort Frances mill, Mr. Underwood did not see the propriety of dropping his resolution. As the case stands now he is assailing regulations of the Provincial Governments of Canada who are entirely within their rights, and who, it is quite certain, are not moved by any desire to make trouble for our American neighbors. It is the undoubted right of a landowner, when he is asked to lease his property, to make stipulations as to the terms of the lease. It is this right that the Governments of the Provinces are exercising. From some of the American criticisms it might be inferred that our Provincial Governments are discriminating against American lesses. But such is not the case. The holders of the leases, whether they are Canadians or Americans, have alike to submit to the conditions respecting the manufacture of the wood in Canada. The terms of the leases must, of course, speak for themselves. If the Provincial Governments attempt to do anything that is at variance with the conditions of the leases the parties concerned can find a remedy in our courts. But if the Governments are acting in accordance with the terms of the leases, it is not easy to understand how anybody can find in their action a cause of grievance.

If the Senate resolution be concurred in by the House of Representatives, and a Commission be appointed, its members who came from Washington to inquire into this matter will, of course, be received with all due courtesy, and the fullest explanations will be furnished. But it would be a mistake for our American neighbors to start out with the idea that they have any grievance in the affair. The Commission, which, it is proposed, shall have an appropriation of $50,000 for its expenses, can really obtain no information on the subject that could not as easily be obtained by an exchange of letters between Washington and any citizen on this side of the line who is acquainted with the situation. The coming of the Commission which cannot be expected to accomplish anything, and its return to Washington with a report of failure, may serve to continue and expand the present irritation, for which there really is no ground.

PULP MILLS AFFECTED BY LOW WATER.

Quebec.—The low condition of the waters in the rivers on the north and south shores has considerably reduced the manufacture of pulp, lumber and other natural resources that are dependent upon water power. This is due in a great measure to the extensive cold which was experienced at the early part of the winter, which froze up most of the lakes in our northern country.

In the Lake St. John district some of the large pulpwood grinders have been closed down, while at Port Alfred the mill has had to close down. It is not expected that conditions will be very much improved before the middle or end of March, owing to the fact that there is heavy thick ice on the lakes which will take some time to melt.

Quebec, March 5.—At a meeting of the provincial cabinet today Mr. A. Macheras, principal of the Montreal Technical School, was appointed director of technical training for Quebec province at large.

British Trade News

(From Our London Correspondent)

London, February 23, 1920.—Mr. H. A. Vernet, who was the principal guest at the recent dinner of the Paper Makers' Association in London, and who was also paper Controller of the United Kingdom during war time, has joined the directors of John Dickinson and Co., Limited. Mr. Lewis Evans, the late chairman of the Association has retired from an active interest in John Dickinson and Co., and no doubt the infusion of Mr. Vernet into the firm has resulted over his success as a paper Controller. He is a man whom the papermakers respected and he worked impartially between the Government and the millowners. Though the news was current at the annual meeting that Mr. Vernet had joined John Dickinson and Co.—an old established firm of paper makers with a paid up capital of £1,100,000—nothing definite was announced until this week. At the Association dinner Mr. Lewis Evans said Mr. Vernet had done useful work for them as a Controller and the influence of the paper manufacturers had been so great on Mr. Vernet that he had now become a paper maker. This was really the first public announcement and he will prove a valuable acquisition to the industry. Incidentally, it should be mentioned, that Mr. Vernet has stated that the British prices of paper were today 10 to 15 per cent lower than those of Scandinavia.

Crisis in France

There is a considerable amount of feeling existing to day in France between the paper makers and their consumers, matters are not going well at all. On account of the shortage of paper over 300 proprietors of daily newspapers have unanimously resolved to request the Government to pass a Bill increasing the cost of all journals, four-page papers, to 20 centimes, nominally 4 cents. Before the war the prices of these papers, then consisting of six and eight pages, were one cent. To meet the paper shortage the proprietors are also asking for Sunday labor in the printing offices to be abolished, which means that no dailies will appear on Mondays if the request is acceded to. British papermakers have been doing an increased trade with France since the Armistice was signed but where the shortage is lies on the side of Germany, which is out of the market. Newspaper proprietors in France also want to be on the same basis as proprietors in other countries, but the French mills cannot cope with the demand owing to the scarcity of skilled labor and raw materials and the difficulties of transportation.

Big Paper Fire

Messrs. Bowater and Sons, the well-known paper merchants, of whom Sir T. Vansittart Bowater is head had a big fire at their London offices and stores this week and the damage is estimated at £50,000. Offices and paper went up in the flames, which could be seen for miles round London and it took 140 firemen of City Brigade with 20 appliances to fight the flames. The Thames river fire floats also "stood by" in the river in case they might be wanted. Fortunately the books and records of the firm were saved and not much paper was stored in the place at the time. When the trade heard of the fire offers of help were sent from all quarters to Sir Vansittart Bowater and Major Bowater, including letters of sympathy and these were much appreciated. The firm is now established in temporary quarters until the old building is rebuilt.

A fire also broke out at the Northfleet paper mills recently and a large quantity of woodpulp was destroyed. Fortunately the major portion of the pulp supplies were stacked well away clear of the building.

Canadian Boards

There is a fair amount of millboards and pasteboard arriving in England from Canada at present. During January, according to Government returns, 318 tons of millboards were imported into England from the Dominion and about 23 tons of pasteboards Canada does also a big trade in woodpulp boards and the markets for these boards should be carefully watched.

Cellulose Researches

This was the title of a lecture delivered the other day by Mr. C. F. Cross, F.R.S, before the Royal Society of Arts, in London. Mr. Cross remarked that baled jute was subsequent to a destructive damage known in the industry as "heart damage" and a similar destruction occurs in moist mechanical pulp, a case having been investigated by Mr. F. Barnes in 1908 at Messrs. Lloyd's Sittingbourne Mill. Mr. Barnes quantitative statistics indicated the close resemblance to the changes constituting the heart damage of jute. Referring to the utilzation of cotton hull fibres and Mr. E. de Segundo's researches, Mr. Cross said the residual fibres of wooly cotton seed were, quo cellulose, equal to the normal. They were of convenient papermaking length. The short fibre obtained by Mr. Segundo's machine from the woolly seed was to the chemist a source of cellulose, and had been used in large quantities on the American side in making nitrocellulose— it was a cellulose raw material and there were certain development of the industry to which public attention would be drawn shortly. The lecture did not touch very much on papermaking.

The Pulp Situation

Sulphite and sulphate are still advancing in prices for any odd parcels placed on the market. The situation it must be admitted is not a satisfactory one and buyers are looking to shipments from Canada to alleviate the present shortage. Scandinavian high prices are not at all welcome to the British paper maker. Bleached sulphite is up to $256 a ton, with easy bleached at $240 and good news sulphite at $235 to $240 a ton. Wet groundwood is now quoted at £15 a ton, compared with £9 three months ago. It is very scarce and causing considerable anxiety. Prices are consequently reaching a higher level. The whole position of groundwood will undoubtedly react on sulphite before very long. Shipments of pulp to England at present from all sources are on a small scale.

Paper Prices Soaring

Higher prices for paper are the rule today in England. Pulps are up and the makers of paper must recoup themselves over the high cost of raw materials. Up to the present newsprint has not been advanced. All mills are running full capacity and the export trade is receiving considerable attention. So far no real shortage of newsprint has been experienced. The London "Times" is now publishing 24 page papers each day, not counting supplements, and other big newspapers show no curtailment. Germany is now figuring in the imports of paper, but the shipments are on a limited scale. Every little quantity however, helps the market.

To be careless, thoughtless or reckless means injury sooner or later to yourself or others.

The Titration of Cellulose

By Dr. WALTER QVIST.
(Communication from the Chemical Laboratory of the Kymmene Mills).

Translated from Finsk Pappers-Och Travarutidskrift, August 15, 1919.

In a memoir published in 1912, Richter endeavored to determine the titration of cellulose (Wochenbl. fur Papierfabrikation, p. 4517). After some fruitless researches with the indicators commonly employed, such as phenol-phthalein and methyl orange, the investigator named proceeded to adopt the following method: Five grams of air-dried cellulose were shredded and shaken vigorously in 100-150 cubic centimetres of water, filtered through cotton, and washed well in a little hot water, whereupon the filtrate was titrated with n/100 alkali and iodine-eosin or resolic acid used as indicator. As a result of this titration test Richter found to begin with; (1) that the greater part of the sample of sulphite cellulose thus investigated contained free acid, and (2) that the free acid found, or better expressed, the quantity of acid which could be neutralized with alkali as an acid reacting substance, did not show itself to possess any exact proportion to the lignin or ash content of the cellulose, nor to the sum of these two. Much of the acid found. estimated in terms of sulphuric acid, amounted to about one-tenth of a gram in 1000 grams of cellulose. Meanwhile Richter had met with some samples of cellulose of which the aqueous extract reacted distinctly alkaline. The cellulose samples just named showed an uncommonly hgh copper number, stained badly with acid dyestuffs, and gave a paper with weak sizing fastness. Richter thereupon put forward the conjecture that the unusually simple process of carrying out the titration of cellulose might attract interest as a convenient technical control method. Any later researches on the titre of cellulose I have not met with in the literature, if I make the exception that Schwalbe mentions Richter's investigations, adding that the titration numbers, considered as material for a calculation, do not permit of a judgment as to whether the simply carried out determination of the cellulose titre possesses any great value.

Since it seems to me a matter of great interest to control as far as possible, the correctness of Richter's inferences that there seems to be a connection between the titre of cellulose and the sizing fastness of the paper produced from it, I instituted with this object in view a series of researches in the chemical laboratory of the Kemmene mills, where assays of similar kind had been previously made under the direction of Dr. Klingstedt.

To begin I investigated anew a method formerly employed in the laboratory of shaking up cellulose in a glass jar with excess of alkali, adding phenolphthalein, and performing a second titration with hydrochloric acid, but this led to no good result, since it showed that the more alkali added, so much the more cellulose is decomposed.

For this reason I proceeded to employ Richter's method. In an empty cylindrical glass flask with ground stopper 250 cubic centimetres of wet cellulose were introduced, corresponding to 5 grams of dry substance, and the water evaporated until the total quantity of water amounted to 150 cubic centimetres; the contents were then carefully shaken and filtered once, or in case of necessity, twice, through a thin silk web, when the filtrate was replaced in the flask, and its volume noted. The filtrate was treated with 20 cubic centimetres of ether containing 1 milligram of iodine-eosin per litre, shaken, and titrated first with n/100 HCL until colorless and subsequently with n/100 KOH until it changed to a weak shade of red. The results were estimated in terms of the original volume of water. At the same time a control research was constantly carried out with distilled water alone with reference to the results of the last mentioned titrations.

The cellulose shaken up wih water was dried at 40° C. and shaken several times with 150 cubic centimetres of water and titrated, as will be set forth more in detail in the following methods, Titrations were carried out with this object, with bleached sulphite cellulose from the Kymmene, Kuussankoski and Voikka mills, sulphite cellulose which had been heated for a long time at 100° C., sulphate cellulose, wood pulp, hydrocellulose and oxycellulose.

Water From the Kymmene River.

In different cases a sample of the river water used in the making of cellulose was taken and titrated by the method mentioned before with iodine-eosin in ether solution as indicator. The water showed in this way that it was strongly alkaline in that 150 c.c. consumed 2-2.4 c.c. of n/100 HCL.

Kymmene and Voikka Sulphite Cellulose.

From October 23 to November 19 twenty-two samples in all were taken of the cellulose from the Kymmene cellulose mill, namely one sample of unbleached fourteen samples of three-quarters bleached, and seven samples of half-bleached cellulose. The samples were dried at 40° C. and 5 grams were titrated by the previous method. The unbleached cellulose required for complete titration 0.35 c.c. of n/100 HCL. For the three-quarters bleached 0.07 to 0.77 c.c. of n/100 HCL were used for each 5 grams of the substance, or an average of 0.39 c.c. Lastly the half-bleached cellulose required 0.7 c.c. and on an average 0.38 c.c. n/100 In the case of four samples the titration was repeated several times with drying between and the result was that the aqueous extract of five grams of dry cellulose required for titration the following quantities of n/100 HCL in cubic centimetres:

Quantity of Acid Used in Titrating the Filtrate.

Sample No.	1	2	3	4
Ky 12 ¾ bleached	0.62	0.36	0.20	0.26
Ky 13 fully bleached	0.28	0.07	0	0
Ky 14 fully bleached	0.70	0.83	0.13	
Ky 15 ¾ bleached	0.77	0.70	0.06	

Subsequently two other samples from the Kymmene cellulose mill were taken February 5, 1919. Of these Kymmene sample No. 23 proved to be somewhat incompletely bleached and showed a weak brown coloration, while Kymmene sample No. 24 was over-bleached and was greenish colored. The two samples, otherwise, showed the following characteristics:

[1] Schulz; Zur Kenntnis der Cellulosarten, Berlin, 1911, $ .17.

Dry substance	39.14%	38.92%
Cellulose number (C. N.)	83.0	83.0
Corrected copper number (A. N.)	4.67	3.97
Alkali soluble[1]	34.76%	34.47%

A sample of both kinds of cellulose was taken which represented 5 grams of dry substance and repeatedly titrated, by which 3 c.c. of n/100 HCL were used:[2]

Quantity of Acid used in Titrating the Filtrate.

Sample No.	1	2	3	4	5	6
Ky 23	0.08	0.16	0.	0.06	0.	—0.02
Ky 24	0.34	0.33	0.09	0.12	0.13	—0.03

Since Richter observes that there seems to be a relation between the alkalinity and copper number of these celluloses, this constant has been determined after a repeated extraction with water, the result making it sufficiently obvious that there is also an inconsiderable lessening of the quantity of acid used. Here practically the same number is obtained as has been earlier given:

	Ky 23	Ky 24
Corrected copper number	4.68	4.15

A sample of Voikka cellulose of June 1918 was tested in the same way, the water soluble extract of 5 grams of the dry substance requiring .38 c.c. n/100 HCL for titration.

Kuusankoski Sulphite Cellulose.

Between November 4 and December 31, 1918 a series of cellulose samples were taken, of bleached as well as unbleached, from the Kuussankoski cellulose mill. Twenty grams of wet pulp were shaken up by the method previously mentioned with 135 c.c. of distilled water, and filtered, whereupon the filtrate was titrated. The results were calculated, first in terms of the original volume of water and—after determination of the water content of the cellulose used—on 5 grams of absolutely dry cellulose. The cellulose extracted once was dried at 40° C., extracted a second time with 150 c.c. of distilled water, and this was repeated with single samples until the results of the titration of the water soluble extract gave no more change. The quantities of cellulose were diminished to some extent by mechanical losses due to the repeated extractions, though not to such an extent that the result is in any high degree vitiated thereby. The values found are given in the following table in terms of 1 c.c. of n/1000 HCL for 5 grams of dry cellulose. The minus numbers here also mean that the water soluble extract had an acid reaction and that a loss of alkali also took place.

Quantity of Acid Used in Titrating the Filtrate.

Sample No.	1	2	3	4	5	6	7	8
Kuus. I 30 unbl.	0.51	0.75	0.85	0.76	0.13	0.16	0.13	
— " — bl..	0.18	0.32	0.31	0.19	-0.12	-0.04	-0.11	
Kuus. I 32 unbl.	0.10	0.27	0.37		0.37	0.18	0.21	
— " — bl...	0.26	0.12	-0.04		-0.05	-0.08	-0.06	
Kuus. I 33 unbl.	1.21	1.53	1.01	0.43	0.14	0.53	0.43	0.45
— " — bl...	0.27	0.12	-0.05	-0.12	-0.16	-0.01	0.02	0.05
Kuus. I 34 unbl.	0.48	0.64	0.36	0.54	0.50	0.59	0.22	0.46
— " — bl...	-0.12	0.05	-0.14	-0.03	0.19	-0.05	0.03	0.12
Kuus. I 35 unbl.	0.95	0.88		0.50	0.34	0.11	0.20	
— " — bl...	0.17	0.03		0.10	0.13	-0.02	-0.03	
Kuus. I 36 unbl.	0.23	0.84		0.55	0.37			
— " — bl...	0.15	0.15		0.12	-0.01			
Kuus. II 31 unbl.	0.65	0.44	0.43	0.10	0.41	0.14	0.09	
— " — bl...	0.31	0.01	-0.13	-0.05	0.12	-0.10	0	
Kuus. II 34 unbl.	0.23	0.78	0.70	0.37	0.16			
— " — bl...	0.10	0.13	0.17	-0.02	-0.13			
Kuus. II 36 unbl.	1.28	0.95	1.04	0.53	0.62			
— " — bl...	1.15	0.67	0.46	0.23	0.19			
Kuus. II 37 unbl.	0.79	0.12	0.34					
— " — bl...	0.38	0.08	0.07					
Kuus. III 34 unbl.	1.05	0.77	0.49	0.27	0.06	0.19	0.29	
— — " — bl...	0.04	0.12	0.21	0.15	-0.12	-0.11	0.08	

Cellulose Affected by Heat.

As for the question of how far cellulose is changed by heating to 100° C., we find that there are very contradictory results recorded in the literature. Since the method of titration here described may be regarded as an extremely delicate reaction, in that a distinct change in color may be observed as soon as a drop of n/100 KOH solution is added, it seemed to me that it would be of great interest to determine by experiment how far such a change in the cellulose titre could be observed after heating for a long time to 100° C. For this purpose the samples Kuus. 1.30 (bleached and unbleached) and Kuus. 1.32 (bleached and unbleached) which had been extracted seven times, were kept for three weeks in the drying oven heated with indirect steam, by which process the samples became distinctly yellow. In the next place the samples were titrated again several times according to the method previously followed and the numbers thus obtained were calculated on 5 grams of dry substance. The result in c.c. of n/100 HCL are set forth in the following table, in which the minus signs have the meaning given in the foregoing tables.

Quantity of Acid Used in Titrating the Filtrate

Sample No.	1	2	3	4	5	6	7	8	9	10	11
Kuus. I 30 unbl.—	-1.72	-0.83	-0.60	-0.42	-0.27	0.02	0.15	0.48	0.49	0.59	0.46
Sample No.	1	2	3	4	5	6	7	8	9	10	11
Kuus. I 30 bl.—	-1.96	-0.72	-0.67	-0.45	-0.42	-0.52	-0.04	0.34	0.28	0.50	0.23
Sample No.	1	2	3	4	5	6	7				
Kuus. I 32 unbl.—	-1.49	-0.64	-0.38	-0.61	0.06	0.10	0.08				
Sample No.	1	2	3	4	5	6	7				
Kuus. I 32 bl.—	-1.97	-078	-0.62	-0.46	-0.18	-0.19	-0.08				

Sulphate Cellulose and Wood Pulp.

It seemed to me to afford a considerable interest to investigate sulphate and ground wood pulp in just the same way as that employed for sulphite cellulose and thus to carry out a series of comparative extractions and titrations with a sample of unbleached sulphate cellulose from Gutzeit and Co. and with a sample of wood pulp from the Kymmene paper mill. The result, expressed in terms of 5 grams of dry substance, in given in the following table in 1 c.c. of n/100 HCL.

Quantity of Acid Used in Titrating the Filtrate

Sample No.	1	2	3	4	5	6	7	8	9	10	11
Sulphate cellulose—	9.30	5.35	4.30	3.19	2.63	1.83	1.41	0.96	0.91	0.97	1.05
Sample No.	1	2	3	4	5	6	7	8	9		
Wood pulp—	0.48	0.51	0.37	0.36	0.31	0.49	0.18	0.32	0.43		

[2] Minus numbers show that the water soluble extract had an acid reaction, by which a consumption of alkali really took place.

(To be continued.)

Calgary, Alta.—According to Major McLaren of the Imperial Air Board, an areodrome and twelve machines will be established here, and a similar program is proposed for Peace River. The air service will be utilized for forest and police patrols and mail delivery.

A Publisher Properly Places the Blame

There has not come to my notice a saner or more accurate statement of the newsprint situation—its cause and its cure—than that made by Henry L. Stoddard, in *The Evening Mail*, of New York, with which publication he is associated, says an editorial in *Paper*. It is altogether so good that we want every reader of the Pulp and Paper Magazine to read it, and take off his hat to Mr. Stoddard.

Throughout the last decade, within which period the big newspapers have unceasingly pursued the manufacturers, the insistent demands made by the press for legislative and judicial regulation of the paper industry have been based on alleged high moral grounds and unselfish devotion to the public welfare. One who did not know the facts in the case might easily have been led to believe that the educational and moral uplift of the people was the sole purpose for which newspapers were published; and that their proprietors were all public benefactors, striving for no reward, save the satisfaction of knowing that they were unselfishly toiling for the good of mankind. It may surprise some, therefore, but not all of us, to hear the testimony of an intelligent and competent witness, whose integrity is unimpeachable, to the effect that certain of these big dailies are not entirely free from human impulse nor wholly unselfish.

Lest I may unintentionally misinterpret the meaning of the witness, let him speak for himself and be judged by his own words. Beginning at the top of the first column on the front page of *The Evening Mail*, of February 16, 1920, under his own signature, Mr. Stoddard says:

"Is it not high time that the publishers of this city—and of Boston, Philadelphia, Chicago and St. Louis—frankly acknowledge their responsibility for the distress and ruin to which their extravagant use of white paper has forced many daily and weekly newspapers throughout the country?

Is it not time for them to accept responsibility and proceed unitedly to correct the intolerable situation?

Do they realize the bad impression made by the fact that they have not agreed upon even one measure of relief for their fellow publishers, but have greedily sought solely to hold their own advantage?

In years past many publishers did not hesitate to use their columns to damn the manufacturer of newsprint and to seek his indictment by the government for conspiracy to boost prices; these same publishers have now scarcely a word to say of the disastrous results to the newspaper publishing business as a whole because of their own persistent determination to maintain thirty and forty page daily issues. Such issues mean fortune to a few publishers, but misfortune to the many. Furthermore, they place an impossible burden on the manufacturer, who cannot keep production equal to consumption. He has neither the labor, the raw material nor the machinery."

This is the first time to my knowledge that a reputable and influential paper has had the fairness and courage to do justice to the newsprint manufacturers. It is the first time, so far as I am aware, that a high class representative of the publishers has been frank and honest enough to admit that the manufacturers are doing their best to supply the demand. Heretofore the charge has been uniformly made that the paper famine was fictitious, created and maintained by an unlawful conspiracy to curtail production and starve the market in order to advance prices to an unrighteous level.

Mr. Stoddard tells us that some publishers are starving, not because of an inadequate supply of paper, but for the reason that others are making gluttons of themselves in the use of it. Without meaning to be offensive in the use of the simile, some of the smaller and weaker pigs are famishing, because the overgrown hogs are standing with all four feet in the trough and gorging themselves with all the swill in sight.

That is just about what is happening. And when one contemplates what is going on he cannot help wondering what has become of all the unselfish and benevolent instinct of which these greedy publications have so long boasted.

If the education of the public is what the press stands for, if the dissemination of knowledge is the work in which it is engaged—and we have not forgotten that the press always referred to the tariff on paper as a "tax on knowledge"—then why deliberately suppress the smaller publications that are issued in the small towns and country districts when the people are more dependent upon their local papers for information than in the big cities where the large papers flourish?

The small country paper is one of the stabilizing influences in this country we could ill afford to dispense with. It has a closer and more personal relation to its readers than the big daily. It is very often the only newspaper that comes into the home, while in the cities we have access to countless duplications. If there had to be any abandonment at all, it would be far better to discontinue a few of the big publications and let the little ones live. And it would not require the suspension of many of the big ones to save enough paper to keep all the little ones alive.

But it would not be necessary for any to suspend, if all would be fair and pursue the course suggested by Mr. Stoddard. There has been a great deal of talk about voluntary restriction of consumption on the part of the publications well protected by contracts for paper supply; but it has been nothing but talk. Again hear the witness:

"Publishers in the smaller cities have sent appeal after appeal to the large city newspapers not to monopolize the newsprint supply—not to make extortionate demands upon manufacturers, and not to force prohibitive prices by bidding high for the extra paper—a supply beyond their contract tonnage basis—in order to print thirty to forty page papers. Every pound of this additonal supply is taken from the smaller papers elsewhere. If every city paper would temporarily limit its consumption to its average for three years past — or even below the figure—the hardships now endured by papers of smaller communities would disappear. Production would then measurably overtake consumption.

Up to date with few exceptions, city publishers have shown no inclination to adopt a single restrictive measure beyond such measures as their own necessities have individually forced for a day at a time. Not a single agreement to restrict newspaper size has been made or even attempted! The appeals of fellow publishers have gone utterly unheeded."

So well indeed does Mr. Stoddard state the case that I feel I am doing a public service to surrender much

of my editorial space to a reproduction of his significant article. He concludes as follows:

"All the cards in the situation should now be laid upon the table, face up, so that the people may know the havoc being wrought and the real place of responsibility. Certainly the manufacturer is not to blame. For a year or more he has warned against the persistent extravagant use of paper by the big dailies. He has fought hard against their demands for increases in tonnages. His warnings have been ignored. He has done his best and is through.

"Relief can come only through decreased consumption. Unless it comes and comes quickly the number of newspaper suspensions—already too large—will reach a total that will endure forever as an indictment against those who selfishly persist in their own course. Twenty or thirty daily papers in half a dozen cities could, if they would, change the whole newsprint outlook and make living conditions possible for papers in smaller communities.

"Unless they unite voluntarily for this purpose they may confidently anticipate drastic action by Congress in the very near future. Every member of both houses of the national legislature is under pressure from the newspapers of his district to see to it that an equitable distribution is made of the available newsprint supply. So far Congress has waited to see whether the large city newspapers will act of their own accord in response to the appeals of their fellow publishers. Day after day passes, however, without any indication of material reductions by the bulky daily newspapers. How long is it to be expected that Congress will wait for fairness and good business policy to prevail among newspaper publishers?

"Will publishers meet this situation by united action, or do they prefer to await government decree?"—C.F.M.

INTRODUCTION TO VOLUME TWO OF THE TEXTBOOK.

An Outline of the section on "The structure of woods used in the pulp and paper industry," by Eloise Gerry, U.S. Forest Products Laboratory.

The following is an outline of an article based on remarks at the meeting last fall of the Technical Association of the Pulp and Paper Industry. It was considered by many who heard the address that it would be an excellent introduction to Volume II of the Textbook on Pulp and Paper Manufacture. This volume deals with the manufacture of pulps. The article will appear serially in Paper and the Pulp and Paper Magazine. It is rather long for use in the Textbook, and besides some abbreviation, the editor is inclined to move the chapter on "Identification of Wood Pulp Under the Microscope," to the section on "Analysis and Testing of Paper Making Materials." Other criticisms will be welcome:

Introduction.
Four types of wood structure (illustrated)
- Palms.
- Other woods (general discussion in simple language)
- Annual rings.
- Rays.
- Fibres.
  - Hardwoods.
    - Ring-porous woods.
    - Diffuse-porous woods.
  - Softwoods or Conifers (the principal pulp woods)
    - Resin containing structures .
    - Chemical composition.
- Heartwood and sapwood.
- Planes of Section (plain sawed, quarter sawed, etc., in relation to structures).
- List of laboratory equipment useful in examining wood and pulp.
- Methods of treating material for examination or for photographing.
  - Temporary mounts.
  - Permanent mounts.
- Report of microscopic studies of fibre length, etc., made at the Forest Products Laboratory upon material from different parts of trees, of the ring, etc. Discussion of results and of similar work of other investigators with reference to its application.
- The deterioration of wood and pulp resulting from decay. Conditions which promote decay.
- Key for identification with the naked eye or with the aid of a hand lens of woods commonly used for pulp and paper.
- Identification of wood pulp under the compound microscope.
  - Hardwood characters (illustrated).
    - Vessel endings.
    - Spiral thickenings.
    - Pitting.
  - Softwood characters, (illustrated).
    - Ray cells.
    - Ray pits.
- General description of woods commonly used for pulp including for each wood:
  - Name.
  - Geographic distribution.
- Distinguishing characteristics.
  - Pores.
  - Rays.
  - Rings.
  - Sapwood.
  - Heartwood.
  - Physical properties.
  - Similar wood.
- List of References:
  - Government publications.
  - Other publications.

Illustrations.

6 text figures; 5 are summary curves of fibre—measurement studies and one is a map of the United States, shows distribution of species. 8 plates, each with several photomicrographs, illustrating the structures discussed.

WHERE WE LOSE OUT.

The Wall Street Journal says the Fort William "Times" quotes an unnamed Canadian authority, "the leader of a movement in Canada to embargo the shipment of pulpwood to the United States," as stating that the United States must have products made from Canadian pulpwood, and that if the wood be manufactured into paper in Canada and then shipped over the boundary it would bring Canada perhaps $80,000,000 profit instead of the present $15,000,000 profit on the unmanufactured pulpwood.

Our New York contemporary quotes from the article by Frank J. D. Barnjum in the Pulp and Paper Magazine for Dec. 25, 1919.

How Groundwood Pulp Is Made

Outline of Section of the Textbook. This part is being written by Mr. H. J. Bincke of the Abitibi Co.:—

I.—*Introduction*:
1. History.
2. General description of process and grinder.
3. Distribution of mills—Wood used—Different uses.

II.—*Ground Wood Pulp*:
Physical properties.
The effect of different woods used.
The effect of different quality of same wood.
The effect of treatment process.

III.—*Types of Grinders*:
1. Hand-fed grinder.
2. Magazine grinder.

IV.—*Details of Hand-Fed Grinders*:
1. Grindstones.
2. Shaft and flanges.
3. Bearings and foundations.
4. Casings.
5. Pockets.
6. Hydraulic cylinders and valves.
7. Sharpening device.
8. Grindstone pit.
9. Piping.

V.—*Details of Magazine Grinders*:
1. Grindstones.
2. Shaft and flanges.
3. Bearings and foundation.
4. Hydraulic cylinder and automatic valve operating device.
5. Electric governor.
6. Sharpening device.
7. Grindstone pit.
8. Piping.

VI.—*Controlling Factors in Ground Wood Pulp Manufacture*:
1. Preliminary considerations.
Pulp to be made;
Wood available;
Power available.
2. Selection of grindstone.
3. Preparation of surface of grindstone.
4. Pressure at which wood is pressed on surface of grindstone.
5. Peripheral speed of stone.
6. Temperature of grinding.

VII.—*Groundwood Pulp Mill Operation*:
A. Hand-Fed Grinders—
1. Arrangement of equipment.
2. Wood handling.
3. Operating the grinder.
4. Burring the stone.
5. Starting up pulp mill.
6. Shutting down pulp mill.
7. Operating difficulties and remedies.
8. Operating control and records.

B. Magazine Grinders—
1. Arrangement of equipment.
2. Wood handling.
3. Operating the grinder.
4. Burring the stone.
5. Starting up pulp mill.
6. Shutting down pulp mill.
7. Operating difficulties and remedies.
8. Operating control and records.

VIII.—*Grinding Processes*:
1. Rotograveur pulp.
2. News pulp.
3. Hanging pulp
4. Board pulp.
5. Miscellaneous.

IX.—*Grinder Pressure Systems*:
Reasons for and Requirements of System.
1. Natural head.
2. Centrifugal pump belted to grinder shaft.
3. Plunger pumps with relief valves.
4. Centrifugal pump, reducing valves and air cushions.
5. Magazine grinder system.

XII.—*Auxiliary Equipment*:
Stone storage and seasoning.
Stone "hanging."
Pumps.

XIII.—*Refining Groundwood Screenings*:
1. Reasons.
2. Descriptions of screenings and change in form necessary.
3. Apparatus used—
Jordan type; iron filling; stone filling.
Ball mills.
Beaters.
Stone refiners.
Special refiners.

Editor's Note:—Mr. Buncke reports good progress on the collection and preparation of material. Any suggestions as to points that should be considered will be most welcome, and information on particular features should be volunteered. If not already in hand it will be asked for. Promptness in replying to inquiries will be of great assistance in this important work.

A RAPID METHOD OF DETERMINING THE ACTIVE STRENGTH OF SULPHATE COOKING LIQUOR.

Experiments at the U. S. Forest Products Laboratory, Madison, Wisconsin, on sulphate cooking liquor indicate that the action of NaOH is substantially twice as drastic as that of Na_2S between the ratios of 1 part NaOH to 1 part Na_2S and 4 parts NaOH to 1 part Na_2S.

The active strength of the cooking solution in terms of NaOH is expressed by the equation

$$S = M + N/2$$

where S is the active strength of the solution, M the concentration of NaOH, and N the concentration of Na_2S.

A rapid method of determining the strength of a cooking solution is as follows:—

Add 10 cc of cooking liquor to about 50 cc of water in a porcelain dish. Add 10 cc. of a saturated solution of $BaCl_2$. Stir vigorously, and titrate with normal hydrochloric acid to phenolphthalein end point. The number of cubic centimeters is directly proportional to the strength.

This method is the most convenient for use in the digester house, because of its simplicity and the fact that it does not involve a consideration of the ratio of NaOH to Na_2S.—Technical Notes, No. 88.

NEWSBOYS BAN HEARST PAPER.

Toronto, February 28.—The Toronto newsboys' union has decided to stop selling the New York American because of its "un-British attitude".

DEATH OF MR. G. R. MONROE OF WM. HAMILTON. COMPANY.

Sudden and untimely indeed was the death of Mr. George Reid Monro, 2nd Vice-President of The William Hamilton Company, Ltd., Peterboro, Ont., which took place on Monday, March 1st at his residence in that City, after a short illness of influenza. Mr. Monro was apparently recovering from his illness when he was seized with a sudden attack of heart failure and the shock proved fatal.

The late Mr. Monro who was grandson of the late Wm. Hamilton, founder of The William Hamilton Co. of Peterboro, was born in that city, March 13th, 1887. He received his early education at the Peterboro Public Schools and the Collegiate Institute and later graduated from the School of Practical Science, Toronto. After graduation, he was engineer on the preliminary survey of the Hudson Bay Railway, then on the staff of Messrs. Kerry and Chase, Consulting Engineers, Toronto, and was also connected for a short time with Mr. R. S. Lea of Montreal. In July, 1911, he returned to his native city to take the position of Engineer with The William Hamilton Company, which position as well as the Vice-Presidency of the Company he held at the time of his death. He was a member of the Engineering Institute of Canada and the first President of the Peterboro Branch of that Society and took an especial interest in its organization. He was also a member of the Peterboro Board of Trade and always took a deep interest in anything that pertained to the city's development and welfare.

Mr. Munro was a young man highly esteemed by all for his genial disposition, his true friendship and his upright qualities, which won for him a host of friends in all walks of life, and his death will be more than a loss, not only to the company he so well and faithfully served, but to his native city where he was always regarded with the greatest esteem by all who knew him.

G. R. HALL CAINE HERE TO BUY PAPER.

St. John, N.B., March 8.—G. R. Hall Caine, of London, England, son of Sir Hall Caine, arrived on the steamer Empress of France.

He is in Canada in the interests of a group of seven of the largest newspapers in England and is here to obtain a supply of woodpulp for the English newspapers.

He said it is his intention to obtain, if possible, a block of properties for the cutting of wood pulp and also to arrange for the purchase of wood pulp for shipment to England, where it will be manufactured.

He will visit New York, Montreal and Ottawa, where he will confer with members of the Government regarding his business.

TO REPLACE IMPORTS.

Referring to the extensions being carried on at the Toronto Paper plant, Mr. Smith states in his report:

"When taken over, the plant was manufacturing approximately 56,000 lbs. per day. It is proposed to bring the tonnage up to 100,000 lbs. per day; to change over the grades being manufactured; to cease manufacturing book paper entirely, and to substitute lines of paper that have hitherto been imported into Canada. This work is now in progress, but will take some time to complete."

PRICE OF NEWS PRINT IN FRANCE.

(Translation from Bulletin 25, News Print Service Bureau.)

At their meeing on November 25th the Committee of the Office National de la Presse, after an examination of the actual po ition of paper, decided to raise the price of ordinary news print from 120 to 130 francs per 100 kilos. This price which is effective from December 1st, is the price of papers in rolls; the same increase of 10 francs per 100 kilos should be added to the price of papers in sheets. It was decided, in addition, that an assessment of 50 centimes per 100 kilos should be added to the new price as a contribution to the expense of administering the office. The new prices which are entered in accounts from December 1st, are as follows:

	Per Short Ton
1. Papers in rolls 130.50 francs per 100 kilos.	$219.86
2. Papers in sheets 130.50 francs per 100 kilos.	219.86
Higher Weight Tonnages of 3000 kilos 140.50 francs or more in one delivery..	228.32
Tonnages of less than 3000 kilos in one delivery 142.50 francs	230.01
Lower Weights Tonnages of 3000 kilos or more in one delivery 143.50 francs....	230.86
Tonnages of less than 3000 kilos in one delivery 143.50 francs	230.86

The prices just indicated are f. o. b. mill or port of arrival. These annul for tonnage made under bill of December 1st, the prices which had been notified in all preceding circulars, whether they concerned papers in rolls or in sheets. Increased prices for glazed papers remain fixed at 10 francs per 100 kilos as before.

—**Le Papier, December 25, 1919.**

U. S. WAR RISK INSURANCE.

Since the publication in the Pulp and Paper Magazine of January 12th of information regarding the reinstatement of U. S. War Risk Insurance, we are informed that changed conditions make the proposition even more liberal than before. Under the new ruling, any former service man may be re-instated before July 1st, regardless of how long his insurance has lapsed. Details may be had from the U.S. Treasury Depart.. Bureau of War Risk Insurance, Washington, D.C.

BITS OF NEWS FROM BELGO.

The Belgo Canadian Pulp & Paper Company are installing a First Aid Station and have a form printed which will be made out in quadruplicate giving information regarding the treatment of accidents.

Considerable friendly rivalry has been noticed between the Laurentide Company and the Belgo Canadian Pulp and Paper Company as to the number of accidents. A vigorous campaign has been in progress at each plant to have a "No Accident" month. For January Belgo had to admit four accidents while Laurentide Company, up to January 21st had none. Two of the Belgo accidents could have been avoided if the first principles of First Aid had been thought of.

No. 3 digester at the Belgo plant has been relined and the sulphite mill is again in operation at full capacity.

An interesting comparison of paper machine efficiency between Laurentide and Belgo shows an average operating efficiency of 88.2 per cent. for the former and 85.55 percent. for the latter.

Fungus and Fire Hazards in Pulpwood Piles

By F. J. HOXIE, Boston, Mass.

At the annual meeting of the Technical Section of the Canadian Pulp and Paper Association in Montreal on January 29th, 1920, Mr. Hoxie read some portions of this paper which was printed in the Pulp and Paper Magazine of that date.* Mr. Hoxie showed many excellent slides and made special comment on some of them. In opening the general discussion, the Chairman, Mr. Stadler, said: This paper fully covers nearly every industry in Canada as regards the pulp and paper and the log business, and covers the danger from fire to log piles and its prevention, and also the very important matter of making a clean product in order to do that, you must beep the dirt out.

Mr. Thorne: I want to ask Mr. Hoxie one question but before asking him I would like to thank him for this very important matter for the Technical Section. I wonder who was the first man who made a block pile? In my opinion he should be in jail. We have not had anything worse in the pulp and paper business than this method of handling wood. Mr. Hoxie tells us that we cut rotten wood, which is not of high value, and does not give us the fibre. We are running a big fire risk, and one that the insurance companies do not care to take. It is expensive, especially in the winter time to get the wood in and besides that it is dangerous. How many men have been injured on the block piles. The worst of it is that when we get dry wood there is no way of keeping it dry. I believe the block pile was adopted in the United States and everybody thought it was all right and that we ought to adopt it. You will not find these block piles in Europe It does not succeed. Why? Because they are afraid of destroying their very expensive wood. They want to get dry wood, and they do not want to run the fire risk. I am very glad to see that The Kipawa Company in their new mill are not going to have the block piles.

Now, as to the pulpwood itself, the fire insurance companies have taken the matter in hand. They found out that this block pile is a very poor arrangement as regards their interest. I see that it is now after Mr. Hoxie's talk. And I think it is time for us to sit down and think out a way of adjusting this difficult matter and endeavor to find something better.

I think the industry will gain in every respect and suffer much less economic loss by fire, and fewer accidents, but maybe the ground wood mills do not care to change. If you make up the right system for handling your wood, not using the block piles, you will find that you will save money. The block piles are very expensive in the handling of wood. I think too, that in perhaps two or three years, Mr. Hoxie will find that his little paper today has done a great deal of good for the industry, as well as for his insurance company.

The Chairman: Gentlemen, I think that Mr. Thorne's remarks, with perhaps certain exceptions, are applicable to the industry in general. I think he has in his mind only the manufacturer of high grade pulp, since he emphasizes the fire danger and various other factors. I think, in order to give due consideration to Mr. Hoxie's paper, it would be very much in order to hear from somebody in relation to this paper whose aim is quantity product, rather than quality.

* Reprints may be had at 10 cents each.

Mr. Chahoon: It seems to me that Mr. Thorne stopped just short of the point that we are all most interested in. He told us that our method was poor and that he had a better method, a method he had adopted, which was a cheaper method of handling wood. I think we all agree with Mr. Thorne that our method, perhaps, is poor, and we would be delighted to know of a better method, because if there is any one who handles 150,000 cords of wood easier than piling it in piles like that, or cheaper, God knows, we want to know about it.

The Chairman: I think the paper is particularly on the question of showing the destructive agencies in wood, both from fire and fungus. Mr. Chahoon's thought is a little beyond the scope of this paper, but I, as Chairman, suggest, since Mr. Chahoon has made the request, that we put Mr. Thorne on the list for the next meeting to give us a whole paper on mechanical ways of woodhandling, and also having special reference to the proper way of preserving the wood against these destructive agencies.

I think it would be very interesting to read about these things that Mr. Hoxie has told us of, and as his paper has outlined the causes, I think a paper such as I have asked Mr. Thorne about would give us a remedy both commercially and scientifically correct and would give us something to look forward to.

Mr. Hoxie assured a questioner that it is his general opinion that the percentage of moisture in wood is largely a contributing cause toward a growth of the fungus, and that where the moisture in the wood was less than at other times, the growth of the fungus was not merely so highly developed.

Considering the danger of fire in the large block pile it would probably be advisable to keep the block pile uniformly wet.

There is always some moisture in the wood that is about 30%. You are familiar with that in fence-posts. It rots off at the surface, the top is sound, and the part in the ground is sound, but at the surface it is rotten. We understand they are taking logs out of the Susquehanna River that have been there for 70 years, and making good planks out of them.

You can keep this wood too dry for fungus to grow, —just the same as you can keep it too wet, so if it is impracticable to keep large piles dry then keep them wet.

Mr. Sabboton: I want to know if you had sufficient data to form the opinion that 50% moisture would keep the fungus down. If it would, it seems to me, that it would be easier to keep the block piles uniformly wet during the hot summer months, as they do not dry out too much during the winter months, and I believe that the moist air and the heat in the inside a pile woulud keep it uniform, but there must be some circulation of air.

Mr. Hoxie: From the figures I have got from the various mills, the large pile was almost uniform at 50%, and there would be no tendency for the wood to dry inside the piles if its atmosphere moisture was 100% saturation.

Mr. Mason: Iwould like to ask Mr. Hoxie whether in his investigation he has found that fungus is more prevalent in big log piles than it would be in the wood racked up?

Mr. Hoxie: I think that will have to do with the part of the country in which are found some of these fungi. If they came from Virginia or Pennsylvania where the temperature for a greater part of the year is very much higher than it is here, it might make a difference. There is absolutely no fungus growth in the center of that wood, but on the top, while in a pile 300 or 400 feet across there might be a fungus growth in the center of the pile, during the hot months. I am sure that if you got down to the middle of the pile, you would see a fungus growth dwelling there. There again, we can take the fence-post for example: It does not cut into the post at the top. You have to drill a little ways further down, and when you do that, you will find a tendency to have a little fungus on either side. I saw that in a log pile a little while ago which was decided marked. We have been making some experiments and designs along that line, and, therefore, know the exact moisture limits for certain fungi, so if we know a little about the two varieties of fungi it would give us more information about the third variety that infests your wood.

The Chairman: Gentlemen, I think the moisture question is very important but Mr. Hoxie has not carried his information far enough to give us any definite figures, but he seems to be inclined to think about 50% moisture would to some extent, retard the destruction of fungus.

I would like to ask how dry the wood would have to be in order to retard the fungus in general and I think this should probably be considered equally as important as the other.

Mr. Hoxie: Judging from the growth of fungus, I should imagine that your apparent low limit would be down below 20% but I think, again, that you have not a sharp point on either side.

That does not mean it would not grow at all, but it would grow slowly.

The moisture limits are very indefinite. I have not enough data to be able to say what these limits are, but I believe we could accumulate this very rapidly by cooperation. That is, I believe that a method of experimentation which will beat the laboratory experiments for preliminary results at least would be to bore holes in sticks in which fungus is shown to grow, and thus determine the moisture we have in the sap wood. We know that sap wood rots more rapidly than a heart wood and also has a tendency to take up moisture more rapidly. In fact we should have a lot more information on this subject, and from the very high grade information that we have got on the forms of the fungus, which has been very helpful to us in determining the facts as far as we know them, I find that water will be found to be a very fertile cause of the growth of fungus up to a certain extent.

The Chairman: There is one more thing I would like to ask, and I think perhaps I should not ask it, but it is from the insurance point of view regarding the fire danger. Naturally, the insurance companies prefer to have the wood wet. Now, according to your observations, Mr. Hoxie have these fungi which you show in there any relation to the fires? In other words, does wood containing this fungus produce spontaneous combustion, and do you consider that the danger is greater in the dry wood or vice-versa?

Mr. Hoxie: So far as I know there has been no case of spontaneous combustion whatever. You will find plenty of punk wood in any log pile. You could take a handful out, thoroughly dry it, and drop a small piece of spark on it and it will commence to burn and burn very rapidly and finally burn with such great resistance that if you put it on the ground and stamp on it, it will scatter the sparks all around. That is, in my opinion, the cause of nearly all the big fires, fires that started small and spread all over.

As far as a preference of the insurance companies is concerned, I think they can get along perfectly well with dry piles or with wet piles. The only way we can get a pile dry is to dry it out over a very large area by any natural means that you want. That is, if you want wood around 20%, you mave to dry it out in these piles over a large area of ground. When you have done that, you have got your heat unit so distributed, that the question of fire protection will take care of the risk, whereas, if you pile it up, the fire will spread very rapidly, and there is not water enough in the river to put it out. On the other hand if you keep the wood wet, it will help you a good deal in keeping down the growth of the fungi. The most damage is done in a fire in the first ten minutes, and if you can keep your wood wet so that it will not ignite, or ignite very slowly, in the first ten minutes you can put it out, but if the fire extends over an acre no hose stream on earth can check it.

Mr. Wardle: In 1918 and 1919 the log piles were sprinkled every day, and while I have not noticed particularly, I don't think there is a very large fungus growth in our log piles. Mr. Hoxie was up there several months ago, and I don't believe that he noticed it. I do not know exactly how the sprinkling affected it.

The Chairman: I think generally that the observation of Mr. Wardle is good, when he said he sprinkled the logs, and I will say that we have got the same principle at work, but not in such a systematic shape, but in wood which we have stored for two years we found that the fairly continuous pumping of water has been very beneficial. Although we have sprinkled the piles right along, more to protect the wood from fire than for conservation, actually we have seen very little wood attacked by fungus which had been stored for two years. This all bears out very closely Mr. Hoxie's remarks that as long as you keen the moisture sufficiently high, you will not be troubled with fungus, and also I presume that Mr. Thorne could bear us out.

EFFECT OF FUNGUS ON QUALITY OF PULP

Mr. R. J. Blair of the Forest Products Laboratory of Canada who has made an extensive study of wood destroying fungi was then introduced. Mr. Blair said:

Three are two main points that have to be kept in mind in the consideration of this subject, of the rot in pulpwood. The first is the large amount of pulpwood that comes to practically all of the mills which today is rotten. One gentleman has told me that he has had to cull out as rotten wood at least 50% of what he has received.

Another thing is that all of this rotten wood has live fungus in it and unless you do something to kill it, the wood is going to be rotten, and if it is not stopped, the wood will be absolutely destroyed. Furthermore, if we store sound wood near a pile of wood with fungus in it, the fungus will travel and attack the sound wood.

Now, this question has a most important bearing on the making of pulp. In the first place, the making of groundwood in a single mill is an important factor

in the making of pulp and I don't think any of you will advocate the use of rotten wood. It will impair the quality and will also make more specks in the pulp as we found in groundwood that we have tested and it will make a very inferior grade of paper with lots of specks in it.

Now, for the chemical pulp we are not sure exactly how the fungus will affect it but we have found in one of the mills where we have run experimental tests that it caused a sulphite of very poor color and very low yield.

Now, Mr. Hoxie has mentioned points particularly. One essential thing that we need to keep in mind in considering the growth of fungus in wood is that a certain amount of moisture must be in it before the fungus can grow, and we have to find out what that moisture content is, and then store our wood under some different moisture conditions. For instance, if we were to carry out certain experiments and we found that fungus would not grow if there were less than a certain amount of moisture, we would have to try to store our wood accordingly. Mr. Hoxie has mentioned Lenzites and Sepiaria and Fomes Roseus as the two most destructive forms that we have and the interesting thing about them is that one of them comes out of the dry end of wood and the other out of the wet. You will find Lenzites Sepiaria is most active in destroying mill roofs, and you will also find it on the top of wood piles which have been in the yards for two or three years, long enough for the fungus to get started, showing that it started in dry wood. The other one is the growth of Fomes Roseus, and that is found in buildings. You will find it in very moist, damp basements, where the air is always cool. If you find it around block piles you will find it at the bottom of the pile where the wood is cool and moist all the time. These two come at the extreme ends of the growth. If we can find a less amount of moisture than Lenzites Sepiaria will grow on, I think we can be almost sure that we have covered the whole growth of the fungi which destroyd our wood piles.

The way we find out the moisture requirement is to carry out careful experiments where we have wood carrying moisture at various degrees of from 10 to 35%. We note in this wood the growth of the fungus and in that way we determine what we want to know. There is an incubator for carrying on such work.This has several compartments to it. It is 15 feet long. The idea is that air will be admitted in a compartment at the left hand end and will be moistened and then drawn into the second compartment. The partitions between these compartments are built so that air will pass easily from compartment to compartment. At the extreme end there is a sort of flue where there is an electric attachment which is supposed to create a current of air so that it blows the air through the partitions from one end to the other and the compartment at the left hand end will have air saturated at a temperature about the room temperature, or around 65°, the next compartment the air will be heated 1 degree, or up to 66 degrees and this air at 65 degrees will then be 92% saturation. At the next compartment where it is 67 degrees the saturation will be lowered about 3% In that way we get certain humidity from about 98% down to whatever point we reach in the last compartment. In the last compartment, there is a hydrometer which will measure exactly what is in this compartment, and as these are controlled throughout, it will be easy to figure back as to what is the saturation in each compartment. This saturation is maintained in all compartments because when the wood is exposed to a certain moisture. We think we can control its moisture contents by maintaining the humidity by keeping a slow stream of air passing through the partitions. When we find it will be necessary to carry on two experiments, one for Lenzites Sepiaria and the other for Fomes Roseus, we will do so. When we get the results we need to apply them to our pulpwood, and we shall let you know how we are applying it, but a very careful series of experiments will have to be made on all sorts of pulpwood, and wood piles, for one year, two years, or three years on wood from river traffic and wood brought in by trains or in any other way, to find out what the moisture is, and for woods stored in the mill yard for various kinds of pulp and also from various parts of the country. Some fungi grow very easily in sap wood, and more easily in sap wood than in heart wood, and we are trying to find out what the difference is between the sap wood and the heart wood.

A Big Problem Requiring Co-operation

It seems as if this problem is so large that it will take a great deal of time for one person to get any results that will result in any benefit to the community in general, but I think one way for us to get some speedy results will be for the mills interested to co-operate in various ways.

It will be possible for them to co-operate in furnishing us records of moisture in the wood. What I would suggest that appears to be good, is to take out the sticks of wood of which we have the history, and exactly determine the facts desired for one year or for two years, and also the wood from the center of the pile and the wood from the outside of the wood piles, in block piles, or in any other kind of piles in general use.

At the same time there are other experiments that we can consider in regard to the storage of pulp. I understand that some mills when they store wood have trouble in deterioration there, and for such work as this, I suggest it is possible for the laboratory to arrange some place where the pulp could be stored in various ways, and if any of the mills who are interested, would supply us with some wood in various forms we can get some useful experiments started. There are many other problems which help greatly in this work, particularly as mention was made of the reduction in the quality of pulp made from wood with various amounts of rot in it. At the present time, I do not see that much work can be done at the Forest Product Laboratory, but some of the mills have research departments where such problems could be tackled, and I think it would be a good thing to have a sort of a clearing house where all the interested parties could clear their ideas, and bring them out for the benefit of all of us, and the various effects listed and prepared for distribution to all those who are interested.

The Chairman: I think you fully agree with me that both Mr. Blair and Mr. Hoxie are covering a very extensive subject. Since both of them have invited us to co-operate with them, it seems that we should do everything possible to help them along. By help-them in this way, we will be helping the industry in general, and I am sure that you agree that this is a subject that is of great importance to everybody.

Mr. Crossley: Mr. Chairman, I would like to ask if the blocks are treated in the pile by sprinkling and

the moisture is kept at such a point that the fungus cannot grow, is there any chance of it reappearing in the pulp?

Mr. Blair: I think it could be killed if you kept the wood long enough, and if you maintained your wood so wet that the fungus could not grow at all until you are ready to use your wood. The harm is all done before you get a hold of your wood. We found that two of the mills in this Province are sprinkling their piles all summer, not merely to keep away the fungus but to keep their wood in good condition for grinding. In one mill they were sorting out about 10% of their wood as unfit for pulp of any kind.

Mr. Thorne: I think the Forest Products Laboratory would be a splendid clearing house for information of this kind. It is impossible for them to go to the industry and no doubt give some information to the foresters.

Another thing that will help a lot is that many of us are building pulp and paper mills with wooden roofs. You will find that in six or seven or ten years you will have to renew these roofs because they rot. If you don't know how to construct them go to the Forest Products Laboratory and they will tell you all about it. The best thing to do is not to use any wood in all.

One thing more about fungus that could be taken up today. We have been working very hard on it for a couple of years trying to destroy the fungus in the water that slimes up our grinders and makes our wood pulp very dirty. Of course our salesmen tell our customers that that will beat out and won't be seen in the paper. This slime is nothing but fungus and it is very hard to kill. We have tried different kinds of things, and it is very important because this fungus can also destroy healthy pulp if you pile up the wood so that is another place where we may have the Forest Products Laboratory help us out.

In fact, I do not think we ask the Forest Products Laboratory to help out as much as we should. I had a great deal of assistance from the laboratory and if you go and ask them for it, you will get the same. We hope they will act as a clkearing house to help us out on this very difficult and important question.

PROVINCIAL NURSERY CAN PROVIDE TREES.

Mr. G. C. Piche, Chief Forester for Quebec announces that the provincial nurseries at Berthierville are prepared to furnish about one and a quarter million seedlings and transplants, of evergreen trees and some 80,000 of desiduous species. There are over 3,000,000 seedlings besides these trees listed. Various spruces, pines, elms and oaks make up the largest items and the prices are exceedingly reasonable. The service of this provincial department should be an inducement for owners of lots, park boards, street commissioners, farmers and factory owners as well as those interested in reforestation in a large way, to get busy this spring. What if we do pass off before sixty-five years from now, some of us will have the satisfaction of seeing trees grow for forty or fifty years if we plant now. And there may be some more John R. Booths who will live to harvest the crop.

A new factory building will be erected for the Fielder Paper Box Company on a frontage of fifty-five feet on Berkley street, Toronto, at an estimated cost of $50,000.

PULP MILL MUST GET BUSY OR GET OUT.

A letter was received by the City Council, says the port Arthur News-Chronicle from Mr. A. L. Alsted, head of the Great Lakes Paper company, in which he said the delay in the construction of a mill at the head of the lakes was due to the inability of the promoters of the company to secure a suitable power contract with the Hydro-Electric which would enable them to compete with other concerns. He also stated that the options on equipment had expired in December and to purchase equipment would now mean a net loss of a quarter of a million dollars on account of the advance in price. Mr. Alsted tabulated the reasons why it was impossible for the company to proceed at this time, although it was anxious to do so. He asked the Council to again act as a go-between and once more approach the government with respect to securing a contract, but it is not likely the Council will do so.

Referring further to the matter, the News-Chronicle says editorially:—

"A letter was before the City Council last evening from Mr. Alsted of the Great Lakes Paper Company, in which that gentleman urged the council to take up his dispute with the Hydro-Electric commission in an effort to secure some sort of concession with respect to price. He also stated that the price for machinery had advanced since the option his company held on a lot of machinery for the proposed mill had expired.

"Mr. Alsted is not in a very enviable position so far as this town is concerned. He had an opportunity to make good here, but instead of doing so went on a flirtation with Fort William. He looked upon that town as his true and only friend. If by his own acts he has jeopardized the position his company held the fault lies with himself. Nor does it appear to us that Port Arthur should go out of its way to re-establish him in the splendid position he held and which he by his own acts has, apparently, forfeited.

"As the case has turned out, the price which Mr. Alsted's company was to pay for pulpwood was extremely moderate, and the difference between the new price which has been secured by the government and that which th Great Lakes Company contracted to pay, would more than offset any difference in price for power quoted by the Hydro-Electric Commission and the Kam Power Company. If Mr. Alsted and his colleagues have manoeuvered themselves out of the possibility of fulfilling their contract with the government that is their affair, not ours.

"Port Arthur's interest lies in securing the establishment of a pulp and paper industry at some point where it will be of benefit to the city. If Mr. Alsted can show that he can and will establish such an industry here, let him do so; otherwise it seems to us that quite sufficient time and money have been spent in connection with his case."

Another dispatch says that the Drury government has given the Great Lakes Pulp and Paper promoters thirty days in which to make good or get out. This instance of making concessionaries come to time will probably be added to the other alleged instances of Ontario's indifference to "vested interests."

"Truth usually sounds so ridiculous that it is seldom believed—that may account for the failing of some paper makers"—Ex.

Annual Business Meeting of the Technical Section

(Continued from last week.)

Report of Committee on Chemical Standards.

By A. G. DURGIN, Spanish River Pulp and Paper Mills, chairman.

I am sorry to state that the Committee has not proceeded far enough to produce anything in the line of a report of activities. As a matter of fact, we are hoping to adopt a very definite program at the meeting to be held the latter part of this month. So far, work has been proposed along the line of special instruments and standards for the newsprint industry; I have just arranged with the Widney Instrumeut Company to present a section of their Widney testers for which considerable claims have been made, and this will be used in co-operating work.

We have also taken up several other points with Mr. Bates, but due to the very much upset condition during the last part of the year it has been difficult to get the necessary co-operation, and I believe that this can be best arranged for at the Technical Association Meeting.

Report of Committee on Statistics.

By S. L. BURNS, Riordon Pulp and Paper, chairman.

The Committee on Statistics have for some time been prepared to publish a booklet containing statistics and charts of Canadian Exports and Imports of Pulp and Paper together with information regarding the growth of the industry and its relative importance to Canada.

It was thought, however, that such detailed information would be required by but few members of the Section, and that this being the case it would hardly pay to spend the money to have these figures printed. Your committee therefore, have refrained from taking any further action in the matter. If it is the wish of the members to have these figures printed in a booklet, your committee are prepared to proceed with the work.

Besides Canadian figures, the committee have collected statistics of the industry in England and the United States, some of which are included in the attached report.

As collected, these figures have been put on file at the Secretary's office, and have been found very useful in answering enquiries which come up from time to time. The Secretary also found them very useful on his trip to England.

In order that the members may have an idea of the statistics available for their use, the committee attach a few copies of their report which may be passed around the meeting. Any members wishing to procure copies of any of these figures may receive same by applying to the Secretary.

The Committee wish to acknowledge their indebtness to Mr. A. E. Cadman, Statistician of the Canadian Export Paper Company, for the assistance given by him.

(The report was read by Secretary Dawe.)

The report of the Committee on Chemical Standards was adopted without discussion.

Mr. S. L. Burns added: I have just a couple of copies of these figures here, and I will leave them on the table so that if any of you care to glance over them you may do so, to see what statistics are on file at the Secretary's office.

The report of the Committee on Statistics was adopted without further comment.

Report of the Committee on Samples.

By A. L. DAWE, chairman.

During the year commencement has been made in collecting a set of samples of European papers and boards. The writer visited England in connection with the work of the Association during the latter part of 1919 and was able to secure a number of interesting samples all of which are on file at the offices of the Association.

After the signing of the Armistice in 1918 British and European mills began rapidly to improve the quality of their output according as increased raw materials were made available from different sources. Samples of European paper and fine M.G. Caps obtained from Scandinavia show that the quality has been maintained equal to that of pre-war times.

Members of the Section are invited to send in unusual samples of paper or paper products to the Secretary for inclusion in the permanent exhibit that is being prepared.



L. H. SHIPMAN
Chairman, Technical Section of the Canadian Pulp and Paper Association.

While in Great Britain your Secretary had an opportunity of comparing notes with a number of British paper mills in regard to the use of Canadian pulp. While great satisfaction is expressed with the higher grades of pulp that are made in Canada, such as bleached sulphite, there was some doubt in the minds of the British paper maker as to the possibility of Canadian pulps ousting the Scandinavian grades from the market.

Therefore, you gentlemen who are responsible for the quality of pulp that is turned out of this country would do well to look to your laurels in this respect.

We are at present going through a period of great prosperity when it is human to gloss over the faults that undoubtedly appear in our products. The acid test of competition will show whether we have been justified in our statements regarding the quality of our products.

The Chairman: Gentlemen, you have heard the report of your Committee on Samples. I believe that the last paragraph of this report is very important, but as I do not want to make any special comments on this on account of the limited time, I hope that you will take this report home and read it over carefully, and especially consider the last paragraph. I think Mr. Dawe has said something there that is more than truthful. There is nothing further to be said about it, and a motion for its adoption is in order.

The report of Committee on Samples was then adopted.

Report of the Advisory Committee to the Forest Products Laboratory of Canada.

By JOHN STADLER, Chairman.

The Advisory Committee to Forest Products Laboratory has as yet not succeeded in bringing about the desired activity at the Laboratories. Your representative has through the Technical Section brought before you the pressing facts of the situation and although the Executives of the Association have authorized a substantial yearly contribution toward the Superintendence of the Forest Products Laboratory, the Government has as yet not advised whether such a proceeding is acceptable, hence the matter is still in abeyance.



O. F. BRYANT,
Vice-Chairman of the Technical Section for 1920

The report was adopted without discussion.

Report of Hawkesbury Branch of Technical Section.

The work of the Hawkesbury Branch has been affected to a considerable extent by the amount of construction work being done by the Riordon Company and Kipawa Company during the past year.

During the late winter and early spring of 1919 the Hawkesbury Branch had a number of very successful meetings, but since their adjournment for the summer the Branch has not been able to resume the activity which characterized it during the previous two winters.

The Branch has however, met this season and laid out a program for work to be carried on as the occasion permits. The school of Domestic Science which the Hawkesbury Branch started last winter is again in operation, but due to the continued absence of a number of the staff we have not been able to get the night school running as usual. As a substitute for this and in order to keep the school together we have arranged for a series of lectures on various subjects to be given by outside lecturers to our men through the winter. This has met with considerable approval in Hawkesbury and we trust that though we have not been able to run our regular school, the substitute we are offering will prove just as satisfactory.

The Prize Essays.

Secretary Dawe announced: Essays, which were eleven in number, were written by students who spent the summer in a pulp and paper mill and were submitted to the Judges, who were Doctor Bates, Mr. Stephenson, and myself.

The Judges decided that the winning essay was that submitted by G. H. Lafontaine. Mr. Lafontaine spent his summer at the plant of the Rolland Paper Company. Essay winning the second prize, was submitted by Mr. Moosher, of the Riordon Pulp and Paper Company. Essay winning the third prize was submitted by Mr. Milledge of the Brompton Company.

The prizes, as you know, were one hundred dollars, fifty dollars and twenty-five dollars, which amounts



J. BROOKS BEVERIDGE
Retiring Councillor of the Technical Section. He never missed a meeting.

will be sent to the winners in due course. The winning essay will be published in the Pulp and Paper Magazine. (applause).

The chairman added: I have not personally gone through all these various essays, but I have seen some of them. In general, they are very good for students, and especially that winning the first prize, which is in a form highly commendable, and consequently the Judges have awarded it the first prize. But one thing we found from these various essays, and that is, that such students as are taken out during the summer time shoudl be centralized at the work, such as has already been recommended by the Committee on Education. Some of the essays submitted, have shown that some of the students have made what we call a "flying trip" through a large plant; their observations have been too general, so that I think we should follow the recommendations made by the Committee on Edu-

cation, and concentrate these young men, so that they may study closely, for the time being, one particular line of the industry.

Election of Officers.

The names submitted were selected by the Nominating Committee, which consisted of Mr. Stephenson, Mr. Mason, Mr. Dawe and Mr. Burns. They have submitted a list of the eligible members for office. The following names have been submitted:

For chairman: Mr. L. H. Shipman, of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ontario.

For Vice-Chairman: Mr. O. F. Bryant of Bennet Limited, Chambly, Quebec.

For Councillors: Mr. J. Brooks Beveridge, of the Dryden Pulp and Paper Company, Dryden, Ontario; Mr. S. Wang, Chief Chemist, Riordon Pulp and Paper Company, Hawkesbury, Ontario; Mr. R. W. Hovey, of the Abitibi Limited, Iroquois Falls, Ontario; Mr. William Currie, of the Dominion Paper Company, Kingsey Falls; Mr. Maurice Neilson, of the Belg -Canadian Pulp and Paper Company, Shawinigan Falls, Quebec; Mr. George Carruthers, President, Interlake Tissue Mills Limited, and Chairman of International Committee on Text Books, and Mr. Oliver Rolland, of the Rolland Paper Company, St. Adele, Quebec. Mr. Wang's name appeared on the list but he withdrew and the Committee decided that another name should be submitted in its place. Mr. W. L. Kitchen of the Kipawa Fibre Co. was nominated in place of Mr. Wang

The ballots were counted during the luncheon and the chairman announced the results as follows:

For President: Mr. Shipman,

It is perhaps interesting for you to know that the voting was very close. In fact, there was one vote which determined the standing of the party, consequently, the vote might well be taken as being entirely representative. Also, one of the members was apparently very much interested in the voting, because he voted for every man on the list including the Committee, but such things are apt to happen in these days.

NEWSPRINT PRICES FOR 7 YEARS

Weighted Average Prices of Newsprint Paper Per 100 Lbs. F. O. B. Mill By Months, from January, 1913, to December, 1919

	1913	1914	1915	1916	1917	1918	1919
January	$1.92	$1.92	$1.91	$1.94	$2.87	$3 029	$3.682
February	1.94	1.97	1.95	1.97	2.87	3.029	3.583
March	1.96	1.94	1.96	1.97	2.85	3.033	3.606
April	1.94	1.95	1.91	1.96	3.11	3.427	3.636
May	1.97	1.94	1.88	1.97	3.15	3.566	3.690
June	1.97	1.97	1.95	1.94	3.13	3.604	3.656
July	2.01	1.95	1.91	2.03	3.17	3.723	3.632
August	1.97	1.96	1.91	2.09	3.17	3.730	3.682
September	1.96	2.00	1.97	2.12	3.20	3.737	3.779
October	1.99	1.95	1.90	2.18	3.18	3.734	3.844
November	1.95	1.95	1.93	2.20	3.16	3.756	3.902
December	1.94	1.96	1.93	2.30	3.17	3.736	4.110

Note: The prices prior to 1919 have been computed from manufacturer's reports, which in some instances were incomplete. The prices for 1919 have been computed from the reports of publishers using newsprint paper. The average is a weighted average determined by the tonnage involved in each transaction and includes all grades whether in rolls or sheets and market purchases as well as contracts. — From Federal Trade Commission Statement.

Safety is the path of good judgment. Carelessness is the path of danger. Always be careful.

FILLERS: THEIR PROPERTIES AND USES.

The following is a brief outline of the section on Fillers which is being written by Mr. Ross Campbell of the American Writing Paper Co., for the Textbook on Pulp and Paper Manufacture. As Mr. Campbell put it, "Now throw your bricks." We would suggest throwing in a little mortar also, in order to build up the best possible discussion of the subject:

Purpose of addition (general).
- Clay for printing qualities.
- Crown Filler for color.
- Special papers.
  - Overlay paper.
  - Stereo matrix.

Kinds of fillers and special properties.
- Talc.
- Agalite.
- Clay.
- Crown Filler.
- Pearl Filler.
- Miscellaneous.

Retention of fillers.

Determination of filler in paper.

Testing of filler.
- Carbonates.
- Color.
- Grit.
- Free acid.

SHOULD THIS BE IN THE TEXTBOOK?*

An outline of chapter on the equipment and operation of an experimental pulp and paper laboratory, by Otto Kress, Sidney D. Wells, and Vance P. Edwards, of the U.S. Trust Products Laboratory, which it is proposed to include in Vol IV. of the Textbook on Pulp and Paper Manufacture. The chapter describes in detail the operation and installation of experimental pulp and paper mill equipment. Considerable variation occurs in the operation of semi-commercial experimental apparatus from the operation of the mill scale equipment. Comments, criticism and suggestions are in order.

Wood Preparation:
- Introduction
- Barking
- Chipping
- Screening
- Storing

Soda, Sulphite and Sulphate Pulping:
- Liquor preparation and testing.
- Digesters cooking.
- Blow pits.
- Washing.
- Pressing and Screening.
- Yield determination.
- Operation of autoclaves and auxiliary apparatus.

Paper Making:
- Beating.
- Screening.
- Experimental wet and Fourdrinier machines.
- Paper testing.
- Bleaching.
- Coloring and sizing.

* R.S.V.P.

Warn a man when danger is near. He may know all about it; if so, no harm is done; if not, you may save him from injury.

UNITED STATES NOTES

Frederick H. Babbitt, president of the Robertson Paper Company of Bellows Falls, Vt., is out for the office of chief executive of his state. The announcement of his candidacy last week while interesting to his many friends in the paper industry, did not come as a surprise, as Mr. Babbitt has long been identified with the public affairs of the State of Vermont having served terms in each branch of the Legislature. Mr. Babbitt's election to the office he seeks would add one more name to the long list of paper manufacturers who have been thus honored by the electorates of the various New England States.

Paper from sugar beet refuse instead of pulp, manufactured as a by-product, may prove a possible means of making up in part the diminishing supply of raw materials obtained from other sources. Such at least, is the belief of John T. Shaffer, of Rochester N. Y., inventor of the Shaffer hydraulic presses, who has devised a special press for compressing the refuse into blocks. Mr. Shaffer is of the opinion that an application of his invention would serve to lower the price of both sugar and paper.

With the establishment of its headquarters in New York city, the Mathieson Alkali Works, Inc., proposes in future to sell all of its products direct, instead of, as heretofore, disposing of the greater part through the Arnold Hoffman Company, Inc., of Providence, R. I.

Five division mills of the American Writing Paper Company in the vicinity of Holyoke, Mass., had to discontinue operations temporarily a week ago because of transportation difficulties. Most of the other Holyoke plants were shut down one or more days due to the low water in the river and canals and by a shortage of pulp.

The annual meeting of the Technical Association of the Pulp and Paper Industry is scheduled to be held at the Waldorf-Astoria Hotel, New York city, April 13 to 15, in conjunction with the convocation of the American Paper and Pulp Association.

The Taggart Brothers Company of Watertown, N. Y., manufacturers of manila flour and cement bags, will undertake this spring a further expansion and improvement of their plant to meet the steadily mounting business. A large addition to the main building, costing about $40,000 is to be erected, the construction of which will be started as soon as weather conditions permit. When the new annex is completed and in use the plant will have been doubled during the present year.

Owing to the difficulty of newspapers in obtaining a sufficiently steady supply of news print, the management of the Pennsylvania Railroad system has taken steps to give this commodity special attention in transit and to do all that is possible from the railroad point of view, to assure the newspapers a continuous and satisfactory supply. For this purpose a special bureau was organized last week at the general offices of the company under the joint supervision of the transportation and traffic departments and in the direct charge of J. F. Deasy, assistant chief of transportation.

A mill established for the purpose of making pulp and paper from cotton stalks is now in operation at Greenwood, Mississipi. It is undoubtedly the first of its kind in America. The fibre of the cotton plant supples excellent cellulose for durable papers. This fibre is a thin walled tube that collapses in a peculiar twisted manner in the beating process, interlaces better than other fibres in the felting process and holds its grip tenaciously. It is strong, flexible, durable and light and has double the tensile strength of the stock ordinarily used to make wrapping paper. Large quantities of old cotton stalks, delivered to the mills are paid for at the rate of $3 a ton. From 150 tons of stalk, which the mill is said to consume daily, are derived 50 tons of valuable pulp. The annual supply of cotton stalks in the Southern States is about 75 million tons. If but a quarter of that amount were utilized it would mean a production of approximately six million tons of paper a year, the value of which would exceed $300,000,000.

The Underwood resolution, which provides for the appointment of a commission by the President to take up the pulpwood situation with the Provincial Canadian Government with a view to bringing about a cancellation of restrictions on the exportation of pulpwood and newsprint from Canada to the United States, has been passed by the Senate and will now go to the House where its expeditious passage is looked for because of the present critical situation in the newsprint industry.

It is reported from Holyoke that Robert E. Ramsey editor of Advertising and Selling, is soon to take up the work of publicity manager for the American Writing Paper Company. Mr. Ramsey's addition to the big writing paper concern's publicity staff would be in line with the policy of President Galliver, who aims through publicity and selling to make the American Writing Paper Company's products known in all parts of the world. Mr. Ramsey is a thoroughly experienced advertising man with a splendid reputation, and in acquiring his services the American Writing Paper Company adds an expert of proven ability to its staff.

J. J. Markle, M. C. Kelly, and M. L, Horty are named as incorporators of the American Pulp Corporation capitalized at $15,000,000, which was given a charter last week at Wilmington, Delaware.

Montgomery Ward & Co., Chicago's big mail order house, has renewed with the Champion Coated Paper Company its order calling for catalog paper supply. The renewal covers a five year term.

Announcement has also been made of the issuance by the Champion Coated Paper Company of $500,000 in first and refunding mortgage six per cent gold bonds. The issue is taken by the Northern New York Trust Company, of Carthage, N. Y. Of the total issue, $193,000 is reserved for the retirement of underlying bonds of the paper concern.

PULP AND PAPER NEWS

The Canadian Nashua Paper Company, Limited, of Peterborough has been incorporated to take over and operate the Nashua Gummed and Coated Paper, a corporation incorporated under the laws of Massachusetts.

To carry on the business generally of lithographers, publishers, printers, etc., the Crabtree Company, Limited, has been formed at Ottawa and has been granted incorporation. The incorporators are:—Charles Archibald Crabtree, of the Village of Rockliffe, in the Province of Ontario, artist; John More McLaren, lithographer, William Benjamin Crabtree, engraver, William Murdock McLaren, physician, and George David Kelley, barrister-at-law, all of the City of Ottawa, in the Province of Ontario.

N. L. Martin, Toronto, Secretary of the Canadian Paper Trade Association has just returned from a trip to the Pacific coast, accompanied by John Martin, of Winnipeg. Mr. Martin described the object of his trip as educative, he being desirous of getting into touch with the trade in the various centres between Toronto and British Columbia. Meetings of paper manufacturers and dealers were held in Winnipeg, Calgary and Vancouver and from the information gathred, Mr. Martin declares that the trade is booming and that the demand for all lines of paper is greater than ever.

The Canadian Pulp and Paper Association have sent out a circular announcing an amendment to trade custom No. 7, book and litho papers. For paper cut or trimmed one end and one side, there will be an extra charge of not less than 15 cents per 100 lbs and for paper cut or trimmed 3 or 4 sides there will be an extra charge of not less than 25c per 100 lbs. To cover wastage in trimming, weight of paper in the case of paper trimmed 3 or 4 sides shall be figured at 5%, and in the case of paper trimmed one end and one side the weight of paper shall be charged at 2½% extra. A further charge of not less than 15 cents per 100lbs per cut shall be made for every cut on all book and litho papers when cut to a size smaller than 24½ x 36½. It is provided that these charges shall be shown separately on the invoices. No book paper will be supplied in writing paper sizes.

Albert E. Smythe, who has been in the service of the Toronto World since 1903 part of which time he was the chief editorial writer for that paper, has resigned his position to do editorial work for the Canadian Newspaper Service, an organization which will handle syndicate matter and aim to release Canadian newspapers and other publications from their present dependence on similar material supplied from the United States.

D. W. Waddell, cashier of the Toronto Globe, who has served that paper for upwards of 40 years has been compelled to relinquish his duties through ill health and will take a good rest. He was presented with a substantial cheque by the employees of the Globe before severing his connection with the paper.

The Ontario Paper Company is contemplating a $100,-000 addition to their plant at Thorold for the purpose of housing a new paper machine.

The Ross Can Company, Limited, of Bowmanville, manufacturers of tin cans and paper containers, have several heavy presses in operation cutting out the flat tin and an automatic press with a capacity of 90,000 impressions per day will shortly be installed. Since the new company was organized in 1919 and moved from Toronto to Bowmanville, several new automatic body formers have been installed and these are self-feeders and turn out the finished can complete. Considerable new machinery is also being added to the paper container department and the company is also filling orders for several rubber concerns for containers which are used for accessories.

Dominion letters patent have been issued incorporating J. C. Wilson, Limited, with provisonal directors from Montreal. The firm is empowered to carry on in all its branches the business of manufacturing and dealing in woodpulp, paper made from any material, paper substitutes, cardboard, etc.

Charles F. Mansell of the Howard Smith Paper Company, is back at his desk in the Royal Bank Building, Toronto, after several weeks' illness.

The Toronto offices of the Hodge-Sheriff Paper Co. and the Wayagamack Pulp and Paper Company, which were in the McKinnon Building on Melinda Street, Toronto, which was partially destroyed by fire on Thursday night of this week, were badly damaged by water. The offices were located on the fourth floor and the two floors above them were destroyed by fire.

The Canadian National Railways Magazine with W. J. Whitesides as editor, and under the direction of A. J. Hillis, assistant to the President, is about to make its appearance in Toronto. It will be distributed free among the 50,000 Government railway employees. The first issue will contain a leading article by the President D. B. Hanna. The magazine will be designed to show the employees on the National lines the present greatness of the system and its possibilities.

Miss Cora E. Hind, Commercial Editor of the Manitoba Free Press was honored this week when George Gordon of Oak Lake, Man., Manitoba Director of the Canadian Co-operative Wool Growers' Association, on behalf of the breeders, presented her with 26 ewes, in recognition of her services to th industry.

Deputations to the provincial government of Ontario have urged the taking over from the municipalities the initiative for the reforestation of the waste places in the province and working out a comprehensive scheme of replanting these areas. It has been estimated that millions of feet of timber could be obtained from lands which are practically waste ground at present.

The present office in Montreal of the British Trade Commissioner is at 367 Phillip's Square but new offices will be entered into shortly in the Bank of Ottawa Building on St. James Street.

PAPER MILLS SHORT OF PULP.

Fitchburg, March 3.—Because of the shortage of pulp six local paper mills were closed temporarily. Four of the mills are owned by the Fitchburg Paper Company and two are of the Crocker Burbank Corporation chain. It is thought that by the end of the week some of the mills may re-open.

Other mills are running at a disadvantage because of the shortage, and it is feared they may be forced to close. A paper company expected several carloads of pulp last week. The shipment was located on the St. Lawrence River and will not arrive here for several days.

N. B. PULP MILL AND SCHOOL DISPUTE

Fraser Companies vs. School Trustees was argued before the Supreme Court on March 2. The appellant operates a pulp mill in Edmundston, N. B., with some property outside the town. By an agreement with the town it was not to be assembled on a higher valuation of its business than $100,000 and sixty per cent of the value of its lands and stocks. The exemption beyond this was of all rates and taxes, and the main question for decision was whether or not it included exemption for school rates.

Complaint was also made of too high a valuation in any event.

The court below held that there was no exemption as to school rates and upheld the assessment. Judgment was reserved.

WESTERN WATERWAYS WOULD CARRY PULPWOOD.

The formation of a Western Waterway's Association was advocated by Mayor C. F. Gray of Winnipeg to encourage the development of waterways in Prairie provinces. As an example of what might be accomplished, the Mayor said that the Saskatchewan River could be made navigable, to permit the transportation of coal from western fields. This waterway, he pointed out, runs through an immense pulpwood area and a district which is rich enough in copper sulphide deposits to supply the whole North American continent with sulphuric acid.

INTERNATIONAL ACQUIRES PAPER MILL IN MAINE

Reports from Bangor, Me., recently stated that the Aroostok Pulp and Paper Company's plant had been transferred to the American Realty Company a subsidiary of the International Paper Company. The transfer includes in addition to the pulp and paper mill, the holding grounds and shore rights of the company along the St. John River, on which the mill is located at Keegan, just above Van Buren.

It is anticipated that large additions will be made to the present plant. It is reported that these will include a mill for the manufacture of kraft paper.

ENGLISH NEWSPAPERS PROFITLESS.

London, March 6.—William Shaw, member for Forfar, intends to ask the Premier if he will institute an enquiry into the profits of the great newspaper trusts in England.

The Express declares that there is not a daily paper here today showing a profit, taking commodities at their present prices.

HOWARD SMITH EXECUTIVE RE-ELECTED.

The annual meeting of the Howard Smith Paper Mills, Limited, was held March 8 afternoon, when the statement covering the year's operations was presented to the shareholders. This, as already reviewed in the Pulp and Paper Magazine was adopted and received with considerable satisfaction.

The executive and directors were re-elected without change, as follows: C. Howard Smith, president; James W. Pyke, vice-president; J. Alex Cameron, J. M. Pangman, H. C. Courtney, D. W. Campbell and J. Anderson, with Harold Crabtree as secretary-treasurer.

PAPER MAKING IN CZECHO-SLOVAKIA.

Paper manufacture comprises 137 firms with about 85 paper mills, 34 roofing board mill , 75 ground wood mills, and ten cellulose mills, that is, 40 per cent. of the paper mills of the old monarchy. The annual production in peace amounted to about 18,000 carloads of finished grades and 20,000 wagons of half-stuff. The number of workmen employed was 17,000, and has since increased about one-half. The chief raw material is abundant in Czechoslovakia; on the other hand, machines and other materials must be imported from without. The industry's main object is production for export. As markets there are in view the Southern Secession States and Italy for cellulose and the Levant for cigarette paper. — Pappen und Holzstoff-*Z*eitung, Dec. 18, 1918, via Newsprint Ser. Bureau.

CONSOLIDATION OF PAPER MILLS IN GERMAN AUSTRIA.

According to advices in the **Neue Tag**, events have made obvious the necessity of forming a single corporation including the paper and pulp mills in the National State. The mills still remaining in German Austria are mostly too small, or too few, so that these companies can take no part analogous to their former importance. It is now believed that the paper companies of German Austria must effect a pooling of their interests, and the Neusiedler mill is generally regarded as the crystallization point of the proposed consolidation.—Pappen und Holzstoff-*Z*eitung, December 18, 1919.

FAILURES IN PAPER BOX INDUSTRY.

In the various subdivisions of the Paper Industry the manufacture of paper boxes is apparently the most uncertain. In 1915 the United States failures among paper box manufacturers amounted to 13 as against 5 failures in general paper lines; in 1916 the failure were 8 for boxes and 6 for general paper; 1917 showed 6 failures for each; 1918 recorded 2 for paper boxes and 3 for paper, and the first 11 months of last year showed 4 failures in each line. By reason of these figures we believe that when depression eventually strikes the paper industry, paper boxes will be among the first to be affected.—Babson's Report.

TO INCREASE CAPITAL FOR SALT CO.

A circular just issued by the Canadian Salt company states that at the annual meeting of the shareholders to be held on March 10 a bylaw will be submitted for ratification increasing the capital stock of the company from $800,000 to $1,500,000 by the erection of 7,000 shares of $100 each. The company supplies practically all the salt and much of the bleaching powder used in pulp and paper mills in Eastern Canada.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, March 6, 1920.—Further advances in the prices of several lines of paper is the feature in the market this week and, according to the prediction of one Toronto dealer who is in close touch with trade conditions, the latest increase in the pricelists is but the fore-runner of another jump within a month's time. In other words, it looks as if the mills had decided that they must get twenty per cent more for some lines, and instead of sending the price up all at once they are cutting it in half now and tacking ten per cent on now with another ten per cent to come later. At least, this is the view of the Toronto dealer quoted, and other dealers, If they do not go as far as that in their predictions, agree that the trade is yet a long way distant from lower prices. In the box board branch of the industry, new price lists sent out by the mills at the first of this month, show a ten per cent addition to the prices that have been prevailing for the past three weeks, a fairly substantial increase having been made less than a month ago. For instance pulp folding board that was then selling at $103 a ton is now quoted at $113; news board that was $87.50 is now $96.25; chip and straw board has gone from $80 to $88;; Manila lined chip has gone from $95 to $104.50; Manila lined news single from $100 to $110 and Manila lined news double from $110 to $121; patent coated is now $176 a ton instead of $160 and No. 1 news pulp back is $154 instead of $140. Other box board lines are up accordingly and the new prices still carry with them the proviso that orders will only be accepted for delivery at prices prevailing at date of shipment. While the new lists are supposed to cover April shipments, a number of the mills are booked so far ahead that they cannot accept orders for filling next month; any quoting that is done will be on the ten per cent increase basis, f.o.b. railway depot at point of shipment.

Bonds and writing papers have undergone a somewhat similar advance, the highest grade of white record selling as high as 57c in small quantities while the medium grade papers are quoted from 37½c to 45½c in small lots. Kraft paper has also gone up half a cent, and is now 12½c in small lots or 11¼c in ton lots. The latter commodity is coming in a little more freely but in common with all other lines, it is difficult for the dealers to link up with anything like the quantity they could handle. There is a big shortage in Manilas and many orders are in, that cannot be filled for some time to come, while there is a big demand for grease proof papers, 25-lb. bleached being quoted at 30c and 20-lb at 31c f.o.b. mill.

Coated papers have also joined in the general advance. The latest price list sent out by the Georgetown Coated Paper Mills, Limited, this week states that owing to the extreme advance in the price of raw stock and material the company were compelled to revise their lists. Standard coated book and litho is now quoted at 12¾c, and superfine coated book and litho now rules at 13¾, plus 40c per 100 lbs. for cases, f.o.b. mill. Prices only apply to the stock at present in course of manufacture and sales are made subject to the prevailing price at time of shipment.

Speaking generally, there is still a great shortage of nearly every line of paper and the mills are experiencing the greatest difficulty in meeting the demands being made upon their resources. Raw material is still extremely hard to procure and this condition, added to the constantly increasing pay-rolls, the high cost for rag and other stock and chemicals and the difficulty in getting coal, has had the effect of advancing the prices in most lines of paper. The reduction of the discount on toilet papers from 15 to 10 per cent has meant a five per cent increase in that line and the new price came into effect a few days ago.

Both ground wood and sulphite, although firm in price, are hard to get and there is an ever-increasing demand for them, although pulp wood is being taken out a little more freely now since the weather conditions have improved.

Discussing the shortage of paper and raw material, a Toronto dealer pointed out that the Canadian trade had been thrown pretty much on its own resources for some time past, and had had no outside market to draw upon. Advices from Norway and Sweden are to the effect that they will not be able to export much of their material for several years to come, which means that both groundwood and sulphite supplies from those countries will be shut off from Canadian buyers. The same con-

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL, **NEW YORK**

Write us when you have any surplus of **Ground Wood** Bleached or Unbleached. We are always in the market.

ditions apply in practically all countries which heretofore could be drawn upon to fill the gaps in the Canadian production; this would indicate that the present shortage in raw materials and finished products is pretty much world-wide in its character. Nor is there but very little American stuff coming in, excepting a few of the higher grade papers. The Toronto representative of one of the eastern mills told the Pulp and Paper Magazine that he had gone across the line with a cheque from his firm for $15,000 with which to buy certain grades of paper required to fill long-standing orders and returned with the cheque but not the goods. Even if double the amount of money had been produced the paper would not have been forthcoming for the reason that it was not to be had.

In most lines of paper there is no doubt that the market is pretty bare of supplies and with prices mounting and almost changing over night, those in the trade do not view the conditions with equanimity and are sighing for the return of the old times when the manufacturers and dealers had to get out and hustle for business. Salesmen now have only to book orders over the phone or from the morning's mail and then go on and worry as to how they are going to get the orders filled. There is a lot of worrying going on right now both on the part of the mills, the distributors, and the publishers as to the shortage of newsprint. Very little sheet newsprint is being received by the jobbers and many of the weekly publishers are experiencing great difficulty in getting supplies, while some of the daily publishers have been sailing very close to the wind, despite the fact that there has been some disposition of late to recognize the necessity for economy and conservation of their white paper rolls.

A number of the wholesale stationery and papeterie manufacturing firms are just completing their specialty lines for next Christmas trade and the salesmen will be on the road in a few days with samples of the goods to be sold for the Christmas trade. Although difficulty has been experienced in getting stock and very few shipments are coming through from the mills in less than three months after the order is placed, the stationery and papeterie makers have had a remarkably good year and are looking forward to bigger business during the present year. A feature of this year's business is likely to be that very little imported goods will be handled by the Canadian makers, particularly in the papeterie line and practically all of the goods to be sold for next Christmas trade will be of Canadian manufacture.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$55.00 to $65.00
Sulphite, news grade	$75.00
Sulphite, easy bleaching	$90.00
Sulphite bleached	$130.00
Sulphate	$85.00 to $90.00

Paper.

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) in less than carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload, No. 1	13c
xBook papers (ton lots) No. 1	13½s
xBook papers (carload), No. 2	12c
xBook papers (ton lots), No. 2	12½c
Ledgers	17c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tintel bonds	28c
White Wrappings	$5.25
Writings No. 2 (M.F.)	13½c
Coated book and litho, No 1	$14.50
Coated book and litho, No. 2	$13.50
Coated book and litho, colored	$14.75
Grey Browns	$5.75
Writing No. 1 (S.C.)	15½c
Fibre	$8.00
Manila, No. 1	$8.00
Manila B	$6.25
Tag Manila	$7.50
Unglazed kraft	$10.00
Glazed kraft	$10.00
Tissues, bleached	$1.35
Tissues (unbleached sulphite)	$1.20
Tissues, cap	$1.00
Tissues, manila	90c.
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.
Paper bags, Manila (discount)	30—35 per cent
Paper bags (kraft)	40—45 per cent
Confectionery bags, Manila	34—35 per cent
Straw board	$88.00
Chip board	$88.00
Vat lined chip board	$96.25
Filled wood board	$99.00
News board	$96.25
Manila lined folding board, chip back	$104.00
Pulp folding board	$113.00
Jute board, No. 3	$88.00
White patent coated board	$145.00
Grey folding board	$126.50

*Government fixed price to Canadian publishers.

xThese prices are for machine finish, supercalender one-half cent higher.

NEW YORK MARKETS

New York, March 6.—Tightness of supplies is the outstanding characteristic of the paper market in New York, and reports from other large distributing and consuming centres in the States tell of very much the same conditions prevailing as locally. Severe weather throughout the eastern section of the country has badly crippled transportation facilities, and shippers have been occasioned exceptional difficulty in moving freight for several weeks, with the result that supplies of paper have been frequently held up at mills, thus creating a more pronounced shortage at consuming points. The situation in New York has reached a stage where buyers are paying little heed to matters of price so long as they are able to get paper and board. Prompt delivery is what consumers desire, and most of them are willingly paying premiums in price to obtain much needed supplies.

To say that the price tone at present is firm is indeed putting it mildly. As stated above, questions of price are playing "second fiddle" to that of securing deliveries, and demand during the past few days has clearly reflected the growing scarcity of unsold lots of various kinds of paper. Local jobbers' stocks are down to the bone, and dealers are experiencing extreme difficulty in replenishing supplies owing to delays in receiving

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

shipments from mills. The freight situation within the last day or two has improved in a measure. Shipments have come through in some cases from Holyoke, and it is understood that the railroads in New England have removed freight embargoes, which should result in goods moving from this section down to New York with more rapidity.

The newsprint market rules strong. The measures adopted by numerous publishers, including those of New York, cutting down consumption has had no influence on the market simply because the decrease in the amount of paper used has not been large enough to have effect. Even should the large city newspapers stop publishing altogether, which of course is highly improbable, there would be sufficient demand to absorb all the newsprint mills are turning out. In fact, there is an extensive demand which is now going unfilled, and it can be said that there is no paper in sight with which to cover these requirements. The big publishers are playing the game on their own behalf and are not leaving any stone unturned in their efforts to fill their wants for the year, which puts the small town publishers in a bad way. The latter, in consequence, are appealing to their representatives at Washington to pass legislation putting the brakes on consumption by the big city dailies. What will ultimately be the net result of such conditions remains to be seen, but in the meantme newsprint manufacturers the country over are flooded with requests for paper and are doing what they can to supply all that their output will permit.

Another cargo of Swedish newsprint has arrived at New York. The steamer Sommen, which arrived here last Tuesday, brought 2,011 rolls from Gothenburg, making the second large shipment of Swedish news within a month. This paper was consigned to the New York American, the local Hearst morning newspaper, through the National City Bank. According to talk in the trade, this Swedish newsprint is being marketed here at about the same prices prevailing on domestic newsprint. Just what the actual prices paid for it are, has not been ascertained. The two shipments thus far received have had no influence on the market, because they constitute but "a drop in the bucket" of the amount of newspaper that is wanted by consumers.

Book paper manufacturers are literally deluged with orders. The average mill making this class of paper is sold far ahead and is reluctant to entertain offers of additional business. Buyers are scurrying to and fro in an anxious endeavor to locate unsold supplies and are meeting almost any price asked to get paper. Tissues are daily firming in price and are becoming increasingly difficult to buy in sizable quantities.

Coarse papers are in a strong market position, with mills booked up in orders and with buyers constantly seeking further supplies. Fine papers are actively sought and rule firm in price. The board market is steady, and, if anything, in a stronger condition. Loss of production within the past several weeks, owing to freight embargoes holding up shipments of coal and raw material has a telling influence on the market, and offered supplies are lighter than ever.

GROUND WOOD.—The ground wood market is firm to an extreme degree. Grinders in Upper New York State and in various parts of New England who have been hampered in their operations by a lack of raw material and frozen mill streams are practically out of the market as sellers; in fact, quite a few of them are looking for pulp with which to cover contract obligations. As an instance of this, a local pulp dealer who controls the distribution of the largest producer of ground wood in Canada received an inquiry the other day from a manufacturer of mechanical pulp involving the supplying of 3,000 tons of pulp over a period of months, shipments to begin in July. This would indicate that producers are using the bulk of their own output, and that in some cases it is necessary for them to purchase pulp to augment their production. Seventy dollars per ton for freshly ground spruce pulp for spot delivery is freely offered by buyers, and there have been out of the way instances where sales have been consummated at slightly higher prices.

CHEMICAL PULP.—All kinds of chemical wood pulp are in active demand and there is a strong tone to quotations. Offerings by producers have grown to be more less a phenomenon, and consumers desiring supplies invariably have to go to sellers in search of same and then frequently fail to obtain the tonnages wanted. In fact, the supply of available wood pulp is characterized by the same tightness as marks present unsold stocks of paper. Manufacturers almost without exception either have no surplus to sell or else have contracted for their entire output for some time and are therefore not in a position to do business at present. An outstanding feature of the market is the sharp advancement in prices on kraft pulp. Buyers of this grade of chemical fibre suddenly descended on the market several weeks ago and began purchasing in heavy tonnage, with the result that values have undergone much enhancement. Foreign kraft pulp has sold at close to 5 cents a pound on the dock and domestic kraft of standard quality has fetched 4.50 cents at shipping points. Even at these figures, present offerings are limited, as surplus accumulations have been very nearly depleted. Imported bleached sulphite has sold at 8 cents ex-dock and foreign easy bleaching sulphite at better than 6 cents. Domestic soda pulp is virtually unobtainable for prompt delivery, and prices are nominal.

RAGS.—With the transportation situation clearing, paper manufacturers are coming into the market for increased amounts of raw material, thus making for greater activity in rags. Quotations have undergone but little change, but the easiness which developed a few days ago in some grades of stock apparently has disappeared, and there is a firmer tone throughout the price list. Roofing rags are sought in large tonnage and prices seem to have resumed their upward swing. Sales of No. 2 packing of satinets have been reported at $72 per ton f.o.b. shipping points, while No. 1 roofing rags are selling at $75. White rags of all qualities are especially firm and are eagerly inquired for. Old No. 1 whites of repacked variety have sold at 16 cents a pound, which indeed is a remarkable price for these rags. Thirds and blues rule quotably steady, although their movement has been checked recently by the unfavorable shipping conditions in New England. New cuttings are held with firmness, and are sought in good volume. New No. 1 white shirt cuttings continue to be quoted at around 20 cents per pound at shipping points and are offered in rather sparse amounts.

PAPER STOCK.—Waste papers are moving into consuming channels in steady fashion and at firm quotations. With wood pulp scarce and costly, paper manufacturers are looking more and more to old paper and are absorbing just about all the supply to be had. Shavings are priced at around 6 cents a pound f.o.b.



SOLE AGENTS in the United States, Canada, Mexico and Cuba for

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and

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" " " 2170

CORRESPONDENCE SOLICITED.

New York for No. 1 hard whites and 5.50 cents for soft white shavings of No. 1 quality. Flat stock of all kinds is moving freely toward book paper mills, and No. 1 heavy books and magazines readily fetch 3.50 to 3.60 cents a pound at shipping points, while sales of ledgers and writings have been recorded at 3.75 cents at dealers' points. Newspapers are actively sought by board mills, which are paying 2.10 to 2.20 cents f.o.b. New York for flat folded news and around 2.75 cents for over-issue newspapers. Mixed paper is selling at 1.50 to 1.60 cents New York. Kraft paper is following the lead of kraft pulp and is rising in value, with sales reported at 3.50 cents f.o.b. New York for old No. 1 kraft.

OLD ROPE AND BAGGING.—Prices on old rope have advanced further, sales of No. 1 Manila rope having been noted at 7.25 cents per pound f.o.b. New York. Demand is steady and of a healthy character, and dealers claim to be experiencing trouble in filling all the wants of buyers. Old bagging is quotably steady at a basis of about 3.25 cents at shipping points for No. 1 scrap.

SEEKS TO CONSERVE PULP WOOD SUPPLY.

Washington, D. C.—In less than twenty years 95 per cent of the pulp and paper mills of the country, mainly those in the East, will have practically exhausted their supplies of spruce, hemlock and fir—the principal woods from which the paper on which newspapers are printed are made.

The annual cutting of these woods in the New England States and New York is approximately 3,262,000 cords, and at this rate the supply will last approximately seventeen years. The estimated annual cutting in the Lake States is 3,030,000 cords and if continued will exhaust the supply in that region within eighteen years. Pennsylvania, Maryland, Virginia and North Carolina, with their smaller forest resources, are even worse off, the annual cutting being calculated at 1,470,000 cords, at which rate the spruce, hemlock and fir will last but ten years. Only in Alaska, Washington, Oregon and California are the reserves in no immediate danger of exhaustion if the cutting continues at the present rate of 2,218,000 cords a year.

These figures, of special interest because of the present paper shortage, are included in estimates compiled by the Forest Service of the United States Department of Agriculture. The data accumulated gives additional emphasis to the demand for a nationwide policy that will put privately owned forests on a permanently productive basis and will also result in utilizing mill waste for paper making.

Even if the country's hemlock, spruce and fir resources, including the vast forests of far-off Alaska, are lumped together, the supply of these woods will be sufficient to meet the lumber and paper demands for less than three-fourths of a century, assuming that the present rate of cutting continues. At first glance it might seem that a national supply for three-fourths of a century makes it unnecessary to worry over the lumber question for some time. But, as already stated, 95 per cent of the pulp and paper mills are located in the East; these are very expensive establishments, often costing millions of dollars, and cannot be moved conveniently to new locations nor can wood be shipped to them conveniently from great distances.

Up to ten years ago the United States was self-supporting with regard to newsprint, but within the last decade the consumption has exceeded home production and promises to do so increasingly. In view of this situation two alternatives present themselves, according to forest service experts and representatives of large wood-using industries. The country must depend increasingly upon Canada, eventually abandoning many of its own mills, or the nation's policy with regard to its private forests must be radically changed. Canada has now 90 paper and pulp mills which produce approximately 2,700 tons of paper a day of which 87 per cent is available for export. Of all supplies of paper, wood and pulp used by the United States about one-third now comes from Canada.

The forest service points out, however, that whether paper interests rely increasingly upon Canada, or upon increased use of our Western resources, in either case these are temporary expedients. In the long run the country must solve the paper problem on the basis of a permanent wood supply. To this end it is urged that the mill waste be utilized for paper making and that the forests of this country be regenerated and administered on a more productive basis.

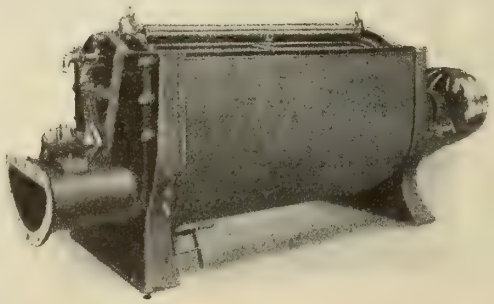
Even more important than the utilization of mill waste is the regeneration of the forests for the perpetuation of the paper industry in the United States. The policy of wastefully cutting the forests and making little provision for future growth must be abandoned speedily, say forest experts. It the future operations should be so conducted as to secure increasing reproduction of trees valuable for lumber and pulp. —**Press Report.**

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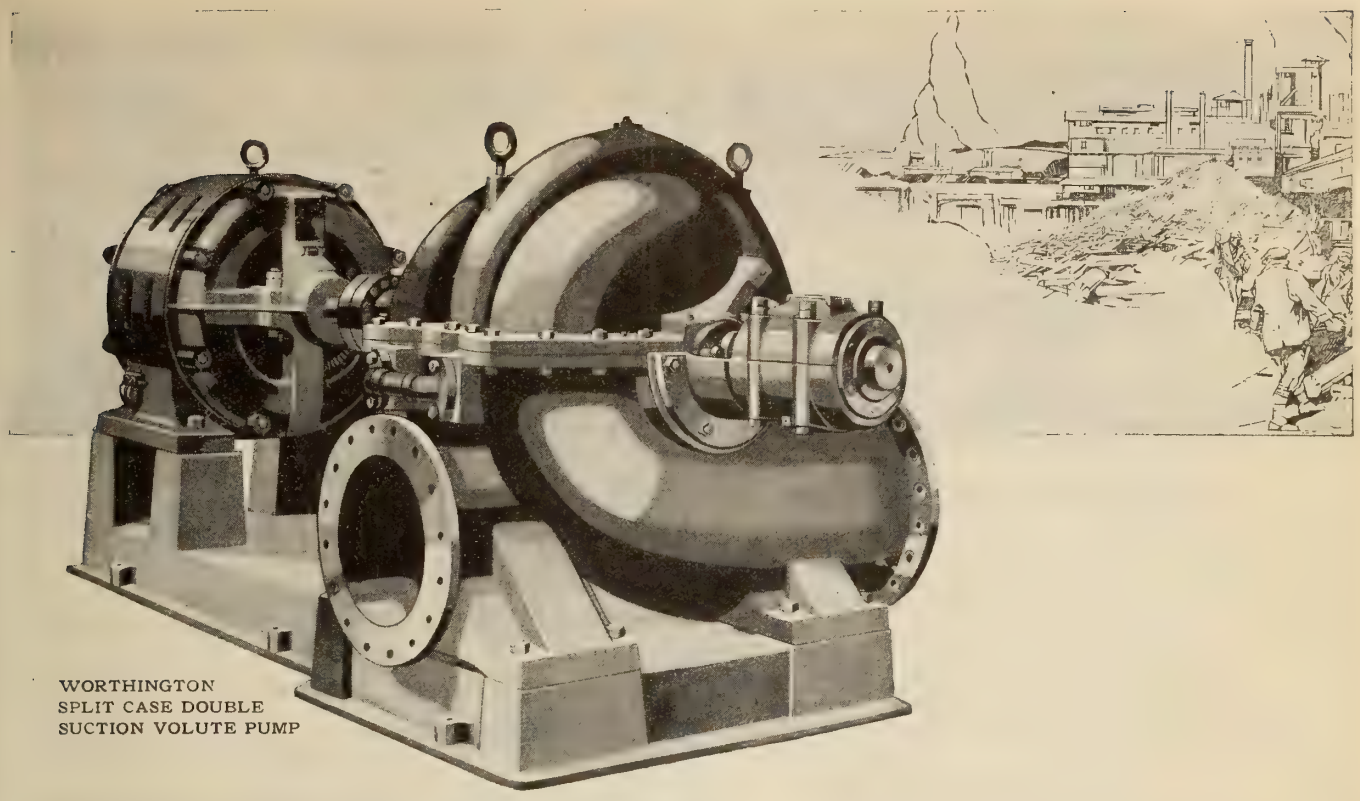


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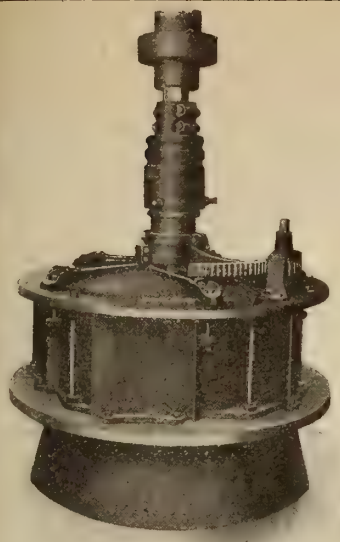
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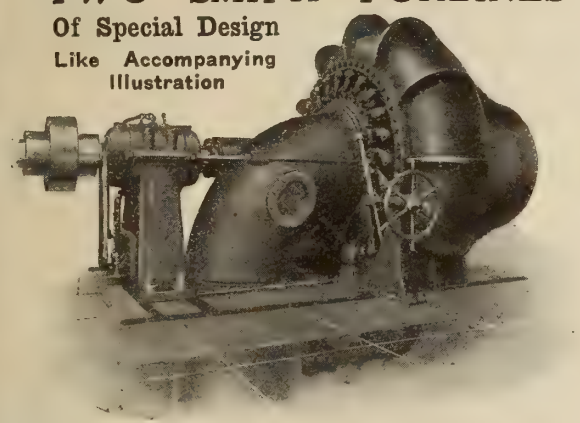
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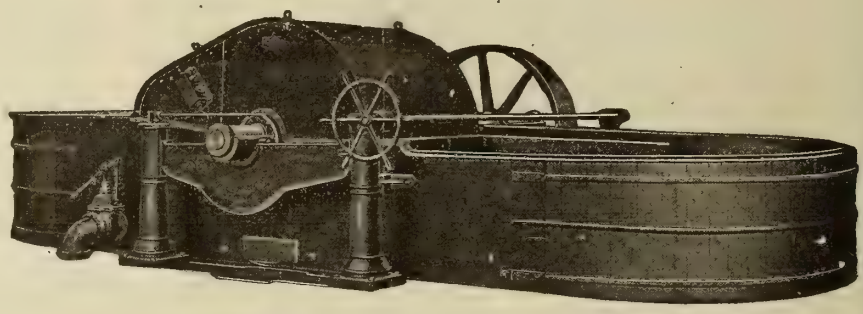
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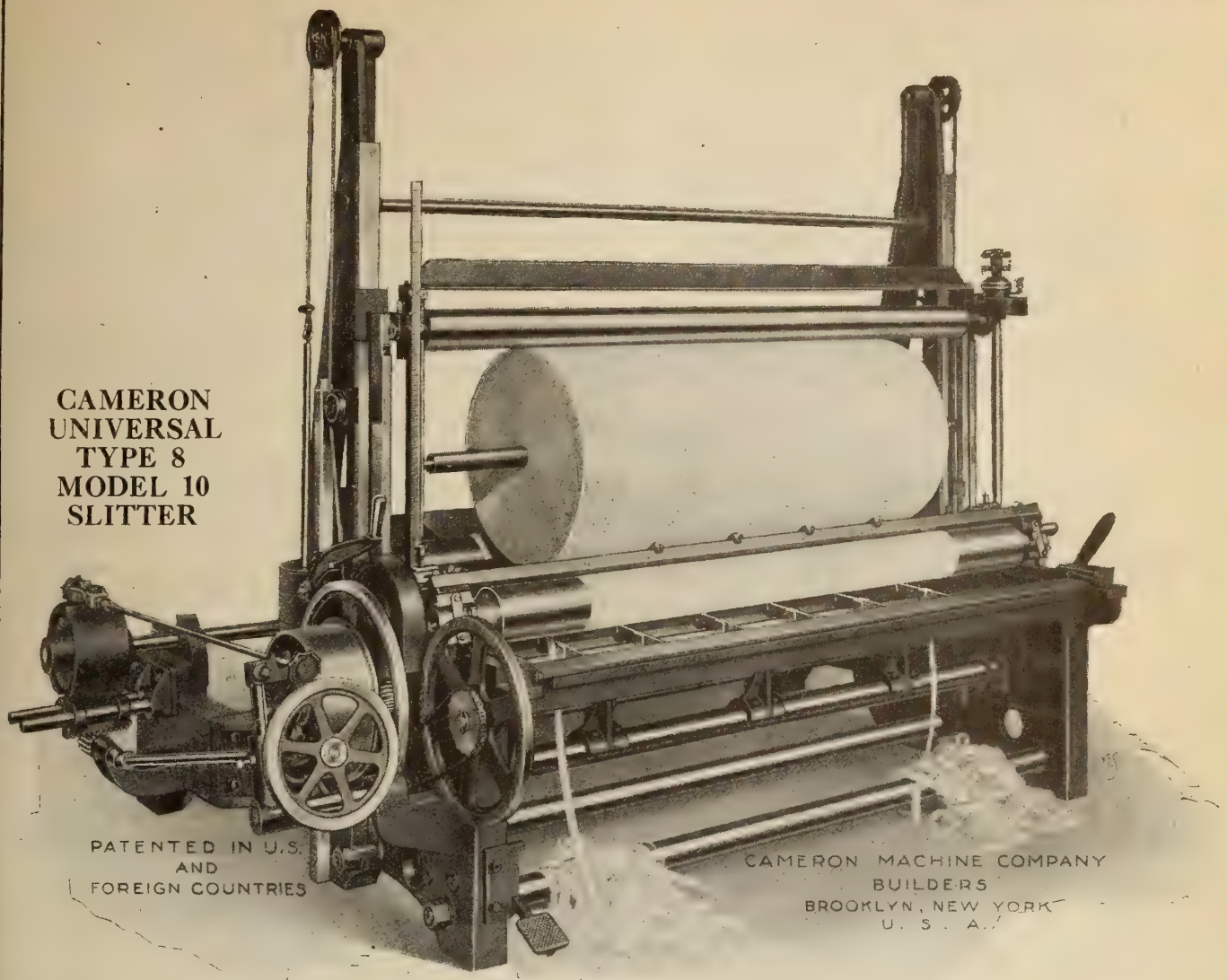
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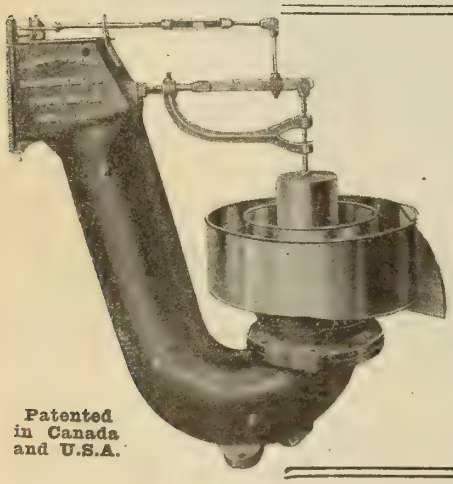
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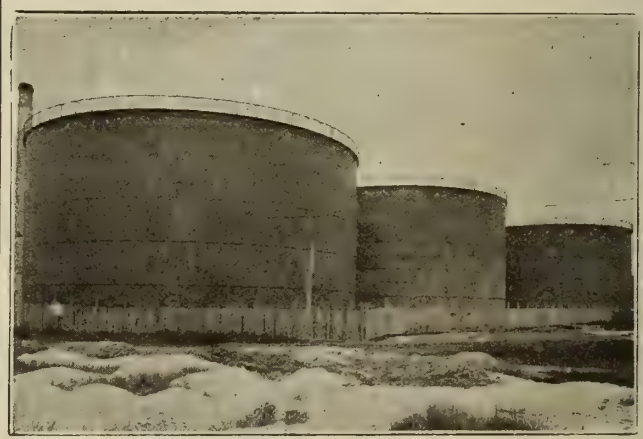
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDEN CITY PRESS, Ste. Anne de Bellevue, Que. No. 12

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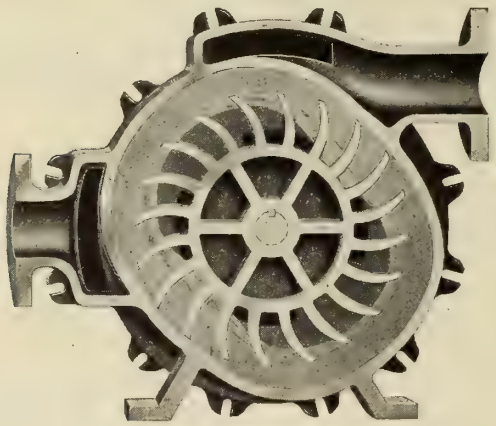
J. NEWELL STEPHENSON, M.S., Editor.

The editor cordially invites readers to submit articles of practical interest which, on publication, will be paid for.

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EDITORIAL

ARE WE TO HAVE OVER-PRODUCTION?

A statement was made a short time ago that ninety paper machines are on order for mills in Canada and the United States. Twenty of these are said to be for high grade papers. That, of course, leaves a chance for quite a wide distribution of the remaining seventy among the other standard divisions of the industry such as newsprint, boards, wrappings, tissues, building papers, etc. With the enormous demand for newsprint which exists at the present time and which gives some evidence of continuing somewhat into the future, there is no doubt but that most of the new production contemplated for the next two or three years will be in this field. Various estimates have been made as to the actual amount of shortage based on present conditions and there is no doubt but that for the past year or two the increase in consumption has been running away from the increase in production. It is hardly possible that the recent rapid rate in the increase of consumption of newsprint can be maintained very long. In fact the curve showing increase in consumption is already beginning to flatten out to some extent. It may be said that the volume of advertising carried by the average daily paper has now reached a stopping place and marks a new measure of demand for newsprint and that from now on we shall see an increase the demand commnnsurate to the reading population. The latter is of course, a measure of the extension of educational facilities and the gradual maturity of the generation of children immigrants and the native born children of immigrant parents in Canada and the United States. Such a curve would lie approximately parallel to the average curve for the period through which we have passed just prior to the recent jump in newsprint consumption.

This recent jump in the consumption curve has put a very severe strain on the industry and in spite of heroic efforts to keep the machines at more than normal capacity the production has not been equal to the demand. The powerful papers of the cities have not only used up their regular contract amounts but have gone into the open market and bid up the price to a figure which has made the industry appear to be a veritable gold mine for the investor. Some promoters will like to take advantage of these circumstances and get into the game, some for the first time and some for larger developments. There probably never was a time when investment could be made in a more stable industry. Yet there are possibilities for a slump before many years because of over-production. The industry did not expand normally in the United States during the past ten years if this consideration is based on the growth of the newspaper reading public. In Canada, however, the industry has developed rapidly enough to make up for the deficiency of growth in the United States so that until about a year ago the market was fairly well supplied. There was a steady demand for newsprint during the war period because the people wanted to know what was going on and large issues with many "extras" used up an enormous amount of paper which the mills were for the most part able to supply. During this time export demand fell off almost entirely whereas it normally might have been expected to develop. That this is true can be seen from the fact that export demand has developed very considerably since it has been possible to make satisfactory shipping arrangements. If export demand had increased along with domestic demand the present situation would be far worse than it is.

It is a question of whether our mills of the next five years will be making more paper than the possibly sustained domestic demand and export requirements will absorb. It is quite certain that if the 1921 production were available now we should not have at the present time a shortage of newsprint. It therefore appears as though there would certainly be plenty of print paper to take care of normal growth in newspapers from now on and that it will be necessary for paper mills that are contemplating extensions to begin studying the export market.

This does not mean that there is likely to be any very considerable drop in prices of newsprint although if over-production is accessive there will no doubt be some recession. It is all together likely that the present high cost of construction and equipment will introduce such a high figure for overhead that manufacturers simply cannot live on low prices much below the present figures. There is question of the certainty that stumpage values will rise and make raw material costs quite a bit higher. It was fully anticipated that the normal growth of newsprint consumption would require some growth in the industry but the recent and present shortage seems to have aggravated the somewhat feverish condition of those who are contemplating the installation of newsprint equipment.

Other papers are at present decidedly scarce and domestic demand could keep more machines in a state of healthful activity. Large export orders have been consistently refused by many concerns during the past

year. If this demand from foreign sources is not largely taken up by producers in Europe there is every chance for continued prosperity for an indefinite period on the basis of present plans for extension, but it looks as if the growth of the industry is roped enough for safety. Two things in particular are to be guarded against. One is the launching of economically unsound propositions which, on the reputation of the industry, might mislead the unwary investor. The other is the establishment or extension of mills where there is insufficient raw material. The great expansion which is now imminent makes the conservation of our forest **absolutely imperative.**

COBWEBS.

Our linotype operator was not so far off when he set Underwood resolution to read "underground."

A new highway from Montreal to Quebec, through St. Jerome, Joliette, Shawinigan Falls, Grand' Mere and St. Raymond, is being promoted. It is obvious that the principal towns on the route are paper mill centres.

A clipping bureau has sent us an exchange regarding the supply of raspberry pulp in Tasmania. The industry will be glad to know that there are 300 to 400 tons available for export; estimated at £63 per ton in Vancouver. While this is not a product of a familiar mill process, there are some papermakers who could use it.

Sir Lomer Gouin showed his desire to provide every possible link between Quebec and Ontario by assuming a delegation that the oldest province would go 50-50 with the Federal government in building traffic a bridge across the Ottawa River at St. Anne de Bellevue. At present there is no all land route by auto from Montreal to Toronto. And ferrying across the Ottawa is not always a joy.

One John Morrison, who lives at Grand Rapids, Man., has the idea that newsprint mills established on the basis of the forests of Northern Manitoba will make a shortage of print paper impossible in the future. That depends, Mr. Morrison, very largely on whether the consumer wants more than the mills can make. And besides, we have a lurking suspicion that a large part of that forest is small, slow, old growth on muskeag which will be hard to get out, because of hauling conditions, paucity of driving streams and the northerly flow of the main rivers. We believe there are two or three good paper mill sites in that country, but not much chance of supplying the world. In fact the Prairies will in our time, take most of what such mills will produce.

The people around Amos, P.Q., are agitating for a paper mill. The Quebec Telegraph says there are other things needed more, and at once. For instance, 100 cars were wanted for shipping pulpwood. Fifteen were sent. Maybe the natives think it will be easier to move coal, limestone, sulphur and supplies. The chances are they would soon have to bring wood in by rail also.

In addressing the senior class in Chemistry at McGill University in a series of special lectures on Pulp and Paper Manufacture, the editor of the Pulp and Paper Magazine has been pleased to meet several of the men who served last summer in pulp and paper mills. There seems to be a very considerable interest among the McGill students in this industry and a number of them are planning to resume work when college closes. The secretary of the Technical Section is already making plans for enabling student and mills to make connections for the coming summer. From the gratifying reports that have come in with regard to the work of most of the students who did mill work last summer there is sure to be an extension of this interesting experiment.

Last year most of the students were those who are interested in chemistry or chemical engineering but colleges and students would do well to remember that there is quite as much opportunity for the student in other branches of science and engineering.

DEPENDENCE OF NEWSPAPERS ON FORESTS.

Newspapers are absolutely dependent upon the forest, through the medium of the paper-maker, for their existence. It is not surprising therefore, that the publishers are taking an active interest in the source of their raw materials. Since its inception, the Canadian Commission of Conservation has advocated the protection of the forests from fire, the regulation of cutting, the burning of slash, the regulation of settlers' clearing fires under the permit system, and the requirement that railways take adequate precautions against the occurrence and spread of fires due to railway agencies. With the adoption of these measures, towards which an excellent beginning has been made, the forest will have a reasonable chance of existence. It will eventually reproduce itself, and continue the supply of pulpwood. Much, however, still remains to be accomplished in these directions.

Immense areas of Canada are suitable only for forest growth. These should be permanently set apart, existing young growth protected, and denuded areas replanted. The crop—for the forest is a crop—while a long-time investment, would be a paying one, and would assure the continuance of the pulpwood supply. The price of pulpwood and its product, newsprint, to-day, is high, and will very probably remain so, due to the heavy demand and the higher cost of production. The intensified cutting of the forest to meet this demand makes it necessary that every precaution be taken to protect what we have and to take measures for the reproduction or replanting of forests on our cut-over or burned-over lands to add to the supply.

In the interests of self-preservation, the newspapers should do everything possible to educate public opinion on the necessity of taking care of forests.

The Titration of Cellulose

(Continued from Last Issue.)

The samples of sulphite cellulose, previously mentioned, Kuus I 33 (bleached and unbleached) after eight extractions were converted into hydro-cellulose by covering them with 2.8 per cent sulphurous acid; they were then filtered through a Buchner funnel and heated for 24 hours to 40° C. Here both samples became darkish in part, but they were washed out with water until litmus paper was not colored; then both were extracted and titrated in the way previously described.

In a like manner a sample of sulphite cellulose, Kuus I. 34 (bleached and unbleached) was converted into hydrocellulose, with the exception that saturation was done with one per cent sulphurous acid and that drying was carefully carried out first at the ordinary temperature for 12 hours, and later at 60° for 5 hours. Yet these samples were not carbonized in any degree.

Finally, experiments were made with two samples of hydro-cellulose Hy I and Hy VII, of which Hy I was produced from Voikka sulphite cellulose by heating for about two hours with 1.8 per cent sulphuric acid under a pressure of 2 to 2.5 atmospheres. The product was washed out several times, first with water, and finally with a dilute soda solution, while Hy VII was produced from Kymmene sulphite cellulose by heating for four hours under a pressure of about 2.5 atmospheres with a dilute solution of sodium bisulphate, and only one washing out with water was made.

In estimating the exact behavior of the whole series of these samples of hydrocellulose, a clear idea is given by the circumstances that these substances are easily crumbled to a fine powder, but the determinations are further established by the following analytical figures:

Alkali Used in Titrating the Filtrate.

Sample No.	Copper No. (uncorrected)	Alkali solubility.[1]	Water absorption of the dry substance.[2]
Kuus. I 33 unbl.....	4.8	52.2%	10.42%
— " — bl.....	4.9	52.8%	9.82%
Kuus. I 34 unbl.....	5.1	66.5%	9 24%
— " — bl.....	4.7	59.6%	9.66%
Hy I.....	4.4	41.4%	10.24%
Hy VII.....	4.3		11.87%

[1] Cf. Schulz: Zur Kenntnis der Celluloseaiten, Berlin 1911.
[2] The drying test took place ina glass filled with water under a glass cover until all the samples reached constant weight.

Results of the extractions and titrations calculated on 5 grams of dry substance are reproduced in the following table in cubic centimetres of n/100 HCl, in which the minus figures given show that the water soluble extract had an acid reaction and also that a consumption of alkali occurred:

Quantity of Acid Used in Titrating the Filtrate.

Sample No.									
Kuus. I 33 unbl.—									
1	2	3	4	5	6	7	8	9	10
-83.5	-38.4	-7.01	-3.84	-1 80	-0.58	0.16	0.54	0.42	0.50
Sample No.									
Kuus. I 33 bl.—									
1	2	3	4	5	6	7	3	9	10
-53.7	-22 9	-2.72	-2.20	-0.91	-0.49	-0.04	0.93	0.20	0.09
Sample No.									
Kuus. I 34 unbl.—									
1	2	3	4	5	6	7	8	9	10	11
-43.3	-17.4	-6.80	-1.31	-0.97	-0.47	-0.53	-0.20	0.02	0.06	0.03
Sample No.										
Kuus. I 34 bl.—										
1	2	3	4	5	6	7	3	9	10	11
32.0	-16.6	-7.72	-1.40	-0.97	-0.50	-0.67	-0.32	-0.03	0.	-0 08
Sample No.										
Hy I—										
1	2	3	4	5	6	7	3	9	10	
8.96	1.98	0.82	0.67	0.55	0.42	0.21	0.32	0.38	0.27	
Sample No.										
Hy VII—										
1	2	3	4	5	6	7	8	9	10	
-1.06	0.32	0.25	0.26	0.30	0.19	0.12	0.26	0.58	0.31	

Oxycellulose.

From the sulphite cellulose previously mentioned, Kuus. I 35 (bleached and unbleached), after numerous extractions oxycellulose was thus prepared: About 5 grams of the substance was treated with 200 c.c. of sodium hypochlorite solution containing 3.44 grams of active (verksamt) chlorine, whereupon the solution was quickly saturated with carbon dioxide and kept for an interval of twelve hours at 40° C. Of the original chlorine content the residue contained as active chlorine only about one per cent. The liquid was for the rest feebly acid and 25 c.c. of the same required for titration with phenolphthalein as indicator 4 c.c. of n/10 KOH solution, corresponding to an acid titre of 0.016-n.

The substance thus obtained was washed several times with water, dried at 40° C., and pulverized. It had the characteristics of oxycellulose as follows, by cooking with alkali it gave a strong yellow color, by staining with basic dyes (victoria blue, fuchsin) it gave a far more intense color than ordinary cellulose. The characteristics as a whole are finally seen by the following analytical figures:

Sample	Copper No. (uncorrected)	Alkali solubility.	Hycroscopic or absorption power of the dry substance
Oxycellulose from			
Kuus. I 35 unbl.....			9.94%
— " — bl.....	34.6	81.7%	9.52%

This sample of oxycellulose was then extracted and titrated according to the method previously pursued, by which the following result was reached on 5 grams of dry substance, given in cubic centimetres of n/100 HCl. The minus numbers have the same meaning as that given in the other tables:

Quantity of Acid Used in Titrating the Filtrate.

Oxycellulose from							
Kuus. I 35 unbl.....	-1.36	-0.33	-0.03	-0.03	0.15	0.15	0.27
— " — bl.....	-1.41	-0.58		0.56	-0.06	0.12	0.12

The results so far obtained may be summarized in the following propositions:—

(1) By titration with iodine-eosin as indicator the water of the Kymmene river had an alkaline reaction and showed an alkali titre of about 0.00014-n in OH ions.

(2) The aqueous extracts of nearly all the samples of sulphite cellulose in the experiments showed a decidedly alkaline reaction. With repeated extractions with distilled water the alkalinity meanwhile showed a marked fall and with several samples the last extractions were nearly neutral, or in some cases slightly acid. In most cases bleached cellulose from the beginning

showed a somewhat weaker alkaline reaction than the corresponding unbleached, and was more readily brought to a neutral point than the unbleached.

(3) Some samples of cellulose, which were exposed to heating at 100° C., showed a marked acid reaction from that point, which, however, with repeated extractions with water became increasingly weaker, and finally went over into an alkaline reaction, a reaction which in other respects was somewhat stronger than the samples of cellulose showed before heating. As will be shown from what follows, cellulose possesses in a high degree the power to absorb electrolytes from their solutions, and because of this it seems to me not wholly inconceivable that the very noteworthy "acidify" of cellulose by prolonged heating cannot be wholly explained simply by the absorption of acid gases from the air For example, in the same room, where the drying oven with samples of cellulose is found, digesters with acid solutions are often installed in close proximity. This question seems to me to deserve a closer study.

(4) The sample of sulphate cellulose gave to water a strongly alkaline reaction, which after repeated extractions very slowly diminished. Likewise the water soluble extract of wood pulp showed an alkaline reaction.

(5) The water soluble extract of hydrocellulose had at first an acid reaction, but afterwards as the acid used in preparing the hydrocellulose was washed out, the acidity of the aqueous extract diminished, and the reaction finally became feebly alkaline of approximately the same strength as that of the sulphite cellulose used for the preparation of hydrocellulose.

(6) As mentioned before, the liquid after conversion of cellulose into oxycellulose by sodium hypochlorite showed a weak acid reaction. Similarly this was expressed by the circumstance that the first water soluble extract of oxycellulose was acid, but even here, as in the case of hydrocellulose, the acid reaction gradually changed to a weak alkaline reaction of about the same strength as that of the sulphite cellulose used as the original product.

The results mentioned in the two last points seem to be in harmony with Richter's conjecture that the basic reaction, which is met with as an exception in the case of certain samples of cellulose, must have its cause in the over-cooking of cellulose with the formation of alkaline hydro- or oxycellulose. As I have set forth previously, the reactions just named after several extractions are nearly the same in both hydro- and oxycellulose as in ordinary sulphite cellulose. At least in the samples of sulphite cellulose which I investigated, it is my opinion that we shall find the reason for these reactions more easily in the basic reaction noted in the case of the river water by which the washing out was performed. Meanwhile should the basic reactions be caused solely by the moisture content of the wet cellulose (about 75 per cent), so it follows: (1) In connection with the titrations previously carried out with the river water that the acid used on about 20 grams of wet cellulose with about 5 grams of dry substance and 15 grams of water represented about 0.2 c.c. of n/100 HCl, while in the same work higher values are often observed and (2) the reduction of the basic reaction depending upon the complete elimination of the river water by washing, is decidedly quicker than that which is observed. The only reason for this which remains is that the basic reactions of cellulose are in some measure related to the basic reactions of the river water, but that the cellulose fibres absorb from the water and concentrate in themselves thos esubstances with a basic reaction which the water contained; these can be extracted again from the cellulose only with extreme slowness by means of pure distilled water. To determine this great adsorptive power in ordinary cellulose as well as in hydro and oxycellulose the researchs which follow were made, and those show the same thing, that the adsorptive power is about equally strong in acids and bases; hence one can conjecture that all contain electrolytes. Here one may recall the researches of Schwalbe and Robsam on the adsorption by cellulose fibres of solutions of aluminium hydrate and aluminium sulphate (Wochenblatt f. Pap., 1912, 1454.)

Absorption of Basic Substances From the Water of the Kymmene River.

The cellulose samples previously mentioned were extracted many times Ky 23 (4.90 gr. dry substance) and Ky 24 (4.87 gr. dry substance), treated further with 150 c.c. of Kymmene river water, shaken thoroughly, filtered, measured, titrated, and estimated in terms of the original volume. The acid used in titrating sample Ky 23 represented 0.76 c.c. n/100 HCl and sample Ky 24 required 0.82 c.c. n/100 HCl. Since 150 c.c. of the same water used 2.42 c.c. of n/100 HCl by direct titration, one finds that the two samples of cellulose absorbed considerable quantities of substances of alkaline reaction from the water, corresponding in sample Ky 23 to 1.66 c.c. of n/100 alkali and in sample Ky 24 to 1.60 c.c. of n/100 alkali.

Adsorption of Acids From Dilute Aqueous Solutions.

The experiments belonging to this part of the subject were thus carried out: The fixed substances—the different kinds of cellulose, hydrocellulose and oxycellulose from the determinations just made—were treated with 135 c.c. of distilled water and 15 c.c. of n/100 HCl or H_2SO_4, thoroughly shaken and filtered; the filtrate was then measured and titrated. The results are estimated in terms of the original volume of liquid, 150 c.c. The cellulose, filtered off, was dried at 40° C., and thoroughly shaken again with distilled water. The alkali consumption of the filtrate obtained in c.c. of n/100 HCl, is given in the following table, in which the minus signs of cellulose sample Kuus. I 32 mean that the later water soluble extracts of this sample consumed n/100 HCl, when it went back to its original feebly alkaline reaction.

	Quantity of substance used gr.	Acid used	Alkali used in titrating the filtrate 1	2	3	4	5	6	7	8	9	Acid adsorption of the substance by the first extraction. estimated in 5 gr. and and given in c. c n/100
Cellulose Kuus. I 30 bl.	4.75	H_2SO_4	6.85	0.97	0.37	....	....	....	....	....	....	8.60
Cellulose Kuus. I 32 unbl.	4.35	HCl	....	....	0.21	0.11	-0.10	-0.35	-0.35	-0.21	-0.27	7.63
Hydrocellulose Hy I	4.0	HCl	6.73	0.64	....	....	....	....	....	....	....	10.36
Oxycellulose from Kuus. I 35 unbl.	1.7	HCl	6.69	0.49	....	....	....	....	....	....	....	24.41

Adsorption of Alkali From Dilute Aqueous Solutions.

These determinations were carried out entirely in a way analogous to the experiments with acids which have just been described, with the exception that the first shakings were made in a mixture of 135 c.c. of distilled water and 15 c.c. of n/100 KOH solution. The numbers in the following table give the quantities of acid used for the different extractions in c.c. of n/100 HCl:

	Quantity of substance used gr.	Acid used in titrating the filtrate 1	2	3	4	5	6	7	8	9	Acid absorption of the substance by the first extraction. estimated in 5 gr. and given in c. c n/100
Cellulose Kuus. I 30 unbl.	3.0	11.63	1.66	0.76	....	....	....	....	....	....	5.62
Cellulose Kuus. I 32 bl.	4.5	9.90	1.24	0.72	0.54	0.45	0.48	0.34	0.20	0.26	5.67
Hydrocellulose Hy VII	4.0	9.82	1.37	....	....	....	....	....	....	....	6.48
Oxycellulose Kuus. I 35 bl.	2.4	1.74	0.61	....	....	....	....	....	....	....	27.62

The data afforded by the numbers in the last two tables I cannot consider to be sufficient for any extraordinary conclusions, yet I cannot pass over the opportunity to fix the attention on the especially strong adsorption affinity of the samples of oxycellulose investigated both for acids and alkalies.

Sizing of Paper.

On closed analysis of the tables previously given of titrations of Kuusankoski sulphite cellulose, we find that the quantities of acid used in the 6—7 extractions in certain cases amount to a total of 5 c.c. n/100 HCl. Taking those which can be extracted with water the alkaline substances in cellulose are represented by calcium compounds with an alkaline reaction—and any others can very rarely come under consideration—so there must be, against the amount of acid used, an equal CaO quantity of 1.4 mg., or 0.028 per cent of the quantity of cellulose (5 gr.).

With respect to the question concerning the action which the alkalinity of cellulose may eventually have on the sizing of paper, I will mention here Klemm's[1] exhaustive discussion of the relation between the alum requirements of paper sizing and the water of manufacture, or quantity of calcium compounds in the cellulose. The author just named observes on this point that "the alum requirement conditioned by the water of manufacture is three times that of the amount of alum whose sulphuric acid content is necessary for the combination of the alkaline calcium oxide previously combined with carbonic acid."

Applying this rule to the case in hand which I consider not inapplicable, for the CaO content of 0.028 per cent in cellulose there must be a content of aluminium sulphate, estimated as $Al_2(SO_4)_3 + 18\ H_2O$,equal to 0.33 per cent of the cellulose, not including the quantity of aluminium sulphate which may be consumed by the calcium compounds subsequently added in the water, together with that which is used for precipitating the rosin. The two factors just named can be considered in a given mill as fairly constant, but this, on the other hand, is not the case with the quantity of aluminium sulphate required for the CaO content of cellulose. It seems to me that there is to be found here a certain possibility that this determination does not always give such an inconsiderable quantity as that in the foregoing descriptions, according to the titrations of cellulose carried out. How far such titrations give results of practical value, however, cannot be said unless one carries out extensive determinations simultaneously with observations of the sizing fastness of paper, prepared from cellulose of different alkalinity.

In one of the tables previously given it is shown that single samples of sulphate cellulose investigated had a very high alkalinity. All conclusions in the case of this substance certainly lie outside the scope of this research, but I will observe here that there is an essential difference in the fact that the alkalinity of sulphate cellulose probably depends upon a remaining content of NaOH, whie the alkalinity observed in the samples of sulphite cellulose examined originated in the calcium compounds with an alkaline reaction which are adsorbed by cellulose from the wash water.

[1] Wochenblatt f. Pap. 1907, 2557, 3015.

NOTES ON BEATING

By A. NOEL

(Translated for the Pulp & Paper Magazine of Canada, from La Papeterie, Dec. 10th, 1919.)

The purpose of the beating is not to cut the fibers but to separate and isolate them, so as to enable them to felt properly. The fibers must be separated, but they must also have a certain length, to give them flexibility. On considering the method of working of the cylinders, it will be noted that the fibers are treated alike over their whole length. The cylinders shorten and roll out the stock; they are therefore, so to speak, the fundamental basis of the fabrication and should be put in charge of an experienced man.

To obtain the desired results, the beaterman must therefore make his cylinders work properly. He should be well acquainted with the material he is given (hard or soft stock). A few instructions will doubtless be given him; but it is up to him to watch the working of his machine, to see if the roll works evenly on the bedplate and if the stock circulates properly so that no part of it lags behind the rest. A practical way of finding this out is to drive a stick into the stuff, on each side of the trough, and allow it to travel with the stuff; it will soon be apparent if the top and botom travel at the same speed. Hence, the beaterman should continually watch the working of the stuff.

Many German beaters were equipped with propellers in front of the cylinders to drive the stock forward. This is a useless waste of power, as a properly designed beater does not require propellers.

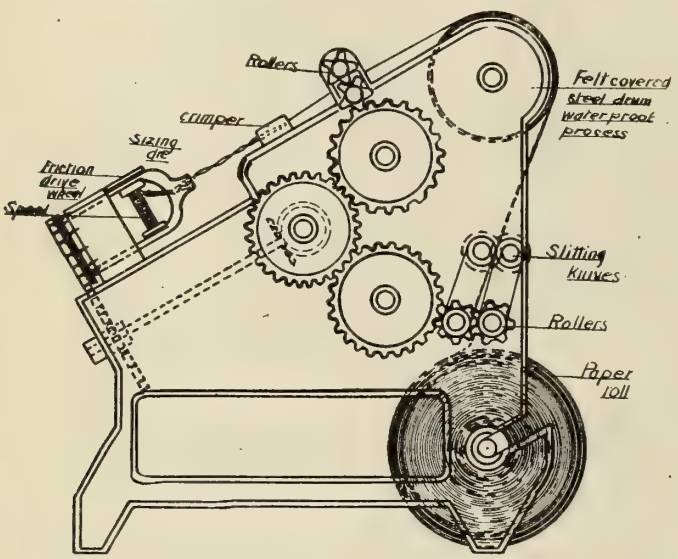
Rolls working on granite bedplates do not shorten the fibers, as they have no blades; they merely flatten them. They must work rapidly, as their prolonged action would damage the fibers, and would yield too wet a stuff which would roll on the wire, would drain with difficulty, would not felt properly, and could be advantageously used only for parchment, grease-proof, or similar paper. In such a machine, wet stuff is produced more quickly so that it has a greater capacity. They will be very useful when esparto shall come into more general use.

A NEW MACHINE THAT MAKES TWINE FROM PAPER ROLLS.

An automatic machine has just been perfected in Toronto for the manufacture of twine from paper, the inventor claiming it to be the only machine on the market that will make paper twine in the one operation.

The machine, when set up, occupies 3 x 5 feet of floor space. It is equipped for 96 spools, with an output of 140 feet per minute per spool, or an approximate total of 15,000 half pound balls of twine per day, using in the operation 18 tons of paper per day.

The machine is provided with a slipway, which will take a roll of paper up to four feet long. The paper passes between a set of rollers, then on between a series of slitting knives, which are adjusted to the width required. From these slitting knives the strips pass over a heavy felt-covered perforated steel drum. This drum contains the waterproofing material in the form of vapor, which impregnates the paper with sufficient waterproofing to ensure a finished, waterproofed product and also slightly moistens the strips, facilitating ready adaptability to the twist. From the drum the strips pass between another set of rollers to the crimping device, which is a saw-shaped orifice that greatly contracts the spread of the paper. From this



crimping device, as will be seen on the accompanying drawing, the constricted strips immediately enter the twisting device which is a combination of a small opening through which the strips are drawn onto an automatic turning and twisting spool. The opening through which the paper is drawn onto the spool is also a sizing die, ensuring a uniform size of twine. From this it is then ready for balling.

The patents on both processes and preferred type of machine are owned by the International Paper Products, Limited, of Toronto. P. R. Hoad, a Toronto man, is the inventor, and his brother, E. A. Hoad, a mechanical engineer, is the improver of the machine. The company is protected in the British Empire by patents pending and throughout the world by caveats which are in process of formation with the British Patent Office. The company intend manufacturing the finished product in Canada, leasing their machines on a royalty basis in such countries as it would be inadvisable to export to. It is expected that the product will be on the market early in April.

WHAT IS THE LIMIT OF SPEED OR WIDTH?

(*A Letter to the Editor.*)

In perusing the report in the Pulp and Paper Magazine on the recent discussion of the advantages of the wide machine as against the narrow machine, one is struck by the fact that to get any decisive figures as to the relative performance of so-called wide and narrow machines, conditions must as absolutely the same as it is possible to get them on both machines, such as (1) built by same maker;; (2) built on identical lines (except to size); (3) wires and clothing made by one firm of identical quality; (4) machines run by men of the same skill; (5) both machines to be supplied from some machine chest with identically the same stock (most important).

It appears that if these conditions could be got at any one mill, then there would be reasonable chance of securing some really reliable data. At the present time reliable data seem conspicuous by their absence.

Most people will agree with the retiring chairman, that the whole thing is a question of engineering, pure and simple, but it is fairly evident that the wider the machine, the more perfect must its mechanical construction be.

Another point on which little information was given is the question of increased speed over the present maximum of about 675 ft. per minute. Is there any reason to suppose that the average pulp mixture can be run over a machine at anything approaching 1,000 feet per minute? It appears very doubtful; but in any case it is useless to theorise, as a practical test alone will give the answer—that is—is it commercially practicable?

As newsprint paper is practically made on the grinder, the question of speed is intimately related with the average length and felting power of the ground wood stock. Anyone who has been used to closely examining G.W. stock by the microscope from day to day for years on end, is impressed with the fact that these qualities vary to a very great extent even in 24 hours, and in the best managed plant using A1 wood. To such a person the question of much increased speed on machines looks a stiff proposition.

Doubtless it would be interesting to have the opinion of mill superintendents on the two questions: (1) Ultimate conceivable limit of machine width; (2) Ultimate limit of speed possible with present raw materials.

WINNIPEG MILL TO USE WASTE

Waste paper is to be re-milled in Winnipeg by a new company, the Red River Paper Mills Company Ltd., according to an announcement made by directors. They expect to begin operations early this year and machinery is being installed in quarters secured on the Red River near Main street bridge. Winnipeg is estimated to have 10,000 tons of waste paper annually, of which about half is collected.

Fred T. Gilroy, treasurer and general manager of the company, stated that the site comprised 350 feet frontage on the Red River. The main building has three stories and 12,000 feet of floor space. Installation of the machinery is in charge of J. S. Hughes, formerly of Nova Scotia. The equipment includes three heating or pulping engines, one refiner and the paper machine proper. Electricity will be used for power.

Mr. Gilroy expects that 25 to 30 workers will be employed at first. He estimates that the price paid for waste paper in Winnipeg and the cost of collecting it is about $25,000 each year.

The Theory and Art of Coloring Paper

(Continued from Last Issue.)

In changing from one color to another on the paper machine, either the machine is shut down and felts, stuff chests, jordans, and lines, etc., are carefully hosed, or else in case the color change is a slight one, as for example in changing from a light to a heavy shade, a running change is often made without stopping the machine. For example, in a specialty mill where orders have been received for a white, yellow, pink, lavender, blue, green, grey and brown colored sheet, the following procedure might be used. Run the white first, make running change to yellow, then wash. Run the pink and make running change to lavender, then wash. Run blue colored sheet, make running change to green, then wash. Run grey and make running change to the brown paper. The first paper produced after each running change, will of course, be off shade and must be rejected and naturally better results will be obtained if the machine and chests are washed after each individual run of colored stock.

Hydration of stock by beating has a decided effect on the depth of the dyed shade. The more hydrated the stock, the less color will be required for the production of a given depth of shade. Glassine stock, for example, requires only a small percentage of the color to dye it to the same shade which would be required to dye the unbeaten stock.

Naturally, the quality of the paper largely determines the class of dyestuff to be used in tinting or coloring. It is self-evident that newsprint paper need not be colored with as permanent a dye as would be used in the coloring of a high grade bond paper.

The tinting of news, book and other paper by means of either acid or basic blues shaded by a red, is usually done by making a standard solution of the colors and adding a definite volume of the color solutions to the beater or mixer. In this way, as very small quantities of the dye are required, there is less danger of variation in shade of the finished paper than if the dye were weighed and added directly to the beater or mixer. For tinting news, a convenient strength of the stock solution is 2 lbs. of the basic blue to 50 gallons of water, and a stock solution of 1-lb of the basic red to 50 gallons of water, depending on the desired shade and strength of dyestuff from 6—10 quarts of the blue corresponding to 1—1½ oz. of dyestuff and 1 quart of the red, corresponding to .1 oz. of color are used for each 1,000 lbs. of stock. Stock solutions of the acid soluble blues are largely used in the same manner for tinting. Only such colors as will not precipitate, coagulate or decrease in strength on standing can be used for the preparation of such stock solutions. With pigment dyes, used for tinting, the color is to be weighed off for each beater as the tinctorial power is much less and in the form of suspension in water difficulties due to settling would occur.

In the production of whites of either a bluish or reddish cast, the blue dye neutralizes the yellow coloration of the stock producing a greenish shade, while the red neutralizes the green, producing the so-called "neutral grey." This grey, which is really a degree of black, is far less evident to the observer than the original yellow cast of the stock.

All of the larger dyestuff concerns maintain color laboratories and experienced technical men to match shades at the mill. It is advisable in submitting a sample to be matched to send some of the same pulp stock from which the paper is to be made. It is the writer's experience that laboratory dyeings can safely be reduced in quantity 20 per cent in the mill and it is advisable to color the first beater by reducing the amount of dye used by 20 per cent of the amount indicated by laboratory trials. It is always easy to add color, but it is a difficult matter to allow for over-colored stock.

After hand sheets made from the colored pulp or the direct comparison of the wet pulp with stock from a previously colored beater indicates that the pulp is properly colored and subsequently the paper as it comes from the machine shows the shade to be slightly off or too weak, the pulp may still be brought to the desired shade by the addition of a solution of the necessary color to the stock in the chest. Another method which was recently brought to the attention of the author is to color the first beater tending to keep the shade on the light side, drop three-quarters of the beater and after the paper is on the machine add additional color if necessary to the fourth of the stock held in the beater and drop the stock to the chest. This gives a more rapid and uniform mixing of the color than can be obtained by adding the color to the chest. In case the paper should be darker than the sample to be matched, then the only remedy is to drop a beater of less colored pulp and mix the stock in the chest with the expectation of lightening or correcting the final shade.

As already mentioned, calendering and super-calendering and water finishing have the effect of darkening the sheet and allowance should be made for the deepening of the shade by such treatment.

Suggestions for the Storing and Dissolving of Dyestuff.

Every beater room should be equipped with a color room where all the open kegs and barrels are stored. The door to this room from the beater room is to be kept shut and the floor should be kept dry. As soon as a keg or barrel of color is opened, the name of the color (for instance, DuPont Auramineo) should be stencilled in big letters prominently on the side of the container. The reason for this is that many aniline dyes, especially under artificial light, look practically alike in their dry state and innumerable mistakes have been and are being made by weighing out color from the wrong barrel. This applies particularly to many yellows, reds, browns, etc. Every beater room should be equipped with a tank to hold water just below the boiling point. Use a galvanized iron or copper pail, put in about 10 quarts of water, sprinkle in the color very slowly with your left hand while stirring with the right; not more than 1 lb. of dyestuff should be dissolved in the jail at a time. If color is dissolved in this way straining, while desirable, is not absolutely necessary. The color solution is not to be poured into the beater in one spot, but carefully distributed all over the open surface of the beater. In this way quick and even distribution is accomplished. The scale for weighing out the dyes should be kept clean and balanced daily.

The Identification and Testing of Dyestuffs for Shade and Strength.

Identification of Dyetuffss.

The identification of dyestuffs requires considerable experience and patience in the study of the color reactions by which they are identified. The writer does not believe it feasible to attempt to identify colors by chemical analysis as the number of dyestuffs used by the paper industry is large, and considerable experience is required in order to identify colors by this method.

The color houses identify colors by noting their reactions and color changes towards a few simple reagents. The general procedure is about as follows: First, determine whether the dyestuff in question is a single color or a mixture by the following method. (1) A small quantity of the dyestuff is placed onto the point of a knife or spatula and gently blown for some little distance onto a piece of wet filter paper. The dyestuff, in case the sample is a mixture, is separated into its component parts, each individual dye showing a different colored spot. These spots may then be tested as described hereafter, by spotting with various re-agents to identify the dye.

2. A small amount of the dyestuff is placed onto a knife point and then blown onto the surface of about 10 c.c. of concentrated sulphuric acid placed in a small porcelain evaporating dish. If the dyestuff if a mixture of two somewhat similar dyes such as an orange and red, a blowout on filter paper may be difficult to identify, but the second method of testing the dyes will give quite different color reactions with the acid, at once indicating that the dye in question is a mixture.

3.—Some dyes are mixtures obtained by mixing solutions of two coloring matters and evaporating to dryness. Such a mixture can be determined by making successive dyeings of skeins of cotton, tannin-mordanted cotton or wool depending on whether the mixture has been determined to be a substantive, basic or acid color. If the color is a single dyestuff then the skeins made by a series of dyeings to exhaust the bath will show a gradual shading down in strength of the same shade. If the dye is a mixture then the first and last dyeings will differ in shade. Allowance must, of course, be made for variations in strength of the different dyeing as such variations often cause an apparent variation in shade.

Identification of Class of Dyestuffs.

Only basic, acid, substantive and pigment dyes are used in the paper industry. The pigment dyes can be at once identified by their insolubility in water, as indicated when a blowout is made on wet filter paper to determine if the dye in question is a mixture.

Prepare a dilute solution of the dyestuff in water and in a test tube after addition of a few drops of acetic acid, warm some of the solution to which has been added a thread of boiled out degreased wool and of tannin-mordanted cotton.*

(a) The tannin-bordanted cotton is dyed indicating a basic color, or

(b) The wool is dyed indicating an acid or substantive dye.

In another test tube, place a cotton thread and warm the dye solution, adding a little Glauber's salt. If the cotton is dyed the indication is that the dye in question is a direct cotton dye. Remove the colored cotton thread to a fresh test tube containing distilled water, boil to determine whether the thread was really dyed or merely mechanically colored. e

If the dye under examination colors both the wool and tannin mordanted cotton, repeat the trial in a very dilute solution of the dye adding considerable acetic acid. If the dye is an acid dye it will color the wool, if basic it will stain the mordanted cotton. To substantiate whether the dye is a basic dye, add some tannic acid to a separate fresh solution of the dyestuff to which has been added some sodium acetate. If the dye is a basic dye a precipitate of the tannin dyestuff lake will occur. The operator, with a little experience, can often identify the class of dyestuff to which the sample belongs, by the difference in behavior in the rate and way of dissolving of the acid, basic and substantive dyes on making a blowout on moistened filter paper.

Identification of the Individual Dyestuff.

Having determined whether the dye is a mixture or single product and the class to which it belongs we are now ready to identify the dye and subsequently determine the brand and strength. A small amount of the dyestuff is placed in a small porcelain evaporating dish and from 3 to 5 c.c. of conc.sulphur acid are added. Note the color of the solution produced, also, if there is any evolution of gas, determine if it is carbon dioxide, hydrocloric acid, etc. (2) Add distilled water to the evaporating dish, note change in color and if there is a black or colored residue. (3) A solution of the dyestuff is poured in successive streaks over a piece of dry filter paper and on the respective wet streaks are dropped in succession a few drops of 10 per cent sulphuric acid, some 10 per cent ammonia and finally the third wet streak of the dye is treated with a few drops of 10 per cent caustic soda solution. Note change in color after the addition of each reagent. (4) A solution of the dyestuff is treated in a test tube with zinc dust and dilute ammonia; note any change that may occur in the cold; if none occurs warm gently, gradually raising to the boil if necessary. Note ease of color reduction or color change, also color of the foam that may form over the liquid. Then pour some of the solution so as to form two streaks across a dry filter paper. Note change of color in air caused by oxidation. Drop 10 per cent sulphuric acid on second streak . . . . note color change.

Individual tests, depending upon the chemical composition of the dye, are of direct assistance in identifying dyes, but the general method as outlined above will enable anyone who will take the necessary time to study the particular classes of dye he is using, to become familiar with routine dye identification.

The author has prepared a book for his own reference in which he divided the colors first according to groups, such as basic, acid, substantive colors, etc. Then under the heading of basic dyes, for eaxmple, there is a subdivision into yellow and browns, reds, blues, and violets, greens and blacks, giving the color reaction for each of the basic dyes. As there are only a few basic colors on the market under each one of these sub-heads,

*Tannin-mordanted cotton can be prepared by boiling out some cotton yarn, then entering yarn into a bath at 140° F. containing 3 per cent tannic acid based on weight of the yarn. Raise bath to 200° F., hold for one hour. Steep over night, next morning wring and dry, don't wash. Dissolve 1 to 1½ per cent tartar emetic in water, enter dried yarn at 110° F., hold one-half hour, wash and wring evenly.

it is comparatively simple to take any color such as a basic blue and identify the particular dye.

The dye tester should obtain from the various color houses authentic samples of all their various dyes used for pulp coloring so that if there is any question on the identification of a dye, he can compare the reactions of the unknown with his standard.

Dye Testing for Strength and Shade.

The dye tester requires the following equipment:—(1) Baby beater of 1 lb. or 2 lb. dry stock capacity. (2) Small screen to thicken the pulp from the beater. A screen can be conveniently and cheaply made by cutting the bottom from an ordinary galvanized iron pail and covering it with a piece of paper-machine wire and reinforcing on the outside with coarser and heavier wire. (3) A suction pulp mold or funnel made from heavy sheet copper with a paper-machine wire screen, reinforced with a coarser wire screen. A convenient size is one that will make a pulp sheet about 7 inches in diameter. The end of the mould or funnel is fitted with a rubber stopper so that it can be mounted in either a suction flask or, preferably, in a large copper receptacle fitted at the bottom with a stop cock so as to let the back waters drain away when the box is not in use. Suction may be obtained by the ordinary suction water pump or preferably through a pump using a large intermediate vacuum chamber, so as to secure a constant suction when the mould is in use. (4) Several thicknesses of old canvas dryer felt, cut about 18 inches x 18 inches to be used with filter paper to couch the sample. A rolling pin of the ordinary type used for domestic purposes to couch the sheets. (5) A dryer, preferably one with a drum made of copper 4 ft.—5 ft. in diameter, steam heated and caused to revolve so that the pulp sheets are carried in between the surface of the hot drum and the dryer felt. The writer has recently seen an electrically heated dryer used for the rapid drying of photographic prints that might be of interest in this connection. (6) A power-driven calender, preferably three roll high to finish the sheets. (7) A series of power-driven stirrers to stir the pulp while dyeing. (8) A small tissue-dyeing machine to dye small rolls of narrow paper, about 6 inches—8 inches wide, by passing the paper through a color box and squeeze rolls to remove excess of color. This machine can be made in any machine shop, but is not used where paper is dyed in the beater but only used where paper is dyed in the web form by dipping. (9) An experimental calender dyer, consisting of a three roll stock with a small color box to calender dye small samples of board. This is only used where studies have to be made on calender coloring. (10) A supply of one-quart white enamelled cups, large enamelled pails, stone-ware crocks to hold pulps, casseroles or enamelled dishes to dissolve the dyes, and glass-ware, such as stirring rods, liter flasks, liter wide-mouthed glass bottles, pipettes, graduates, etc. A rough balance sensitive to .01 gram for weighing pulp, and a chemical balance are required.

Most of the above equipment can be purchased on the open market or some can be made in the machine shop at less expense.

Preparation of the Paper Pulp.

In case a shade is to be matched it is essential that the laboratory dyeings be made on the same stock as will be used for the commercial run of the paper that is being matched. If the color is being evaluated in comparison with other competing dyes, then the following stock mixture may be used to advantage:

50 per cent unbleached sulphite.
30 per cent ground wood.
20 per cent bleached soda.

In a majority of cases, however, a single stock such as 100 per cent unbleached sulphite is used for making dyestuff comparisons.

It may be desirable, of course, to use the same stock for color evaluation which is being used at the mill or the above combination may be used. The stock, after beating in the experimental beater, is dropped into the drainer and kneaded in small amounts by hand, to remove the excess of moisture until no more water can be squeezed from the pulp. The stock is then stored in covered stone-ware crocks, after the same has been thoroughly mixed by hand. Certain pulps, such as jute, manila, kraft, old news, etc., are readily attacked by mould and bacteria, so that when fermentation or bacterial change occurs, indicated by color or odor of the pulp, it is advisable to prepare a new supply of pulp.

A 20 gram sample is weighed out on the rough balance, placed in a one-quart enamelled cup, to which is added about 150 c.c. of water or enough to cause rapid circulation of the stock during stirring. When the stock is completely opened, the cup is filled nearly to the brim with water. The diluted pulp is poured into the mould, the suction applied and the sheet formed. The suction is then turned off and the sheet carefully loosened on one side by means of a spatula. The sheet, by a rapid motion can be lifted from the screen and placed on two sheets of filter or other unsized paper laid on two or more thicknesses of canvas. The pulp sheet is covered with two pieces of filter paper, then with two canvas sheets, and is then couched by rolling with an ordinary rolling pin. The sheet may be now marked with an indelible pencil for identification, and dried on the dryer. From the dry weight of the pulp sheet, the weight of wet pulp required to produce a 3 or 5 gram dyeing, can be calculated. Three grams of dry pulp will form a good sheet of proper thickness using a mould 7 inches in diameter.

The dyestuff solution is ordinarily made of a strength of 0.5 or 1.0 gram per liter. With basic dyes, to hasten the solution, make the dyestuff into a paste with 10 c.c. of a 25 per cent acetic acid solution, then dissolve with a small amount of hot water. Auramine dissolved with the aid of acetic acid loses somewhat in tinctorial strength. Make the solution up to 1,000 c.c. in a graduated flask, using cold water. The solution is then transferred to a wide mouthed liter bottle which is then properly labelled or more conveniently tagged with a string tap slipped over the neck of the bottle. Attention should be paid when dissolving to note ease of solution, residue to tarry matter that might be present and any other peculiarities of the dyestuff.

Before making dyeings of two or more submitted colors, as for example, in testing a basic blue, samples of which have been submitted by various color houses, time will be saved by making pour-outs on filter paper of solutions of the same strength of the two dyes under examination. In this way the operator can roughly estimate the relative strength of the dyes, so enabling him to put on his first set of dyeings roughly comparable with the actual strength of the dyes. If one dye is very much stronger than the other, dilute with a known volume of distilled water, a small sample of the stronger measured accurately with a pipette and make a rough comparison for strength of the two dyes. For a three-gram bone dry paper dyeing use:

10 c.c. dyestuff solution 0.5 g. per 1,000 c.c. water (0.16 per cent).
2 c.c. rosin size solution 1.0 gr. per 50 c.c. water (1.33 per cent).
3 c.c. alum solution 1.0 gr. per 50 c.c. water (2.0 per cent.)

The weighed amount of wet pulp, to which 150 c.c. water are added is stirred until all the lumps of pulp are broken, then the dyestuff and after a few minutes the size and finally the alum are added. After running ½ an hour, remove the cup, fill to near the brim with cold water and make the sheet. In drying the sheet reverse from time to time. This hastens drying and also avoids any danger of "burning" the color to the surface. By judging the strength of the finished dyeing against equal-weight dyeings of the standard, it is possible to determine whether the dyestuff in question is weaker or stronger. Another set of dyeings can then be made and trials repeated until the dyeings all show the same color strength. Price and strength comparisons can then be made.

Pigments are tested in a similar manner excepting that a suspension of the pigment (10 grams per 1,000 c.c.) is used and the pulp and color should be stirred one hour. It is advisable to rub up the pigment with water by means of a pestle, pouring off the liquor with the pigment in suspension. This is repeated until all of the pigment has been transferred to the liter flask, the contents of which are then poured into the wide-mouthed solution bottle. After standing, the pigment settles, the degree of settling, which should be noted, depending upon the particular pigment, so that the bottle must be well shaken or stirred to secure a fair sample.

It is difficult to estimate by eye the relative strengths of yellow dyeings. Auramine is, therefore, usually tested by making mixed dyeings of auramine and a red dye such a safrannine. The auramine of higher tinctorial power will throw the resultant shade more on the orange cast than will the weaker auramine. Auramine may be tested as follows:

Three gram pulp sample—
10 c.c. uramine solution 0.5 g. per 1,000 c.c. (0.16 per cent).
25 c.c. safrannine solution 0.1 g. per 1,000 c.c. (0.08 per cent).
2 c.c. rosin size solution 1.0 g. per 50 c.c. (1.33 per cent).
3 c.c. alum solution, 1.0 gr. per 50 c.c. (2.0 per cent).

Auramine is sometimes tested by dyeing with a basic green such as victoria green. The stronger the auramine the more yellowish will be the shade of the green dyeing.

The eosine colors, such as true eosine, and the rose bengals, phloxines, and erythrosines are usually dyed using lead acetate (sugar of lead) to increase the brilliancy and the desirable bluish cast of the dyed shade. Lead acetate also makes an insoluble color lake with these dyes, thereby tending to precipitate the colors and produce clear back waters.

Eosines may be tested as follows:

Three gram pulp sample—
10 c.c. dyestuff solution 0.5 g. per 1,000 c.c. (0.16 per cent.
6½ c.c. lead acetate solution 1.0 g. per 50 c.c. (4.3 per cent).
2 c.c. rosin size solution 1.0 gr. per 50 c.c.) (1.33 per cent).
3 c.c. alum solution 1,0 g. per 50 c.c. (2.0 per cent).

The amount of sugar of lead is 2.2 times the quantity of alum used.

Dyeings of certain of the direct blues and some of the direct sky blues, are made more light-resistant by after-treating in the beater with copper sulphate. This is of special importance for wall papers. For light shades using up to 1 per cent dyestuff add 2 per cent of copper sulphate, for heavier shades use equal weight of copper sulphate and dyestuff.

The results obtained by dye-testing a given dye are usually reported as pounds of color required per 1,000 lbs. of paper stock. Colors cannot be matched or evaluated, according to the author's experience, by means of standard solutions which are compared for color strength by means of a tint photometer or colorimeter. Dyes to be used for paper coloring must be tested on paper and should not be compared by dyeing made on textiles or other material as the color shade and strength developed by pulp dyeings may be entirely different from results obtained by dyeing on other materials. Solutions of many of the aniline dyes, especially basic dyes, do not keep but lose in tinctorial power by standing. It is, therefore, advisable never to use solutions of aniline dyes more than one day old for either color evaluation or the matching of shades; this, however, does not apply to suspension of pigments.

The following table may be of interest. Conversion of c.c. (solution of 0.5 g. dyestuff per 1,000 c.c.) per 3 gr. paper stock into ounces of dyestuff per 1,000 lbs. of paper stock:

Solution: 0.5 g. dye 1000 c.c. water.	Oz. dye per 100 lbs. paper stock.
0.05 c.c.	1/8 oz.
0.10 c.c.	1/4 oz.
0.15 c.c.	3/8 oz.
0.2 c.c.	1/2 oz.
0.25 c.c.	5/8 oz.
0.30 c.c.	3/4 oz.
0.35 c.c.	7/8 oz.
0.40 c.c.	1 oz.
0.45 c.c.	1-1/8 oz.
0.50 c.c.	1-1/4 oz.
0.75 c.c.	2 oz.
1.00 c.c.	2.6 oz.

(*To be Continued.*)

DANGER OF OPEN KNIFE SWITCH

Less than a year ago the audience in a St. Paul theatre was startled to learn that a young lady member of the company had been burned to death during the performance while standing in the wings. Her clothing had caught fire from the arc of an open knife switch and help came too late to save her. Somebody was responsible. Somebody knew the hazard. Furthermore, somebody today knows that there were over $7,000,000 worth of open knife switches sold in 1919—adding several millions more electrical hazards. Somebody has manufactured and sold—not only a dangerous device—but a pernicious principle.—D. H. Colcord in "The Dotted Line" of the Square D Company.

Alaskan Pulpwood and Its Use

Much has been written of the enormous forests of Alaska, causing one to wonder why no pulp mill is built there. The following portion of an article in Bulletin 25, of the News Print Service Bureau throws an interesting light on the subject.

The policy of the Forest Service in Alaska has been and still is to offer sufficient quantities of pulp under an initial contract to supply a new enterprise for not less than twenty years, and to insure a further supply for such a plant by reserving additional large quantities of pulp wood, properly located for the plant in question, from all other use or disposition until the initial contract should be cut out. The pulp wood offered has been priced at low rates, conforming to the general scale of stumpage prices in Alaska, representing the very low timber values obtaining in an inaccessible and undeveloped region. The Service has felt it necessary in the public interests to provide in its contracts for a reconsideration of these stumpage rates at intervals of five years, beginning when actual cutting operations commence, with an opportunity to increase the stumpage prices if an unprejudiced and expert apprisal of the operating conditions at the time of reapprisal showed that pulp wood of the quality and in the location of the material under contract actually had a higher current value.

This is the general policy which the Forest Service has followed for a number of years in all sales of National Forest timber of extended duration. There are no fixed or arbitray increases in price. Increases are only made if a reapprisal shows that the actual value of the stumpage being cut, as established by definite and ascertaining operating and market conditions in the region has advanced over the initial rates. It should be borne in mind that operators under such Forest Service contracts actually pay for their timber only in very small quantities, month by month, as it is cut. No advance payments on the enormous value of the timber covered by the contract, in such cases as those described, is required. The purchaser has no interest to pay on investments on standing timber, a necessary feature in any exploitation of private land, no taxes, no protection charges, no carrying charges of any sort on twenty or twenty-five years' supply of raw material, whose availability to his plant is absolutely assured and which he in fact controls under a firm contract. Under this method of selling stumpage, the Forest Service regards it as only equitable to the operator and as essential to proper trusteeship of the public property involved that the operator should pay a fair going price for the timber as it is cut, as determined by a reconsideration of that price at intervals in this case, of five years. Many National forest purchasers in other instances have found that they can rely upon the good faith and public responsibilities of the Forest Service not to apply the right to reappraise stumpage rates in any arbitrary or inequitable fashion; and there is no reason why the same confidence could not be shared by operators under long-term pulp sales in Alaska. This method is now accepted practically without question by purchasers of sawtimber and other products in various Western States. The Forest Service would not be representing the public efficiently if it permitted such long-term contracts to be made without an adequate provision of this nature which insures that the public should receive the fair going market value of the material which the exploiter obtains.

Pulp Sales in British Columbia.

Practically all of the pulp timber of British Columbia is on provincial lands and its utilization is under the control of the provincial government. A special effort was made by British Columbia in 1901 to promote pulp developments. A law in that year authorizes leases of provincial land for pulp operations, to cover a period of twenty-one years. The lease was subject to a royalty of 25 cents per cord, together with an annual ground rent of 2 cents per acre. No provision was made for the protection of young growth or the regeneration of cutover areas. These leases were to be renewable at the expiration of twenty-one years, subject to a revision of the royalty and of the other terms. There were several failures among the early attempts to establish pulp plants in British Columbia under the terms of this law; but by the present date four large pulp developments have been launched and are now operated.

The law of 1901 has been repealed because its terms were regarded as too lax. At the present time pulp timber can be obtained in British Columbia under its general timber license system.

(See Pulp and Paper, March 4, 1920.)

The terms to be applied in future pulpwood licenses are now under consideration in British Columbia; and it is probable that increases in the pulpwood royalties will be provided. In other words, the very liberal terms offered by British Columbia under its former law have now been revoked and pulp operators in that province hereafter face the definite probability of increases in stumpage prices which may be just as much or more than any possible increases applied in Alaska under the system followed by the United States Forest Service. It is, therefore, not true that at the present time the terms offered to pulp operators in British Columbia are more liberal than those offered by the Forest Service in Alaska.

Why Alaska's Pulp Resources Have Not Been Developed.

The sale terms offered by the Forest Service in Alaska have had nothing to do with the delay in the development of this industry. The real reasons are as follows:

(1) The enormous transportation problem, both as to distance and lack of transport facilities. Prior to the war, the prevailing prices for news print and other pulp products did not permit the manufacture of these products in Alaska on a competitive basis with existing eastern manufacturers, owing to the enormous freight charges for moving Alaskan products to the principal centers of consumption. Several of the earlier enterprises in British Columbia failed for the same reason. The transportation difficulty applies both ways, since a pulp plant is an enormous consumer of coal, chemicals and other supplies, all of which, with the exception of coal, would have to be shipped into a manufacturing site in Alaska at a cost far in excess of that obtaining in the supply of existing pulp-manufacturing plants in the Eastern States.

(2) The general isolation and lack of development in Alaska, particularly the utter absence of local labor

of the qualifications necessary for pulp and paper factories. The pulp manufacturer in Alaska faces the necessity of building a new town in the wilderness, with wharves, supply facilities of all kinds, of developing his own local transportation, which usually means a number of steamers, and of transporting the greater part of his labor bodily to the new location from old centers of this industry in the States. This is the second factor of great importance in determining the possibility of developing a successful industry in Alaska on a competitive footing with that industry as now established in old centers of production.

(3) The very large investment required for the installation of pulp and paper plants, together with the water-power developments necessary for their operation. It would require probably not less than $4,000,000 to launch such an enterprise in Alaska. This investment would be greater than for a plant of similar capacity in one of the older pulp-producing regions because of the high cost of transportation on all material and machinery shipped to Alaska and because of the necessity for developing local facilities in the way of towns, dockage, and local transportation. For this reason, under the general competitive conditions existing prior to the war, conservative investors have been unwilling to support an enterprise having so many adverse features.

(4) Unsatisfactory Federal legislation with reference to the development of hydro-electric power on National Forests and other public lands. It has been impossible hitherto to give any company desiring to undertake electric-power developments a firm permit for a stated period of years. The only form of permit which could be offered for such enterprises has been one which by its terms is revocable at the discretion of the Secretary of Agriculture. This situation discourages the development of hydro-electric power, an essential adjunct to any pulp enterprise and one usually involving a very large investment in itself. The Forest Service has endeavored consistently to obtain power legislation from Congress which would remove this difficulty. Such legislation is now pending.

In comparison with these physical and economic obstacles to pulp developments in Alaska, the effect of any increases in price paid for the stumpage, under the requirement of the Forest Service concerning reapprisals at five-year intervals, is a wholly negligible factor. It is safe to say that no development company which has determined that a pulp enterprise in Alaska is feasible from the standpoint of transportation and the other really big factors, and which is prepared to finance the undertaking, would hesitate a moment to go ahead with the enterprise because of the terms offered in Forest Service sale contract . This is demonstrated by the fact that many sale contracts under identical or stricter requirements have been made for large timber operations in National Forests elsewhere; and are being made every month.

STRANGE CASE OF STRANGULATION.

On Saturday evening, Feb. 14, Mr. P. E. Drouin did not turn up as usual at the block pile, and when it had been ascertained when he had punched at about six o'clock, fellow-workmen instituted a search for the missing man. He was found lying where he had slipped and fallen in such a position that his head was twisted causing strangulation.

PULP AND PAPER EXPORTS FOR OCTOBER.

In order to complete the record of Canada's foreign trade in pulp and paper for those who may want to refer to it in the future, we print the October report at this late date. It was issued Dec. 29, but for some reason overlooked till now.—Ed.

Canadian exports of pulp and paper for October were the largest for any month in the history of the industry, reaching a total valuation of $11,863,578, an increase of $3,533,021 as compared with the preceding month and of $5,301,636 as compared with the corresponding month of last year. They were made up as follows:

Month of October	1918	1919
Paper and Mfgs. of	$3,251,500	$5,954,916
Pulp, chem. prep.	2,914,255	3,965,946
Pulp, mech. ground	396,187	1,942,716
Totals	$6,561,942	$11,863,576

Newsprint formed the chief item of paper exports, amounting to 1,414,860 cwts., valued at $5,024,934, some of the largest importing countries being:

	cwt.	value
United Kingdom	57,212	$ 213,534
United States	1,234,768	4,375,185
New Zealand	43,747	152,700
Australia	56,482	194,933

The Argentine Republic, Brazil, Cuba, Peru and other countries also figured as buyers of Canadian Newsprint.

Next to newsprint, paper boards figured in importance, their value being $380,967. Kraft wrapping paper exported amounted to $358,762 and roofing paper $41,133 in value.

In chemical pulps the United States, Japan, New Zealand and the United Kingdom ranked as buyers in the order named.

The tremendous increase in the quantity and value of the groundwood exports is largely accounted for by United Kingdom buying, that country taking 1,228,280 cwt., valued at $1,091,242, as compared with none at all in October 1918. Exports of groundwood to the United States in October 1919 practically doubled in value compared with 1918, while France figured as a buyer for the first time since the war, taking 268,603 cwt. valued at $237,430.

Exports of unmanufactured pulpwood for the month amounted to $596,486, compared with $652,634 for October 1918.

For the first seven months of the Canadian fiscal year exports of pulp and paper reached a total value of $55,609,550 an increase of $8,810,416 over the corresponding period in 1918 and of $18,821,645 over the same period in 1917. Figures for the seven months follow:

Seven months	1917	1918	1919
Paper	$20,808,284	$25,073,415	$33,074,162
Pulp, chem.	11,455,040	18,817,444	17,974,334
Pulp, mech.	4,524,581	2,908,275	4,561,054
Total	$36,787,905	$46,799,134	$55,609,550
Pulpwood	5,478,900	9,980,535	5,686,179
Totals	$42,266,805	$56,779,669	$61,295,729

Do not fail to notice all danger signs and, if possible, see that no one disregards them.

Double Shift Required to Load China Clay

By W. Tretheweg, St. Austell, Eng.

Since my last note transport facilities have much improved and there seems to be a general desire on the part of the railway authorities to speed up china clay traffic and to accelerate the loading of boats at Fowey so that there is now every prospect of the Canadian shipments becoming more regular than has been the case for the past few years.

The state of the Cornish clay industry during the latter part of 1919 had become so precarious that a dead-lock was almost feared. The Government was urging all manufacturers to produce and produce in order to improve the conditions of the country and to absorb the increasing unemployment. Needless to say the Cornish china clay industry responded and increased production until their works became congested only to realize that they could not possibly obtain the railway facilities to get away the orders when they were ready. The situation was discussed with considerable warmth by all the local authorities and it was resolved to send urgent representations to the railway authorities and also to the Minister of Transport.

At this point a cablegram was received by the China Clay Association from Mr. Walter Sessions who had gone to America and Canada on business concerning the American and Canadian markets. Mr. Sessions cabled "Larger Consumption of China Clay in the States than ever. Alarming reduction of shipments from England mostly due to want of better loading facilities at Fowey. Please press for night loading and completion of new jetty to save situation."

This cablegram naturally gave a considerable impetus to the Emergency Committee of the China Clay Association and a deputation was immediately appointed to wait on the district traffic manager at Plymouth—as Fowey and the clay traffic came under their jurisdiction. The deputation included Mr. T. Medland Stocker, J. P. and Mr. J. S. Lovering, joint managing directors of The Associated China Clays, Ltd, Mr. R. R. French, the European representative of The Paper Makers Importing Co., of Easton, Pa., U S. A., Mr. W. Rose, J P., principal of the firm of Messrs. North and Rose, S. Austell, who also represented several large American and Canadian buyers. Mr. J. . Carter, representing the ship-broking interest at Fowey, Mr. Rockingham Gill, a large China Clay landowner representing the China Clay Owners' Federation, and Mr. Samuel Benson, the assidious secretary of the Associated China Clays Ltd. The deputation was duly received and notes of the grievance were taken down. The railway traffic managers contended however, that the shortage of trucks and locomotives was accountable for the delays, but the utmost consideration would be given to the wishes of the deputation and they withdrew.

As there was no reply after a fortnight's wait the Emergency Committee met again and the American cablegram of Mr. Sessions was transmitted to the chief traffic manager at Paddington, the head offices of the Great Western Railway, together with the following telegram from the Committee. "Deputation representing China Clay industry visited your Plymouth offices a fortnight ago, endeavoring to remove the congestion at Fowey and suggested working No. 4 Jetty (equipped with electric elevator and conveyor) sixteen hours, two shifts of eight hours each instead of one as at present. Your Plymouth managers suggested a shortage of locomotives. We would point out that locomotives are being used for longer distance traffic to Plymouth and Falmouth with China Clay consignments to America and also Canada whereas if No. 4 jetty had been worked for a double shift sixteen hours instead of a single eight-hour shift, this clay would have been loaded at Fowey thus saving locomotive power. We understand this country is useing increased exports in order to counterbalance food imports. Would point out that No. 4 jetty, the machinery installed therewith, is capable of working twenty-four hours. Labor distress in this area is very serious. The whole of the difficulty can be relieved by extending the hours of working No. 4 jetty. Am sending copy of this telegram to the Board of Trade, Ministers of Labor and Transport, and members of Parliament for the China Clay County of Cornwall. We understand new arrangements are coming into force whereby wagons will be placed earlier in position for loading at Clay-works. This will be advantageous but it does not touch the fringe of the difficulty at Fowey. Clayworks are still more congested and unemployment increased. Urgent representatives are being made by the S. Austell Urban District Council, the S. Austell Rural District Council, The Cornwall Labor Advisory Committee, and the Joint Industrial Council of the China Clay and China Stone industry."

In transmitting a copy of the foregoing telegram to the Cornish Members of Parliament, Mr. Benson, the secretary, wired, "In view of the grave situation in China Clay industry owing to lack of transport facilities, involving the holding up of export trade and increasing the already widespread unemployment, we are relying upon Cornish members to do their utmost to remedy the dead-lock."

After the Receipt of the Telegram

The member representing the China Clay district of S'Austell, Commander Sir Edward Nicholl, with his usual adroitness, was soon on his feet in the British House of Commons. Commander Sir Edward Nicholl asked Sir Auckland Geddes whether he was aware that men were being discharged from the Cornish China Clay Works and many more were under notice to leave in consequence of the shortage of railway trucks. Sir Auckland Geddes in replying stated that he was aware that the china clay industry at S' Austell, was together with many other districts, suffering from a shortage of railway trucks, and the possibility of improving the situation was engaging the attention of the Minister of Transport. Sir Edward Nicholl, M.P. did not content himself by merely bringing the matter to the notice of the Minister of Transport but he visited other Government departments and had conferences with Sir Eric Geddes and Sir Rhys Williams, and obtained assurances that an early improvement may be expected.

Captain Lewis Peters of the firm of Messrs Parkye and Peters and a member of the S'Austell Rural District Council was deputed by that authority to visit the Government Departments in London with regard

to some local road schemes and accompanied by Sir Edward on a visit to several of the leading Ministers. They were informed by the Minister of Transport that the railway wagons were being returned from France at the rate of 500 per week and that the ministry would allot as many as can possibly be spared for the China Clay industry of Cornwall. Mr. T. Medland Stocker, J. P. who was in London as a member of the deputation appointed by the industry, sent the following telegram to Mr. Benson, the secretary, "After urgent representations at meetings held with various Government Departments and with considerable assistance from Mr. Joe Harris, the representative of the Workers Union, Mr. Roberts, the general manager of the Great Western Railway, has promised that No. 4 jetty at Fowey shall work sixteen hours and has placed contract for No. 8 jetty to be completed forthwith. Please cable giving full details."

Mr. Benson also received a telegram from the Ministry of Transport stating that the general manager of the Great Western Railway has the matter fully in hand with regard to delays at Fowey. Steps are being taken at once to accelerate port loading with a view to removing congestion. Mr. Benson also received letters from the Prime Minister, the President of the Board of Trade, stating that the matter of transport difficulties was receiving special attention.

The success of the combined efforts of the local authorities and the solid combination of the industry has emphasised the value of publicity and propaganda in connection with the many difficulties experienced. The cablegram coming from Mr. Sessions at a most opportune moment and the telegrams and deputations to various Ministers were heartily supported by the local and the London Press, so that all associated in any official capacity with either of the Departments concerned could not very well escape the subject on opening their morning's papers.

While the industry is to be heartily commended for the enterprise displayed in the solution of such a difficult problem, yet it is only fair to admit that the British railways have been considerably overtaxed because of increasing traffic and the fact that much of the rolling stock is still in France and under repair. One of the chief causes for such an abnormal congestion on the railway was strikingly told by no other than the Prime Minister himself. Speaking on December 11th to a deputation of manufacturers, Merchants and trade Unionists, Mr. Lloyd George gave a typical illustration of the chaos in transport.

"First of all and foremost," said the Premier, "the traffic which formerly went by sea has been diverted and it now goes overland. If you leave it to the individual trader he takes the cheaper route and you cannot blame him. Take for instance the China Clay from Fowey. Before the war the clay was generally carried from the various ports near S'Austell by small coasters to Runcorn and thence by Canal to Staffordshire. Now it goes entirely by rail. Why? Because of the scarcity of small trading vessels shipping freights have gone up abnormally, while railway rates remain practically the same as before the war, consequently there is no other course open to china clay producers than railway transport and what applies to the china clay industry naturally applies to several other industries."

In a conversation with an old established ship-broker at St. Austell, I was informed that the high prevailing rates for sea borne clay to Runcorn are the result of the heavy loss inflicted upon our smaller craft by the German submarine and the fact that those boats which had escaped the German menace were obtaining better rates elsewhere. As the Emergency Committee of the industry were successful in speeding up the railway transport they will be found equally capable of solving the local shipping trade at the earliest moment. but the trade is very fortunate in having an increasing accomodation for their American and Canadian consignments particularly if the boats are not delayed at Fowey.

Americans Interested.

I had an interesting interview with Mr. Ralph R. French, the European representative of the Paper Makers Importing Co. of Easton, Pa., upon his return to England from an extended visit to the firm he is ably represents. Mr. French stated that in the spring of 1919 the American and Canadian shipments were most discouraging, being down almost to their lowest ebb. In July and August there were several heavy shipments and there were sufficient boats chartered to keep Fowey working continuously throughout October, with a fair prospect of a very busy end of the year. Mr. French referred to a large boat which he had which was detained at Fowey for quite a fortnight because so many other boats were nominated before this one and of course claimed priority.

This emphasizes the necessity of better facilities at Fowey and it also indicates that the American and Canadian markets are recovering. In the early part of last year manufacturers were no doubt confronted with similar troubles to our own, so that there seemed to have been a natural hesitancy about developing business other than what was absolutely necessary The unsettled conditions existing in various docks and various key industries retarded all developments which ought to have followed the armistice. However, trade is once more becoming brisk and happily it may be said that many industries across the water are righting themselves and the demand for Cornish clays will soon assume its usual proportions. As importers of Cornish clays for many years it was most essential for Mr. French's firm to obtain a continuity of supply and as better facilities are obtainable and with a more satisfactory labor outlook there ought to be no reason why Cornish products cannot be better guaranteed in the near future.

Mr. and Mrs. French returned to England on the S.S. Carmania and were accompanied by Mr. C. H. Knight, the secretary of the Paper Makers Importing Company. Mr. Knight is now the principal administrator of a large business established by his father, Mr. John Knight (who is now an ortogenarian) more than 50 years ago. Owing to Mr. Knights's inability to obtain a prompt return passage he sailed on the Japanese steamer "Tokishima Main" which was taking a consignment of clay from Fowey to New York and it is believed that Mr. Knight was the first clay shipper to sail from Fowey on a clay steamer.

During the latter part of August two China clay works were offered by public auction occasioned by the death of the principal partner. The works were sold with the stocks of dry and wet clay on hand as well as the whole of the buildings and equipment. There was a large attendance and the bidding in both lots became spirited. These works are situated in the eccleciastical Parish of St. Austell and are connected with the railway. The smaller of the two lots realised £11,000. and the other £17,800, figures

which show that the value of such properties is being well maintained.

Extensions to the Industry.

The Great Western Railway have nearly completed a new branch line extending from St. Anstell to Carthen and in this direction several works will soon be linked up to the main line of railway to Fowey. Adjacent to this line Messrs. John Lovering & Co. are erecting two large and up-to-date kilns for their higher minestones and lower minestones clay. This enterprising extension of Messrs Lovering & Co. has been rendered necessary through the fact that the old discs and linhays have served their purpose and their removal is now being required for the further development of both works; it will provide considerable work for the unemployed in the district. Several other companies are contemplating great extensions now the line is completed and all around the China clay area there seems to be a general preparation for the expected revival of the Cornish China clay industry. There are many works still unconnected or adjoining the railway and such have to rely upon horse drawn transport a system that is rapidly declining on account of its expensiveness. Mechanical transport for the China clay trade has already begun and it will be interesting to learn whether the rubber tired lorries will have the stability for the very coarse roads and heavy traffic. The firm of Messrs H. D. Porchin the well-known chemical manufacturers and China clay merchants of Manchester are very fortunate in having a few at least of their works (The Leswidden and the Balswidden, The McLaren China clay works) outside the difficult problems of transport and have established quite a fleet of steam lorries between their works and Penizance Harbor where they have every facility for making shipments. This firm have acquired further valuable China clay and stone properties in this locality which have made them the second largest producers in the world, and have opened a branch office at St. Austell under the supervision of their Cornish manager, Mr. Richard Hooper.

A very interesting announcement has just been made by "The Chemical Age" which will arouse great expectations in the China clay industry. Mr. F. E. Weston, an authority on Colloidal Chemistry, has informed the public of the result of a long series of experiments in the use of clay in soap manufacture. His conclusions promise that colloidal clay will effect an enormous reduction in the cost of soap. Colloidal clay is prepared from china clay a product in which this country is very rich.

Thos. Hinshelwood & Co., Ltd., of Glasgow, Scotland, have appointed the Imperial Trading Company of Montreal, their sole representatives and selling agents for Canada, for all their products. They manufacture and supply all colors used by pulp and paper mills and make oils and lubricants for every purpose. In the latter field they have specialized in solid lubricants for bearings and shaftings running at high temperatures and other difficult conditions. They supply many of the paper and pulp mills of Great Britain, as well as many mills on the Continent, with their lubricants, colors, gums, glues, waxes, etc. The Imperial Trading Company of Montreal, which passes its first birthday early in February which marked the end of a very successful year.

RUNNING AUTOS ON WASTE LIQUOR

By B. R. TUNISON, United States Industrial Alcohol Company.

Recently we have heard much concerning the use of alcohol as a motor fuel. Some of its supporters have said that it would revolutionize the automotive industries, and yet the automobiles are designed for and continue to run on petroleum products. A few of its opponents, have said that it could not be a factor of consequence for years to come, if ever.

That alcohol has real value as a motor fuel no one can deny. This has been demonstrated repeatedly in this country and abroad. That it has not been a factor in this country up to the present time has been due to an economic condition, rather than to inherent difficulties in its use. Petroleum products have been so plentiful and cheap that alcohol could not compete with them. But the time is not far distant when alcohol must become a factor as a motor fuel. Our petroleum production is dependent upon existing natural storehouses. Our possible alcohol production is limited only by the demand itself. The raw materials for the production of alcohol are about us in inexhaustible quantities. These materials can also be grown rapidly over large acreages and furnish an adequate and renewable supply.

At present the cost of production of alcohol is greater than the selling price of gasoline. Experts in the petroleum industry predict a rapid and continual rise in the price of petroleum products. In the near future the cost of gasoline will be such that alcohol can compete with it. Thereafter undreamed of quantities of alcohol will be produced. Our present production of alcohol will be increased many fold.

Even at the present time alcohol in admixture with other components is being used in the so-called "blended fuels." The United States Post Office Department in its airplane mail service is using such a blended alcohol fuel in its mail planes. This fuel has consistently proven more economical and dependable than the high test aviation gasoline.

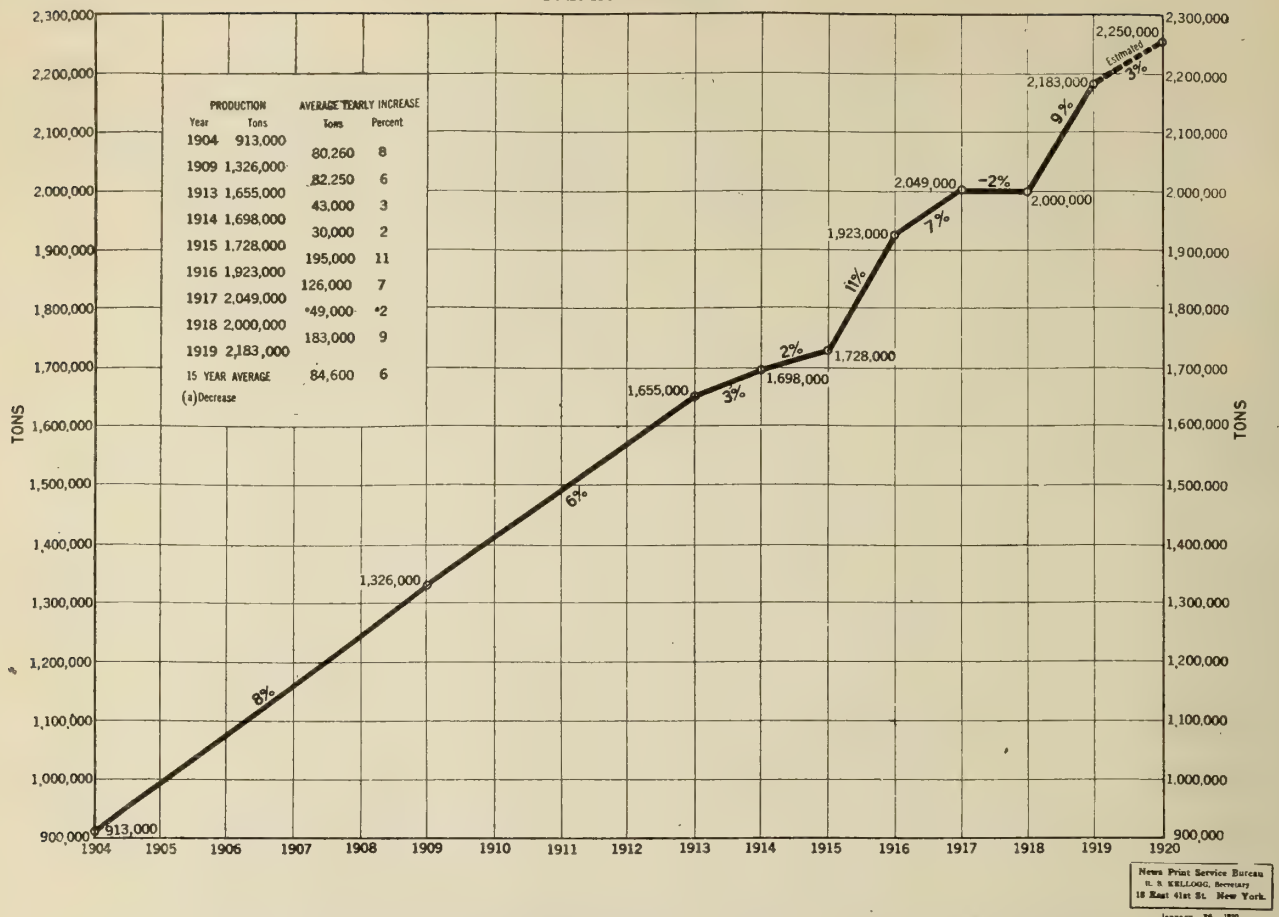
Alcohol as a motor fuel by itself or in combination has come to stay, and as our petroleum resources are diminished its use will continually increase until it becomes the universal motor fuel.—New York Journal of Commerce.

PLENTY OF WOOD IN THE WEST

The Forest Products Laboratory is undertaking a cooperative laboratory and mill scale study with the paper mills of the cause and possible prevention of wood and wood pulp decay which is conservatively estimated to cause an annual loss of $5,000,000. Overcoming this trouble would tend to produce cheaper print paper.

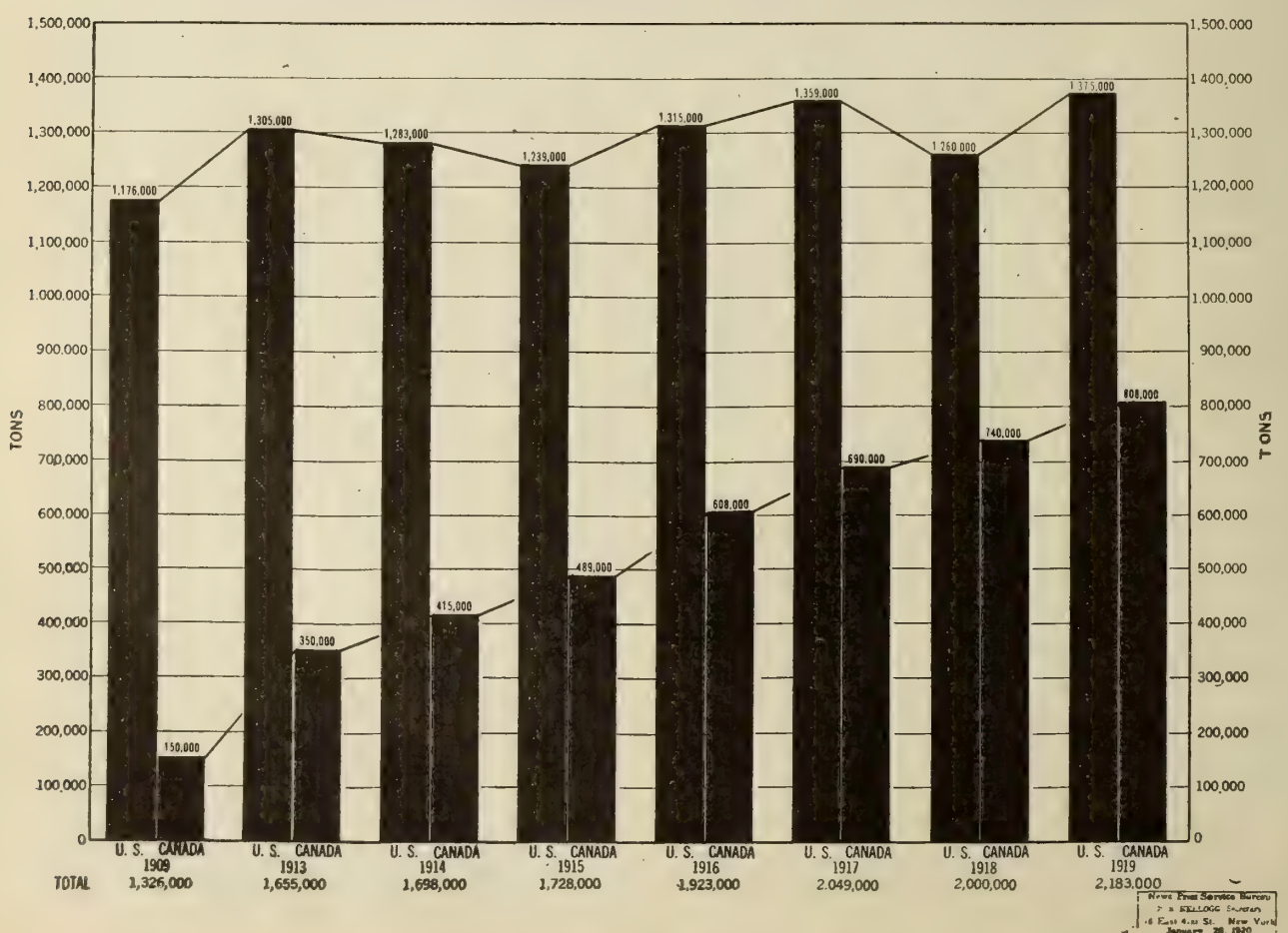
The paper industry is at the present time working to its maximum plant capacity and all indications point to a continued heavy demand with an insufficient supply. The constant increase in the cost of pulp wood and the dependence on Canada for wood and pulp makes likely the development of the industry in the West. In the West cheap wood and power can be obtained on long term contracts from the national forests. Paper is now being shipped from the coast to New York by rail to overcome the present famine, so that regular shipments by water via the Panama Canal should be seriously considered under the present and future conditions.—Journal of Commerce, New York.

NEWS PRINT PRODUCTION
U. S. AND CANADA



News Print Service Bureau
R. S. KELLOGG, Secretary
18 East 41st St. New York.
January 26, 1920

NEWS PRINT PRODUCTION, 1909-1919, UNITED STATES AND CANADA



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STARTING TRADE WITH ENGLAND

The fact that exchange rates are almost prohibitive of buying in the United States should be of great assistance in the work which His Majesty's Trade Commissioners in Canada are doing—the bringing together of British Manufacturers and Canadian purchasers. Capt. Evan J. Edwards who has lately arrived in Montreal as Senior Trade Commissioner is undoubtedly the man to advance this work. Too often the representatives of the British Government here, have had only an academic knowledge and the Canadian business man has been diffident about seeking their assistance. Although only 37 years of age, Capt. Edwards has had a remarkable career in practical merchandising. He has served as works manager of a London manufacturing company; colonial and export sales manager of a company employing over 6,000 workpeople. During a period of ill health, he was sent by his firm to study the merchandising of British goods in various parts of the Empire notably Australia, New Zealand and South Africa. When the war broke out Capt. Edwards was for a long time unable to get into the army on account of ill-health, but eventually was taken into the R. N. V. R. and went to the Mediterrenean. When the need arose for a man to supervise the fabric construction of air ships Capt Edwards was sent for and from that time until the end of the war he was admiralty overseer of fabric construction at Armstrong-Whitworth's plant and did the Admiralty inspection work of all the fabric used in the R-33. Since being demobilized, Capt. Edwards has acted as sales manager for one of the largest manufacturing concerns in England.

Speaking of the difficulties which are encountered by British manufacturers at the present time, Capt. Edwards spoke of the great difficulties in placing men back fairly and justly in their old factories. For example, a young boy of eighteen employed in a chocolate manufacturing plant to scrape waste chocolate from the marble tops of tables on which it has been spilt goes into the army and spends five years with the forces. He goes to France, Egypt and Palestine. During that time he gains his commission, becomes more or less a man of the world, is educated by travel, and certainly deserves a better civil position than he held before going into the army. The difficulty is where to place him. How is he to be assimiliated into the industral plant?

Another difficulty which the British manufacturer has to grapple with, is lost touch in the colonial markets, owing to the fact that few British goods were exported during the War. All the extraordinary war demands were filled in England and excluded work on staple lines for export. For example the British Government gave all the rubber manufacturing companies tremendous orders for trench waders, with the result that it was impossible for the manufacturers to supply the trade in Australia and New Zealand with sand shoes and various other rubber articles which had formerly been imported from England. The American manufacturer was not slow to take advantage of these opportunities and in the majority of caes tied the Australian or New Zealand purchaser with long contracts.

At the present time British manufacturers are being deluged with letters from various individuals in Canada desiring to act as representatives for the distribution of their products. About the only way the British manufacturer can form any judgment of the man who writes him, is by the letter or after a long investigation by mail. This is exactly what the British Trade Commissioner here is offering to do, and if a man is looking for representation of some British industry, he could not do better than get in touch with the British Trade Commissioner's office; or if anyone is looking for some product formerly imported from the United States and now unobtainable owing to the rate of exchange, he may be surprised to find that an even better article is procurable in England. The English manufacturer is not as slow as he has been made out to be in getting back into international trade.

WANTS RAILWAY TO MANITOBA MILL SITE

John Morrison, member for Rupert Land, speaking in the Manitoba legislature, complained that the new railway line from Amarath to Lake Winnipegosis paralleled the existing C. N. R.line. It was extraordinary that such duplication of railway facilities should be permitted when a large and fertile district north of there was without railway outlet.

"If this new road could only have been projected northward," he said, "it would lie in a country settled and ready to pay dividends to the first railway to come through. Continuation of this road would eventually reach Grand Rapids, which would open up a huge fertile land."

The member declared that splendid opportunities awaited the manufacturer of pulp and paper at Grand Rapids. He referred to the acute paper shortage which cut off local newspapers recently as "the best argument for a pulp mill at Grand Rapids."

"We have an estimated potential horse-power of 150,000 on the river there," he declared. "We have huge tracts of good sized spruce, tamarac and poplar, and innumerable waterways upon which to transport it."

At some length the member descanted on the timber tracts of Spruce Lake, Cross Lake, Cedar Lake and a score of other lakes and streams. All, he said, are covered with splendid timber for pulp and even more lucrative purposes. He laid stress on the fact, that the network of waterways permitted cheap wholesale transportation for timber without a mile of rail or skidway.

U. S. COMMISSION TO DISCUSS PULPWOOD

Washington, Feb. 28.—The Senate yesterday adopted the Underwood resolution to create a commission to negotiate with Canada regarding modification of embargoes on wood pulp and print paper. The bill carries an appropriation of $50,000 for the work.

On motion of Senator McKellar of Tennessee, the Senate amended the resolution to cover all classes of paper and newsprint.

Senator Kirby of Arkansas said the State Department at his request recently induced Canada to lift the embargo on newsprint so that a newspaper in his state could receive a shipment.

"Why couldn't the State Department do this in all cases?" he asked, "I don't see the necessity of appropriating $50,000 for a special commission."

Senator Hitchcock, administration leader, replied that Canada was considering the establishment of her own diplomatic agency in the United States, and might prefer dealing direct with a special commission rather than through the British Embassy and the State Department.

Technical Section

REVIEW OF RECENT LITERATURE

Erratum. Pulp and paper, 17, p. 1026, Nov. 27, 1919, col. 2, last abstract. Instead of "during 1917, 1918, and the first 5 months of 1919," read "during the first 5 months of 1917, 1918, and 1919."

A-1. Estimating the constituents of wood. Zeit. f. angew. Chemie, **32,** (1919). J. Soc. Chem. Ind., Aug, 15, 1919. Paper, **25,** (1919). Four methods were investigated by J. Konig and E. Becker for the estimation of the lignin by the destructon of the cellulose viz., by heating under a pressure of 6 to 7 atmospheres for 6 to 7 hours with 1 per cent hydrochloric acid; by treating the wood at the ordinary temperature with 72 per cent sulphuric acid; by treating the wood with fuming hydrochloric acid, sp. gr. 1.21; and by the action of gaseous hydrogen chloride.

According to the last method, 1 Gm. of wood meal which has been extracted by alchol-benzine is mixed with 6 Cc of water and treated with gaseous hydrogen chloride, with cooling, until a thin fluid is obtained. After standing for at least twenty-four hours to complete the hydrolysis of the cellulose the residual lignin is collected in a Gooch crucible and the weight of ash-free residue ascertained.

In the case of deciduous woods the hydrochloric acid methods gave rather more consistent results than the sulphuric acid method. The composition of the lignins obtained ranged between the limits C=67.31—71.35 and H=5.07—7.80 per cent.

For the estimation of hemicelluloses, 4 Gm. of wood powder is heated with 200 Cc of 0.4 per cent sulphuric acid for 4 to 5 hours under different pressures, viz., 0.5 to 0.75 atm. for alder, ash, and poplar, 1 atm. for beech and willow, 2.25 to 2.5 atm. for birch and fir, and 35 atm. for pine wood

The extract is neutralized with calcium carbonate and the cupric-reducing value determined; it is then fermented and the fermentable sugarX0.9 is calculated as hexosans, while the dissolved pentosans are calculated from the difference between the pentosans in the original material and in the residue from hydrolysis.

The results obtained in general showed that the total pentosan of the coniferous woods was low (10 to 12 per cent) on the dry substance as compared with the foliage woods (22 to 26 per cent). The lignin of the coniferous woods was high (28 to 29 per cent) as compared with the foliage woods (20 to 26 per cent).

As regards the hemicelluloses, the coniferous woods showed small quantities of pentosans (8 to 9 per cent) and large quantities of hexosans yielding fermentable sugars (about 13 per cent), while the foliage woods showed large quantities of pentosans (15 to 23 per cent) and only small quantities of hexosans treated with acid to remove silicates and organic materials decomposed by acids.

The material thus separated may, after drying, be used as a moulding powder. The lye is then neutralised or again made alkaline, evaporated, and used as a core and binder. The materials obtained by the use of the thickened lye with the addition of an ordinary moulding sands, and, if necessary of other vegetable substances are plastic when hot become hard on drying, and produce by heating with exclusions of air, firm but friable cores with little shrinkage.—A. P. C.

A-6. Colloidal fuel. Linden W. Bates, Can. Chem. J., **4,** 40-7, (1920). "Colloidal fuel is a combination fuel is a combination of liquid hydrocarbon with pulverized carbonoceous substance, the components so combined and so treated as to form a stable fuel capable of being atomized and burned in a furnace." Its nature and its development during the war are described at some length, together with its present and future industrial possibilities. No details are given as to the process of manufacture, beyond stating that it is obtained by mixing together oil, finely pulverized coal, and a fixture or peptizing agent (usually about 0.75-1..50 p.c. of the fuel). The details will be published as soon as the process has been patented.—A.P.C.

A-14. Identifying dirt in paper. Donald M. McNeale. Paper **24,** 1058, (1919). Practical hints on the identification of coal, shive, black ash, scale, rust, sand, rubbebr, leather, oyster shells, etc., in paper. A.P.-C.

A-14. Qualities and tests of paper. Technical requirements and allowances suggested for the French Commission on Paper Purchases. Papeterie, **41,** 226-9, (Aug. 10, 1919). Paper, **25,** 1114-5, (1920).

A-14. Qualities and tests of paper. Part 3. Papyrophile. La Papeterie, **41,** 226-9, (Aug. 10th, 1919). See Pulp and Paper, **17,** 736, (1919). Suggestions as to general specifications for papers as regards its qualities and tests, the methods of making the tests, and the permissable limits of variation from specifications.—A.P.-C.

A-15. Reactions of cellulose. A study of the development of oxycellulose in papermaking. Florence B. Seibert and Jessie E. Minor. Paper, **24,** 1007-12, (1919). A study of the oxidizable products formed in sulphite pulp by beating and by bleaching with hypochlorite. With long beating in the absence of bleach, hydration is accompanied by secondary reactions, which may be of both hydrolytic and oxidizing nature. Bleaching under normal conditions of making white paper completely removes the lignocellulose. The latter stages of the series of oxidation reactions during bleaching occur much more easily than do the earlier ones, and the products are of increasing solubility in water. Paper made from pulp bleached with 36 p. c. of its wt. of bleach liquor containing 1.3 p. c. available Cl is decidedly superior to that made from pulp treated with half as much bleach. Excess of bleach makes the fiber friable and obliterates the pit-markings seen in normally bleached fibers. The copper number, which was largely used in the above study, was determined gravimetrically under concordant conditions, slight variations in conditions causing large variations in results.—A. P.-C.

B-1. The bamboos of Indo-China. Bull. Synd. Fab. Papier & Carton, No. 2, 26-7 (Jan. 15, 1920). A short description of the varieties used at the Vietril mill in Indo-China.—A.P.-C.

B-9. The pine forests of South Africa. Paper **24,** 1140-1, (1919). A brief survey of the extent of the American pine forests and of their present output.—A.P.-C.

D-4. Manufacturing paper pulp from saw dust. Brit. patent No. 117,086. J. C. Van Wessem, Bloemendaal, Holland. Paper, **24,** 1137-8, (1919). See Pulp & Paper. **17,** 937,1005,1073.—A.P.-C.

E-5, K-4. Cooking slightly lignified substances. D.R.P. No. 301,716, Max Luders, Magdeburg. Bull. Synd. Fab Papier & Carton, No. 2, 25, (Jan. 15, 1920). Jute, hemp, manila, reed etc., is cooked with a weakly acid solution of $MgSO_4$, which contains up to 90 p. c. of sulfurous acid, according to the degree of lignification of the material.—A.P.-C.

E-5, F-5. Digester for direct-cooking. D.R.P. No. 316,323, A. G Westadt & Erik Hagg, Hunsfos, Norway Bull Synd. Fab. Papier & Carton, No. 2, 24-5, (Jan. 15, 1920). The steam is admitted at the lower extremity around the circumference of the digester in such a way as to activate the circulation of the liquor. —A.P.-C.

F-5 New alkaline process for obtaining cellulose from vegetable fibers. Fr. patent No. 492,222. M. Cataldi. La Papeterie **41,** 231-2, (Aug. 10th, 1919). Wood must be barked and chipped, other material (straw, esparto, etc.) crushed. It is cooked in a weakly alkaline liquor, the liquor is drained out, and the digester put under a vacuum of 50-65 cm. of Hg. Gaseous Cl is admitted until the pressure is equal to that of the atmosphere, and allowed to act for a suitable length of time. After the Cl treatment the stock is washed and cooked again in a weakly alkaline liquor, after which it is purified in the usual manner. It can be bleached in a weak solution of Na or Ca hypochlorite.—A.P.-C.

G-6. Pulp screen. Fr. patent No. 497,851, April 5, 1919. John M. L. Spangenberg, Sweden. Papeterie, **42,** 68-71. (Jan. 25, 1920). Inside the cylinder is placed a body of polygonal cross-section, the sides of which are either straight or slightly curvilinear, and the angles usually rounded off. This body is either eccentric or concentric with the cylinder; can rotate either in the same direction as, but at a different speed from the cylinder, or in the opposite direction, or alternately in one direction and then the other. In the space between the cylinder and the polygonal body there may or may not be blades which are either fixed, or attached to the cylinder so as to rotate with it.—A.P.-C.

K-5. Improvement to rag shredders and similar machines .Fr. patent No. 492,498. H. Waller. La Papeterie, **41,** 231, (Aug. 10th, 1919).—A.P.-C.

K-16. Jespersen's waste paper recovery system. U. S. A. patent No. 1,311,564. Thos. Jespersen, Neenah, Wis. Paper **24,** 1059-60, (1919). A barrier and a strainer are placed in the beater trough in such a way that the pulp will be deflected downwards, while the supernatant layer of oil and ink will pass through the strainer and be drawn off.—A.P.-C.

K-12. Paper winder. Fr. patent No. 497,681, Mar. 31, 1919. Fred Schade, Denmark. Papeterie, **42,** 71-2, (Jan. 25, 1920). The usual cylindrical core is replaced by a core made up of a number of rods of suitable length, held between 2 discs. The position of the rods is adjustable, so that the diameter of the core is variable within certain limits, and the cross-section is effectively polygonal instead of circular. It is claimed this permits of greater speed in winding, and also that double width and folded paper may be wound, which is practically impossible with the usual core.—A.P.-C.

G-0. Pulp discoloration. C. L. Bachelder.. Paper, **24,** 1096-7, (1919). Discoloration was traced to the action of heat, bleached pulp being more sensitive to heat than unbleached pulp, the greater the excess of bleach, the greater the danger of discoloration.—A.P.-C.

K-18. Patent sizing for wallboard. U.S.A. patent No. 1,313,343. Benjamin W. Sidwell, Buffalo, N.Y., assignor for Beaver Co., Ohio. Paper **24,** 1138-9, (1919). The size consists essentially of 40-60 p. c. of a resin (e. g., rosin). 1-5 p. c. of wax (e.g., paraffin wax), and 40-60 p. c. of solvent (e.g., kerosene, gasolene, naptha, benzine, or a mixture of these), with or without the addition of slaked lime.—A.P.-C.

K-18. A study of commercial wall board. F. C. Clark and A. D. Conley. Paper, **25,** 1101-4, (1920). A study of various kinds of wall boards used by the U. S. War Dept. for cantonments, warehouses, office buildings, hospitals, etc. The laminated fiber board, one-ply fiber board and plaster board were tested. The first was used the most owing to ease of application and plentiful supply, but can be used only for inside work. A very satisfactory one-ply board at a reasonable cost, for outside work, was obtained by thoroughly roughly sizing the pulp with rosin and alum size, thus yielding a waterproof product. Plaster board was preferred for hospital use owing to greater resistance to fire and ease of washing and disinfecting. In general the results of the tests on the original samples showed that there was no relationship between quality and price in commercial wall board. Manufacturers showed a surprising lack of knowledge of those points that constituted the essential requirements of a high grade wall board.—A.P.-C.

K-23. Waterproofing paper, threads or fabrics. D.R.P. No. 315,412, Th. Bohme, Chemitz Bull. Synd. Fab. Papier & Carton, No. 2, 23-4, (Jan. 15, 1920). Waterproofing is obtained by treatment with a so-called water-soluble oil and one of the usual sizing materials.—A.P.-C.

K-4. Points on boiler feeding. N. P. Winchell Jr. Paper, **24,** 1133-6, (1919). A discussion of the care of feeding machinery and of the relative advantages of injectors, reciprocating pumps, centrifugal pumps, and traps.—A.P.-C.

P-1. Tinting troubles. Paper, **24,** 1164, (1919). A plea for better light and brighter workrooms.—A.P.-

R-1 Paper mill in Cochinchina.. La Papeterie, **41,** 388, (Sept. 25th, 1919). A paper mill has just started operations at Thu Duc (Cochinchina), using rice straw, sugar cane, old rags, and a native plant called "arann." The capital was raised locally.—A.P.-C.

R-1. The paper industry in the devastated regions. La Papeterie, **41,** 23-9, (May 25th, 1919); 119-20, (June 25th, 1919); 203-4, (July 25th, 1919); 230, (Aug. 10th, 1919). Pulp & Paper, **17,** 819-20, (1919). A detailed description of the damage wrought by the Huns in a large number of the paper mills in Belgium and in Northern France.—A.P.-C.

British Trade News

(From Our London Correspondent.)

London, March 2, 1920.

The quotations for papers today in the British market are most irregular. Newsprint, which remains unchanged in price, is the only paper that has any uniformity in value; other papers are up and down the scale with the result that consumers are becoming bewildered as to what they will next be asked to pay. Paper makers say it is due to raw materials—every week brings a change in their cost, and they must quote for the finished product accordingly. The only instance of newspapers having been affected by a rise in newsprint is in the case of the London "Financial Times," which issued a statement this week that in the future the cost of the paper would be 4 cents, instead of two, owing to the great and continued rise in cost of production and the big advance in the price of paper. This statement is not to be taken to mean that there is a scarcity of newsprint. Supplies are meeting demands, but groundwood has caused newsprint quotations for deliveries some months ahead to harden. The "Newspaper World," which uses a finer quality of printing paper, is advancing the price from 4 cents to 6 cents. When the present contracts are finished up we may see a great jump in the prices of paper, but at present the market is in a state of chaos as regards quotations.

Death of Mr. A. E. Reed.

The Canadian and Newfoundland friends of Mr. Albert E. Reed, who was associated with the Anglo-Newfoundland Development Company and head of the firm bearing his name in London, will regret to hear that he passed away this week at his residence in Woking, in his 74th year. His death has caused a severe blow to the pulp and paper interests of the United Kingdom, because he was for 50 years moving about the industries and aiding largely in their development. Mr. Reed, in his quiet and unassuming manner, was always a friend to those in need. Shrewd and level-headed, he was a fair and square fighter when he was up against competition—and a hard hitter at times—and the reputation which the firm of Albert E. Reed & Co., Ltd., enjoy to-day is attributable to his integrity and industry. Mr. Reed was a pioneer in the use of wood pulp. He said many years ago that the paper industry would have to depend on it largely, and consequently he concentrated his attention on Canada and Newfoundland. He studied Canadian enterprise and gave a helping hand where necessary, with results known throughout the length and breadth of the newsprint and pulp world. In England, Mr. Reed was associated with mills at Tovil, Maidstone, Horton Kirby, Dartford and Farncombe.

Death of Mr. Wilheim Johnsen.

Following Mr. Reed's death comes that of a respected pulpman in the person of Mr. Wilheim M. Johnsen, President of Johnsen, Jorgeusen and Wettre, Ltd., a well known Norwegian who assisted in establishing a thriving wood pulp agency in London. He has visited Canada, but was more directly concerned with Norway's development as a pulp producing country. In London he was a moving figure. He leaves a widow and seven children to mourn his loss.

To Visit Canada.

Mr. G. Ralph Hall Caine, who was Deputy Controller of Paper during the war, and is now a director of several large paper mills in England, sails this week for Canada on a business and pleasure trip. He is going as a representative of a powerful group of men interested in paper and wood pulp in England and France, and his visit to the Dominion will extend to two or three months. (Mr. Reed has arrived.—Ed.)

The American-Canadian Quarrel.

Though Britain is not directly interested in the quarrel between Canada and America over the paper and pulp questions, the solving of the problems is closely followed here and indirectly hints are being thrown out that consumers of newsprint may find themselves in the same predicament as those in the Dominion and U.S.A. The gradual exhaustion of American forests, without scientific replacement, is of great importance to this country with its free and open markets and naturally some harsh things are said at times against American principles in forestry.

British Industries Fair.

The British Industries' Fair is at present in progress at Chrystal Palace, in London, and the papermakers are making a brave show of their products. The fair is organized by the Trade Board and twenty-five stands are occupied by the paper makers and boardmakers, who display various kinds of products from their mills. Sir Auckland Geddes has been the prime mover in the fair and a great success it is. Of course, only British products are on view, and buyers are in attendance from all parts of the world. Canada's day is coming in London. I hope the forthcoming Canadian exhibition will show what the Dominion can do in pulp and paper.

Mill Profits.

The Cutler Mills Paper Co., Ltd., have made a profit of £31,213 during the past year, and a dividend of 10 per cent is recommended. Messrs. Annandale and Son, Ltd., of Polton, in their 20th annual report for the year ending December last show that after providing for mill and machinery up-keep there is a credit balance of £20,510. Employment in the paper industry is good and more labor is available now as the army is clearing out conscripted soldiers. Wages have increased from 1.8 per cent to 59.4 per cent owing to increased cost of living.

Fire.

The Drinnagh Paper Mills, in Inchicore, Co. Dublin, had an outbreak of fire in the engine-room, which was destroyed eventually, and it spread to the waste, store, rag chopping and boiling departments which were burned out, with half of the beater house. Fortunately the other buildings escaped. The damage is estimated at £7,000, and several contracts for supplying paper are now hung up.

Scandinavian Newsprint.

Labor troubles are still raging in Scandinavia, and there are other difficulties. London merchants are asking up to £78 a ton for Scandinavian newsprint which before the war could be bought for a £10 note. Scandinavians are circulating rumors here that they are sending pulps to Canada and America, and the quarrel between the Dominion and their friends over the border is used as a bogey for rushing up newsprint quotations.

At one time it was the practice among the Germans and Dutch to accumulate soiled clothes and have a washday only two or three times a year.

PULP AND PAPER NEWS

The George H. Meade Company, of Dayton, Ohio, have opened offices in Toronto at 710-711 Bank of Hamilton Building, which are in charge of George Erskine, for the sale of paper, pulp and card board. Mr. Erskine is a son of the late Mr. Erskine, who was for many years sales manager of the paper mill of the Laurentide Co. at Grand Mere, Que.,

The Canadian Federation of Labor has appointed Randolph Fogarty and John Morton to investigate and consider the establishment of a paper in Canada in the interests of the Federation.

The death is announced in Tweed of a well-known newspaper man in the person of Zed. Lafontaine, editor and proprietor of the Tweed Advocate.

One of the best-known newspaper men in Ontario passed away on Saturday last in the person of John Law, formerly proprietor of the Tillsonburg, Ont., Observer, and latterly Secretary-Treasurer of the News in that town. The News was the outcome of the amalgamation of the Liberal and the Observer.

The death is announced as the result of pneumonia of H. Carl Jones, for twenty years publisher of the Eastern Ontario Review at Kankleek Hill. Deceased, who was formerly connected with Ottawa newspapers, was 46 years of age.

W. H. Healy, who has been associate editor of the Grain Growers' Guide, has been appointed Librarian for the Manitoba Provincial Government.

In an address before the Royal Canadian Institute in Toronto on Saturday night, Professor C. D. Howe, of the Faculty of Forestry, Toronto University, stated that the continued neglect to conserve the forest resources of Canada would mean still further increase in the cost of living. He said that one-half to two-thirds of the forest wealth of this country had been destroyed by fire within the past 75 years and that at the present time there were 1,900,000 square miles of forest in Canada.

In a Toronto Division Court this week the judge dismissed the appeal of the Abitibi Power & Pulp Company from a conviction and fine of $551.35 made by the Police Magistrate of Iroquois Falls. The company operated a small lumber camp on a creek emptying into the Abitibi River, and the complaint on which the conviction was based was made by the health authorities, who claimed that the location of the camp was dangerous in that it drained into the town's water supply.

The Department of History at the University of Toronto will shortly issue a quarterly publication under the name of "The Canadian Historical Review," which will continue the work of the old magazine on a larger scale. The new publication will deal with current literature and history as they pertain to Canada.

The regular semi-monthly meeting and luncheon of the Toronto Carton Club was held at the King Edward Hotel on Wednesday, when there was a good attendance of members of the organization. S. J. Frame, Secretary of the Canadian Box Board Manufacturers' Association, presided, and, following the luncheon, there was an informal discussion over matters pertaining to the general interests of the trade. It is planned to hold another meeting in Campbellford in about a month's time.

The Acton Publishing Company, printers and publishers, have removed from 1229-31 Queen Street, West, Toronto, to 545-549 King Street, West, and will occupy two large floors on the new premises.

The Allan Paper Company, whose premises adjoined the McKinnon Building on Melinda Street, Toronto, which was partially destroyed by fire have removed to 105 Simcoe Street. Some of the stock in the company's warehouse was damaged by water, but any loss there was covered by insurance.

F. W. Brawn, who recently resigned his position as sulphite superintendent of the Cascade mill in Berlin, New Hampshire, to accept the position of general manager of bleached sulphite pulp plant of the Fraser Companies, Limited, at Edmunston, N.B., has been connected with the pulp and paper business for forty years and has many friends in the Canadian paper trade. He has been connected with various pulp and paper companies in the eastern States and was the father of the Brown Company's Relief Association which has been a great factor in improving working conditions in the industry. Plans are under way for changes and improvements at the Edmundston mill with a view to increasing its output of pulp, and Mr. Brawn's wide experience will be of great value in directing these.

George W. Dodge, Chief Engineer of the Brompton Paper Company, recently resigned his position to accept a responsible post for one of the large pulp and paper companies in the United States.

The Press Gallery at the Ontario Parliament Buildings has been organized for the present year as follows: Honorary President, Sir Adam Beck; President, H. J. O'Neill of the Toronto Star; Vice-President, D. M. Goudy, of the Telegram; Secretary-Treasurer, Ewart Munro, of the Globe.

E. Pullan, rag and paper stock dealer, has moved his business office from 20 Maud Street, Toronto, to 6 Maud Street. The old offices will be utilized to further increase the sorting facilities of the warehouse.

W. W. Weed and J. C. Yule, general manager and chief salesman, respectively, of the Kenwood Mills at Arnprior have just returned from a visit to a number of the larger paper mills in the province. They report that the demand for the company's high-grade felts is so large as to tax the capacity of the mill, despite recent additions to plant and equipment. Besides Canadian business the firm are booking large orders from Japan and Finland.

A. G. Pounsford, General Manager of the Port Arthur Pulp and Paper Company, was in Toronto this week calling on the trade.

A by-law was carried on a vote of the electorate of Bowmanville, Ont., this week, respecting the reorganized Ross Can Co., Limited, which is to expand its plant in that town. The object of the bylaw was to amend the original bylaw, where an excessive penalty clause

of $50,000 was reduced to $10,000. The company makes fibre containers and other allied lines.

Owing to the fire at the McKinnon Building, Toronto, on Thursday of last week, Hodge-Sherriff Paper Company have been compelled to find new quarters. They have secured temporary offices at 402 Royal Bank Building, Toronto, where business will be carried on as usual. All the loss sustained by the Toronto office was confined to damage through smoke and water. All the records of the company were found free from damage by fire.

The Uxbridge Paper Box Company, Limited, of Uxbridge, Ont., has been incorporated to manufacture and deal in paper, fibre and wood boxes. H. H. Davis and J. S. Beatty, solicitors, of Toronto, are among the incorporators. The capital stock is $120,000.

The Great Eastern Pulp and Paper Company, Limited, has been organized with headquarters at Quebec, and has been granted incorporation by the Secretary of State with power to carry on the lumbering and pulp manufacture in all its branches. The authorized capital is $8,000,000, and the incorporators named are Quebec lawyers. It is understood that Chas. W. Mullen, of Bangor, Me., is the man behind the gun—or rather, the ginders.

INCREASED OUTPUT FOR MATTAGAMI

Reports from the Mattagami Pulp & Paper Co. state that the third digester has been in operation for some time, and output has been running from 80 to 90 tons per day of easy-bleaching sulphite pulp of an excellent quality.

Preparations are being made for the installation of a third drying machine, which should be in operation by September 1, and will then have the effect of increasing the mill's output from thirty thousand to forty-five thousand tons per annum. Installation of this additonal equipment will not only increase the output, but should materially reduce the cost of production per ton.

The company is experiencing a steadily growing demand for its product and has received many indications from its customers of the high quality of pulp produced: Sales price is now approximately $90 per ton, and as most of the pulp produced is sold in the United States, for which payment is made in New York funds, the additional profit accruing to the Company on account of the New York exchange premium amounts to a very considerable sum.

The annual statement for year ending March 31 will show a substantial surplus.

NOW SELLING BATES FELTS.

A new face appears among the Paper Mills this week in the person of Mr. K. R. Wallace, who has just taken over the pulp and paper Machine Felt Department of Messrs. E. S. Bates & Co. Limited, Selling Agents for Bates and Innes Limited, Carleton Place, Ont. Mr. Wallace is now looking things over, and more or less getting his bearings. He has had a wide experience in the sales fields, handling everything from Ford cars to high explosives, so should be in his element in the paper field. He has obtained a good knowledge of felts and will now donate his entire time to this end of the business. W. E. Herrick is now superintendent of manufacturing in the felt department of Bates and Innes. Mr. Herrick has had a large experience in the American felt mills and has applied his knowledge here with much success.

BURNETT & CRAMPTON TAKE OVER MAISONNEUVE FOUNDRY.

Burnett & Crampton, whose foundry at Rigaud, Que., was recently totally destroyed by fire, have bought the Maisonneuve foundry, 860 Lasalle Avenue, Montreal. They contemplate making cosiderable extensions and alterations to this foundry to enable them to cast daily between 15 and 20 tons of general machinery castings. They will continue their policy of specializing in high class work.

LOSS TO QUEBEC PRINTERS

Because the Quebec Government overlooked the passing of a certain motion, printers at Quebec who get printing jobs from the Government will lose this year thousands of dollars. "L'Evenement" says that at the close of every session the Government usually passes in the Legislative Assembly a motion authorizing the clerk of the Legislative Assembly to print the various orders passed during the session.

PULP COMPANY LOSES APPEAL

The second divisional court in Toronto dismissed the appeal by the Abitibi Power & Pulp Co. against a fine of $500 and costs imposed on them by the police magistrate at Iroquois Falls, because the company had persisted in operating their camp 13 on a small creek emptying into the Abitibi river, which drained into the town's water supply, and according to the health authorities was a danger to the community.

...READY TO BUILD PULP MILL

The O'Brien interests of Renfrew state in the letter to the New Liskard Board of Trade that three plans for a pulp plant at North Temiskaming and a power plant at Des Quinze, Quebec are ready and in a short time operations will be commenced. The plant promises to be of "enormous size," say Board of Trade officials, and they will press on the T. & N. O. the necessity of pushing ahead the Nipissing Central extension to be ready to take in supplies and material. A strong move is to be made to have the road built at once.—Toronto Star.

WAGON WORKS FOR PULP MILL SITE

A Toronto dispatch to the Port Arthur News-Chronicle said, that negotiations are under way for the purchase of a block of power from the Hydro-Electric to operate a fifty-ton pulp mill to be located at Port Arthur. The mill is to be financed by Canadian and American capital with an additional unit of a paper machine. The location of the mill will probably be on the site formerly occupied by the Prince Arthur Wagon Works.

"The Prince Arthur Wagon Works referred to in the Toronto despatch" says the Chronicle, "is probably the Port Arthur Wagon Works of which Mr. G. R. Duncan is agent. Mr. Duncan stated that negotiations were under way, but any announcement of transfer of the property would be premature

BRITISH PRACTICAL PAPERMAKER,

Works Manager, wants situation similar capacity. Just concluded engagement in the East. Will arrive Vancouver April 1st. Life experience T. S. & E. S. Writings, Bonds, Banks and Ledgers. Excellent references.

Write "PAPER," 1025 Nelson St., Vancouver, B.C.

The Markets

Toronto, March 13.—With the exception of another half cent a pound rise in wrapping papers, there are no new features in the paper market this week. The same general conditions prevail, although the mild weather of the past few days is expected to have almost immediately a favorable effect on production, which will be welcome by manufacturers, jobbers and consumers alike. With the mills away behind with their orders and the demand constantly increasing, there was added to the difficulties of operations the hampering effects of a particularly severe winter when many of the plants were held up intermittently by freeze-ups, with a consequent loss of tonnage. Mild weather appears to have set in and from now on it is expected that deliveries will be considerably improved. Shipments of Manila from the J. C. Wilson Company at Lachute, from which a large portion of the Manila comes, fell off considerably owing to weather conditions affecting operations, so that only one of the three machines were running for a time, but normal production is expected to be resumed there at once, although it will be some time before the shortage of this line can be caught up with.

With the weather conditions improved it is predicted that the worries of the mills will not altogether cease, for there will be a problem to face in the shortage of soft coal, owing to the strikes, and although some of the mills are in pretty fair shape in regard to supplies of fuel, others are not so fortunately situated, and there is bound to be difficulty in some quarters in securing sufficient coal with which to carry on. Transportation difficulties have also played their part in hampering production and machinery parts from the other side of the line, in some cases, have taken weeks to come either by express or freight.

In the meantime the paper dealers are clamoring for more paper and all lines of manufacture show an upward tendency in price, while the general prosperity of the trade was reflected this week in the rising prices of paper stocks on the stock exchanges, Laurentide setting the pace with a turn-over on Wednesday of this week of 1,420 shares, with a price rising to 94, at which it closed—a net gain of 2½ points. So it would appear as if not only the products of the mills were in demand but the stock in the companies as well. Price Bros. and others also shared in the general activity.

Jobbers still complain that practically all lines of papers are hard to get. Most of the warehouses are practically bare of many wanted lines and there is difficulty in getting supplies of Manilas, fibres, book papers, news and wrapping. Owing to the prohibitive prices on the other side of the line the Canadian jobbers are endeavoring to supply many lines that hitherto were imported, such as bonds, cardboard, ledgers, cover papers and some lines of coated book and this tended toward shortening the supplies to the home trade. In some cases, it is stated, the prices of book paper are higher across the line than they are in Canada, which makes imports out of the question. A few lines of bond and other papers are coming over to this country, but shipments are very rare.

As to raw materials, there has been little improvement, if any, in the situation, and paper makers point out that it is extremely difficult to get not ony pulp, but chemicals, dyes and rags, which are a scarce commodity. There is still a serious car shortage for getting out the wood and export shipments of pulpwood as well as shipments for the Canadian mills have suffered a serious set-back. According to the Toronto office of the Hyland-Thompson Co., which handles the wood from the forest to the mill, the production of pulpwood is falling off, rather than improving. This is partially due to the car shortage and partially to the fact that there are better monetary inducements in the cutting of timber for logs, lath and shingles than there are in the cutting of pulpwood. As a consequence, the production of wood for pulp has fallen off and this has had its effect in the shortage of the paper supplies, along with the other factors mentioned.

While there is still a tremendous demand for all classes of paper, it is anticipated that with spring will come a slackening in demand, which, although allowing the mills to catch up with their orders, is not likely to bring prices down. In fact, no downward tendency in prices is looked for for months to come. It is pointed out that the old axiom about the price being regulated by supply and demand still holds good, and that not

Scandinavian American Trading Co.

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Have an extensive and steady market for **KRAFT PULP** When you have any surplus to offer write us

until the mills cease to be flooded with orders will the downward tendency set in. Inasmuch as the mills are booked months ahead for practically all classes of paper, it is argued that the present era of huge demand and soaring prices is likely to last until next fall at least. The consensus of opinion among the paper men is that when the slump comes it will be a gradual one, and that the market will right itself without any sudden and sensational lowering of prices. One paper dealer, however, made the statement that he was looking for a quick reaction from the present era of high prices for practically every necessity of life and that when it came the paper industry would go down the slide swiftly in sympathy with other activities forming part of the H. C. of L. Every man engaged in the paper trade however, admits that the future is extremely hard to guage. In the meantime jobberrs report that the consuming end of the trade is taking the situation philosophically, knowing that paper, is hard to get at any price and accepting what supplies they can get gratefully.

In the envelop, writing paper, papeterie and blank book manufacturing department of the paper trade, the factories are still away behind with their orders by reason of the shortage of paper supplies and there is no diminution in the demand for all lines of manufactured stationery. Both manufacturers and jobbers complain of the difficulties met with in their endeavors to get stock and as a result their output is seriously curtailed.

The tremendous demands made upon the box board manufacturers which have characterized the market for several months past still keeps up and the distributors are experiencing the greatest difficulty in getting adequate supplies from the mills. In this line and in the paper trade generally it is freely predicted that another month will produce a further boost in prices owing, largely, to the problem connected with the raw material shortage.

Soaring prices still characterize the rag stock market, although waste paper prices remain the same since the last published list. Toronto dealers now report No. 1 shirt cuttings at from 19½c to 20c, a rise of 2c, f.o.b. Toronto, and the prices of other lines of waste risen proportionately. In this connection it is interesting to note that in the item mentioned above the price in 1914 was $4,50; ;in 1917, $8.50; in 1918, $11.50; in 1919, $19.50, and other lines had a somewhat similar range of increase during the period noted. There is still a brisk demand for all lines of rag and paper stock.

Rag and Paper Stock Prices.

	F.O.B. Toronto.
No. 1 white envelope cuttings	$5.25
No. 1 soft white shavings	$5.00
White Blanks	$3.25
Heavy Ledger Stock	$3.75
No. 1 magazine	$3.50
No. 1 book stock	$2.50
No. 1 Manilas	$3.25
No. 1 print Manila	$2.00
Folded news	$1.90
Over issue, news	$2.25
Kraft	$3.75
No. 1 clean mixed papers	$1.60
No. 1 shirt cuttings	19½—20c
No. 1 unbleached cotton cuttings	17c
No. 1 fancy shirt cuttings	13½c
No. 1 blue overall cuttings	13½
Bleached shoe clip	14c
White cotton hosiery cuttings	17½
Light colored hosiery cuttings	13½
New light flannellette cuttings	13½
No. 2 white shirt cuttings	13
City thirds and blues (repacked), No. 1	5¼—5½
Flocks and satinettes	$4.00
Tailor rags	$4.00
Gunny bagging	3¾—4c
Manila rope	7—7¼

THE WRONG KIND OF A MAN.

Two men were calling upon a trainmaster on a Western railroad to ask for employment for a man who had seen him the day before and had been refused.

"Is the man tall and dark?" asked the trainmaster.

"That's the man."

"Then," asked the trainmaster, "did you not notice that man's left hand?"

"No," was the reply; and as a man with a crippled hand cannot pass the physical examination, the two men thought at once that he had probably lost a finger.

"Well, you go back and look at the man's fingers. He's a cigarette fiend, and any man, that takes the time to roll as many cigarettes as that man smokes hasn't time to work at anything else'.'

"I didn't or don't care," he went on, "what his past history has been, for we need men just now and need them badly, but when I see that color on a man's finger, I haven't any use for him."—The Little Christian.

JUNK

Is it not startling to learn that for every day of the three hundred and sixty-five that comprise the year, over $150 worth of equipment at Camas and West Linn goes permanently out of commission and is relegated to the junk pile? This, however, is the case and a special department at each mill collects this miscellaneous scrap equipment and after sorting out all usable material prepares the balance for disposal.

The used dryer canvas is sold on contract to one concern. The felt is taken from the machines and rolled into one roll instead of being cut into several pieces, as was formerly the practice, because dryer canvas in rolls is worth 100 per cent more than it is in short pieces.

Wires are also rolled on poles and removed in roll form. This keeps the wire smooth and gives it greater market value. The dealers who buy the wires sell them in turn to manufacturers of sieves. The wires removed in bundles and wadded up are only fit for re-melting. This renders their market value very low because the "shrinkage" in the retort is so great.

The metals are segregated under their various classifications and sold in the open market.

Each pound of brass, bronze, wire, lead, copper, babbitt, etc., has its value the same as each pound of paper produced.

If each man would report or turn over to his foreman any pieces of such waste material that he might find "running around with no place to go"—he would aid materially in keeping the plant clean, the safety movement and his fellow workmen who are held responsible for this material.—Making Paper.

And this applies also to every mill in Canada.

Making mistakes is one of the manufacturing industries in which there is always an overproduction—Philadelphia Record.

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

UNITED STATES NOTES

Robert E. Cahill, Mayor of Watertown, N.Y., and Charles R. Courteney have sold their entire interests in the Watertown Paper Bag Machine Company to B. B. Taggart of Taggart Brothers Company, manufacturers of paper bags. The resignation of Mayor Cahill from the presidency of the bag machine concern and that of Mr. Courteney, who was its secretary, became effective with the conclusion of the deal. The Watertown Paper Bag Machine Company has been manufacturing the Coty Bag Machine since the invention of the latter first came to the notice of the paper industry. A. C. Coty, treasurer of the company and inventor of the new design of bag machine, retains his interest in the company. He will henceforth be manager of the company affairs. The manufacture of the same type of machine will be continued together with other designs now being worked out by Mr. Coty. Mayor Cahill and Mr. Courteney announce that they will devote their exclusive attention to the business of the Watertown Engine and Machine Company of which they are the officers.

The Bethlehem Paper Company, capitalized at $3,000,000, is listed among recent Delaware incorporations. Ezra A. Doster, Bethlehem, Pa.; Gus A. Runn, Allentown, Pa.; and Arthur J. Buss, Easton, Pa., are mentioned in the papers as the incorporators. The new company's activities will be centered in timberlands and the manufacture of paper.

A verdict favorable to the plaintiff in the case of Atterbury and McKelvey vs. the Hudson Paper Mills was rendered March 4, by a jury in the City Court of New York, before Justice Callahan. The suit involved fifty cases of damaged bond paper and the award covered the full amount demanded plus interest.

Because of the car shortage, the mills of the Middle Western States have been unable to supply Chicago's usual amount of paper and raw stock with the result that there is a congestion at many way points and a piling up of paper at scores of mills in Michigan and Wisconsin, while many of the trade and allied industry plants in Chicago have had to slow up somewhat for lack of their regular supply.

The third annual convention of Pacific States Paper Trade Association, which was at Hotel Del Monte, Monterey, Cal., recently, brought together a large representation of the paper jobbers and manufacturers of the Sunset Coast. As the work of the meeting was purely educational, business was more or less skipped over. Otto W. Mielke of the Blake McFall Company, Portland, was elected president for the ensuing term and B. N. Coffman, of San Francisco, was named secretary. The vice-presidents chosen are the following: Roy Davidson, Standard Paper Company, Tacoma; Victor Hecht, Zellerbach Paper Company, Los Angeles; Charles Sparrow, Pacific Coast Paper Company, San Francisco; H. L. Bonestell, Bonestell & Co., San Francisco, and N. D. Hopkinson, Zellerbach Paper Company, San Francisco.

Plans for the construction of a new hydo-electric plant in the vicinity of Sewalls Island near Watertown, N.Y., are under consideration by interests connected with the International Paper Company and the Hinde & Dauch Paper Company. The project is understood to involve an expenditure close to $1,000,000.

A plan providing for the use of airplanes in forest patrol work in Pacific Coast States has just been adopted by the United States Forest Service. The idea was suggested by R. H. Charleton of the service and has its basis in the recent cooperative work on the part of the air service which patrolled several California forest reserves during the last dry season and discovered several fires in time to prevent their spread. The plan provides for the instruction of rangers in flying and for the assignment of Government planes exclusively to the work. The rangers will be instructed in aviation at March Field near Riverside, Cal. The first class will include ten California rangers, five from Oregon and Washington and five from Arizona and New Mexico.

The Hawley Pulp and Paper Co. of Oregon City, Ore., whose paper and pulp mills at the falls of the Willamette river include in their various processes the applications of electric motor drive, steam power and water power direct, is installing new equipment in one of its mills in which a paper machine, previously steam driven, is to be motor driven. This will consist of an engine-driven General Electric generator, 165 kw., direct current, 240 volts, driving a 200-hp., variable speed motor. The same engine will drive the constant speed shaft of this paper machine.

Gifford Pinchot, former Chief Forester of the United States has been appointed Commissioner of Forestry of Pennsylvania.

Attention of newspaper publishers has again been called by Chairman Steenerson of the House Post Office Committee to the request that they reduce consumption of newsprint paper 10 per cent because of the acute shortage. The publishers are asked to furnish information as to the amount of paper consumed by them in the four months ending March 1, 1920, and for the same period the year before. They are reminded also that the committee has before it various bills to restrict the size of publications because of the paper shortage.

Bills seeking to amend the conservation law in relation to the development of hydro-electric power for the State, are under consideration in the New York State Legislature. The proposed measures add to the present conservation statute a section empowering the Conservation Commission to acquire and utilize sources for the development of electrical energy and to sell to municipalities and inhabitants at cost the power and current generated.

Secretary of Agriculture E. T. Meredith appeared last week before the Senate Agriculture Committee and read the letter he received from Henry S. Graves head of the Federal Forestry Service, in which the latter announced his intention of resigning and returning to private life. Mr. Meredith cited the action of Mr. Graves in support of his contention that the Government would have to offer greater inducements if it wished to attract and retain high class men. Mr. Graves headed the Yale Forestry School before entering the Government service and was at



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Peter G. Thomson, Jr., has resigned as vice-president of the Champion Fibre Company of Canton, N. C. He has been succeeded by Reuben Robertson of Asheville, N. C., who was elected a director at an executive meeting held at Hamilton, Ohio to fill the vacancy caused by the death of J. G. Schindlapp of Cincinnati. No action has yet been taken on the resignation of Mr. Thomson as vice-president of the Champion Coated Paper Company which was tendered at the same time he turned in his resignation from the fibre company.

PROTECTS FORESTS AGAINST FIRE.

The Ottawa River Forest Protective Association, which held its annual meeting in Ottawa on February 12, decided to construct 200 miles of telephone line through the forests of upper Canada. In a report to the association, Arthur H. Graham, chief fire inspector, stated that last season was one of the worst for forest fires in many years. He said that fire loss in 20,000 acres or 31 square miles of valuable forest was caused by unextinguished lunch fires, careless smoking by campers, travellers and berry-pickers, and slash burning without fire ranger's permit. The work of the Ottawa River Forest Protective Association was outlined briefly by Mr. Graham, who pointed out that in the year the association employed 200 fire rangers and patrolled 21,000,000 acres, or 32,000 square miles of forest land in western Quebec. On this territory 227 fires were extinguished by these forest rangers.

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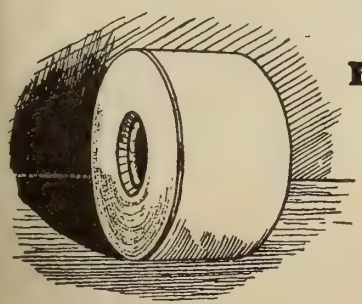
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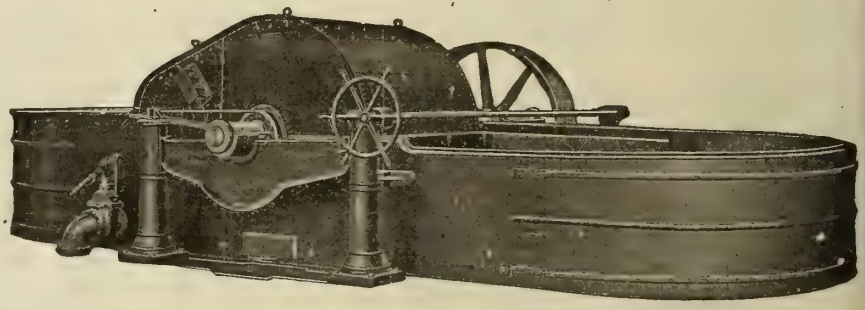
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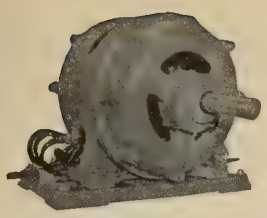
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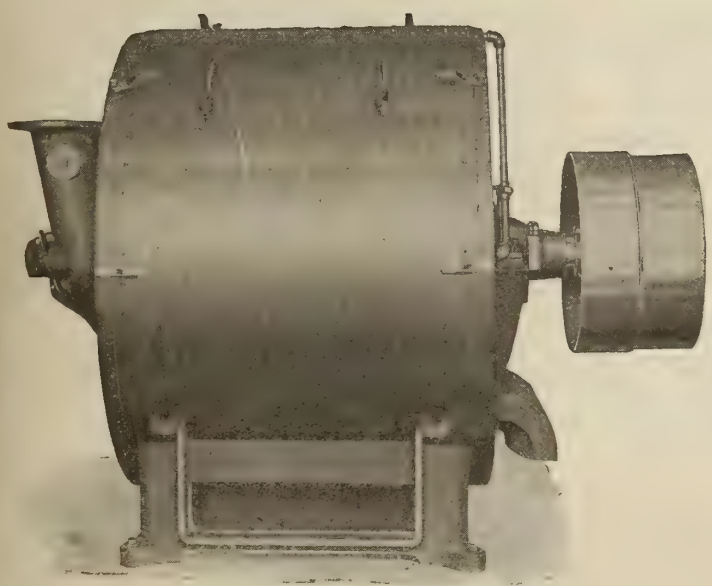
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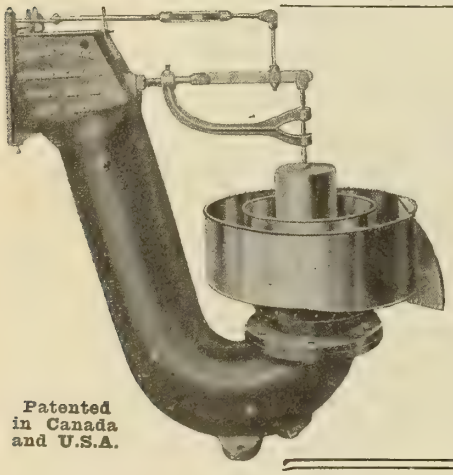
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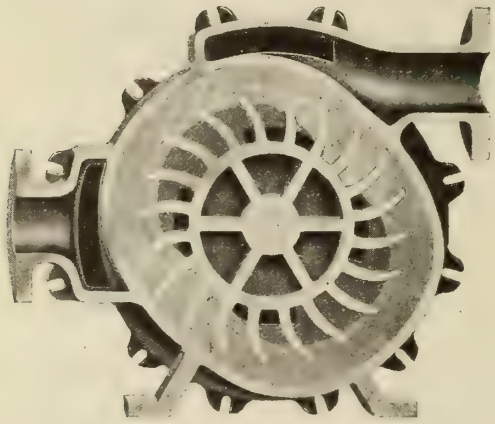
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EDITORIAL

1914 1920

In Memory of

THE PULP AND PAPER DIVISION

of the

Forest Products Laboratories of Canada

AGE 6 YEARS

OBITUARY.

Prominent Public Servant Passes Away.

The editor recently had the sad experience of viewing the remains of a friend who passed away when just on the threshold of a life of promise. During the few short years in our midst a number of good deeds were accomplished. Yes, the Pulp and Paper Division started out well, but unfortunately, its parent, the Forest Products Laboratory has been so under-nourished of late that the spark of life could not be maintained in the Division. There were signs of a rally recently but a relapse occurred.

The corpse is still lying in state—a sad state. And there are those who look for a resurrection.

PLANTING AN IDEA—AND CULTIVATING IT

At the annual convention of the Canadian Pulp and Paper Association Sir Lomer Gouin, Premier of the Province of Quebec, suggested a pulp and paper school in this province. Sir Lomer had voiced the belief of many others interested in the development of this industry in Canada's biggest province when he revived an idea that has been in the thoughts of many others for a long time. This province is a little in the lead as regards production in the Dominion. The manufacture of pulp and paper is easily Quebec's leading manufacturing industry so that it is entirely appropriate to consider seriously the establishment of such a school within its borders.

The appropriation by the Federal Government of $10,000,000 to advance the cause of technical education in Canada comes at a time when a great deal of thought is being put on educational subjects. The administration of the act creating the fund comes under the Department of Labor and the head of this department has very wisely chosen Prof. Lester W. Gill to carry out the provisions of the act. Sir Lomer Gouin appealed to the Pulp and Paper Association to support the establishment of a vocational school. This is practically the only kind of school that the Dominion fund is available for and that, through the agency of provincial educational authorities.

In order to get general information preliminary to a proper consideration by authorized representatives of the industry Prof. Gill was entertained informally at the University Club in Montreal recently by the publishers of the Pulp and Paper Magazine and at that time had an opportunity of meeting a few of those connected with the industry who are particularly interested in educational matters. Unfortunately arrangements had to be made without much opportunity for announcement so that the party was limited to five or six members of the Technical Section who happened to be free. Fortunately a former superintendent of the Pulp and Paper Division of the Forest Products Laboratories and the member who had studied at Manchester School of Technology and had visited the Pulp and Paper School at Grenoble, France, were present.

The discussion naturally hinged about the possibility of making more efficient use of the equipment at the Forest Products Laboratories and it appeared that there were three general features to be considered with respect to the laboratories. The industry is interested in research work, in the education of workmen, and in the higher education of research workers, mill superintendents and managers. The discussion seemed to indicate that the equipment of the laboratories could be made to serve all three of these objects. The Pulp and Paper Laboratory, however, while practically in shape for immediate use for research work cannot be properly employed in an educational work until arrangements are made in the provision of preliminary and supplementary instruction.

At the present time the Pulp and Paper Laboratory is dead and to be revived it requires an infusion of spirit and energy in the form of guidance and coin from the industry. The industry has been ready to do its part but the Government is so bound up in red tape that it cannot accept the proferred assistance. The only practical solution of such lack of co-operation appears to be for the industry to take over the whole proposition and put the excellent equipment, rounded by a few more pieces of apparatus, into active service.

There would be little difficulty in working out a feasible scheme whereby any pulp and paper manufacturer could make use of the facilities thus placed at his disposal and there is no doubt but that the efficient staff, which adequate salaries would provide would be kept busy with interesting problems of the utmost importance to the industry.

Prof. Gill indicated some of the principal points with regard to the administration of the Federal appropriation for technical instruction. Other industries in Canada are also very much interested just now in vocational education, particularly the textile industry, the fishing industry and the iron and steel men. The situation briefly is, the industry desiring a vocational school makes the fact known and as an evidence of good faith as to its intention of continuing to support such a proposition, provides the school and equipment. The province pays the salaries and maintenance. The province may receive financial aid from the Federal Fund if the school and the curriculum meet the approval of the Federal director of technical education. As such a school would certainly not be planned or developed without the aid and advice of the director there would of course be no hitch in this regard. An important feature of the scheme is that the civil service has nothing whatever to do with it. The plan of administration which is favored by Prof. Gill is that the affairs of each school be administered by a board of control, one-third of whom would be selected by the Government, one-third by the industry, and one-third by labor. One could hardly conceive of a better plan than this since such a board would represent the parties principally or solely interested in the matter. Prof. Gill showed how the Technical High School in Toronto is conducted on a somewhat similar plan.

One of the questions arising had regard for the status of students from provinces outside that in which a school might be located. While this is a problem to be considered there appears to be no occasion for worry in administering the affairs of a single school representing a national industry.

The character of the curriculum of the vocational school would determine the amount of use to which the equipment of the paper laboratory could be put and not interfere with research work which the industry might be carrying on at the same time. It is even probable that the simultaneous research and educational activities would each help the other, in that the workmen would get a better appreciation of accurate operation and records while absorbing some interest and enthusiasm for the research idea and at the same time the men conducting the research problem could get the attitude of the workmen and be able better to appreciate the human element in pulp and paper mill work.

The use of the laboratory equipment by university students is quite another proposition but when a university course is established for those who wish to prepare themselves for a life work in the industry it will be necessary to round out their work by giving them at least an acquaintance with the principles on which the mill equipment is constructed and operated. This can readily be done in such a laboratory and no doubt we shall see important investigations carried on there by university students in summer vocations and perhaps during the college year under direction of a competent and well paid director.

Scientific operation and control requires educated intelligent workmen, university men grounded in fundamentals of physics, chemistry and engineering and constant research work developed by the latter and applied with the intelligent co-operation of the former. The equipment of the pulp and paper division of the Forest Products Laboratories would serve as an ideal nucleus for the training of the workmen, the development of the research worker and the work-shop where investigations can be carried out.

It is not possible, of course, and it would be presumptuous to lay down the lines along which the industry should proceed in making use of the laboratories but we have no hesitation in stating that the plant at 700 University Street, Montreal, is not being used for the benefit of Canadian industry and it is time something is done to remedy the situation. To our mind, since the government has admitted its inability to pay sufficient salaries to hold efficient men on the staff that the industry be permitted to acquire the pulp and paper department and put it to use. The Canadian people would then get some benefit from it, which has not been the case for some time and is not an immediate prospect in view of present conditions.

COBWEBS.

While down in the States last week the editor said something about waste liquor in Canada, when a thirsty Yank exclaimed "You don't mean they **waste it!**"

Spring is here. We saw an organ grinder in Montreal last week. Railways and shippers will be glad of milder weather if it doesn't bring wash-outs and floods.

Why does the Federal Trade Commission use the term "**Mechanically** ground wood pulp"? Is there any other way of grinding it?

A lot of ground wood pulp, about 300 tons, from Scandinavia was sold to a mill near New York for $100 a ton. It is understood the mill had to have the pulp to cover commitments and that the paper made therefrom sold for less than the price of the pulp. Can you beat it?

At one time snail-racing was a great fad in Austria.

Maintenance of the Working Force

By MAURICE NEILSON, Efficiency Engineer,
Belgo Canadian Pulp & Paper Co., Ltd., Shawinigan Falls, Que.

No intelligent person, who reads the headlines of the daily papers, can fail to be impressed by the rapidly growing importance which is, in these days, being given to the labor problem in industry and business. The old attitude of employers of labor, which used to be one of uniformed indifference, is rapidly changing. It is being more and more realized that, unless the relations between capital and labor are harmonized and stabilized, the present industrial system cannot survive. The employer of labor, who does not realize this, but who thinks that the perplexing labor problem can be solved merely by a reluctant increase in wages every now and then no longer has any real place in industry.

The first condition for satisfactory relations between the employer and the worker is that the latter is paid a wage which will permit him and his family to maintain a decent standard of living.

It is not enough to pay the prevalent "market price of labor" or to pay as much as the other man, because labor is not a commodity to be bought and sold. So long as that attitude is maintained, the real cause of the universal unrest among the industrial workers will never be reached.

Progressive and foresighted managers of industry recognize this fact and the necessity of paying a minimum wage based on the cost of living in the community.

But in order to make possible such wages without putting an increased burden on the consumer, thus starting anew the cycle of higher prices and accompanying higher wages, the manufacturing processes must be made more efficient, and production must be increased in quality as well as quantity.

Efficiency is knowledge applied. It is knowledge of the principles on which the manufacturing process is based; of the most efficient and economic machinery with which to carry out these processes; of scientific control of operations; of industrial research; of scientific methods of management, etc.

The services of the industrial engineer are required to apply this knowledge intelligently, and the managers who do not today appreciate the need of expert knowledge, certainly belong to the minority.

But there is something more needed to achieve what is universally held out as the panacea of the present social upheavers—*production*, and that is an efficient, intelligent, and satisfied working force. Without this the best designed machinery and the highest engineering skill are of no avail.

It is this need that makes the subject of maintenance of the working force one of compelling industrial interest in life today.

Labor Turnover.—A very large part of the industrial waste is due to excessive labor turnover. What is labor turnover? It is something more than the cost of keeping a man to take on "the help," that applies for a job at the gate. When analysed, it will be found that the following items constitute the cost of labor turnover:—

1. The actual cost of engaging the workers.
2. The cost of medical examination, where such is used, or the very large cost to the company, which may result in engaging a man suffering from disease.
3. The cost of the foreman's time in breaking in the new employee.
4. The cost of reduced production.
5. The added wear and tear on machinery due to inexperience on the part of the new man.
6. The cost of accidents due to unfamiliar surroundings.

Other items should also be counted in the cost of the turnover, such as absences, tardiness, the cost to the worker himself through frequent changes of jobs and finally the cost to society resulting from lower production, higher prices, unrest and strife.

The cost to the manufacturer due to this turnover of labor is very conservatively estimated at $50.00 per individual. If the average working force of a Canadian pulp and paper concern is taken as 1,000 men, and the number of men hired to maintain this working force—not considering seasonal increases in the personnel is assumed to be 10 per cent per month, the number of men hired per year will be $\frac{10}{100} \times 1000 \times 12$, which equals 1,200 men. 1,200 men at $50,00 per man amounts to $60,000.00 a year, which constitutes an expense well worth spending considerable effort to reduce.

Employment Management—There are two steps by which the labor turnover may be reduced. The first is care and selection in engaging the workers. The second is keeping the worker in the organization by making him satisfied with his wages, his work, his treatment, and by making him more valuable to himself and the company through education and training.

Employment management is therefore the administration of properly centralized methods in engaging and maintaining a competent and efficient working organization; and it is today being accepted as a necessary and important function of industrial management.

Few manufacturers have, as yet however, well organized employment departments. Either through ignorance or fear of introducing something new, the old system of hiring and firing is retained, and little attention is, in this case, given to the working conditions of the employees.

In order to be successful, the employment department should be in charge of a competent executive. He can really be said to take the place of the old time resident owner, who was in close contact with and held the confidence of his employees.

He should realize that he is not dealing with a market commodity, but with the human element, with men like himself, and that he must win their confidence through sincerity of motive and appreciation and understanding of the other man's point of view.

The head of the employment department—employment superviser, as he is often called—should have authority in line with other department heads, and he should be responsible directly to the manager.

His work will cover study and investigation of the requirements of each occupation in the plant; the

careful selection of men for these occupations; their adequate training and promotion; the fixing of just wages and the maintenance of proper working conditions; the protection of the men against undue fatigue and accidents; the health and welfare of the employees; and finally he will provide a channel through which the employees may reach the ear of the management.

Records.—For the work of the employment department, and for the compilation of statistics, records are necessary. These can, of course, be varied to suit various conditions. Those most essential are, however, given below, and it is hoped that they will be found to be suitable for the average pulp and newsprint mill.

It should also be emphasized that the system of records should not be made too complicated and cumbersome. One form should be made to contain as much information as possible.

Work analysis.—The employment supervisor should be familiar with the various phases of the manufacturing processes. He should know the mechanical equipment, the work requirements of the different departments and the qualifications of the operator. For the classification and filing of this information the form, Fig. 1, may be used. The information contained on the form will be of great help in the selection of employees. On the reverse side, Fig. 2, space is provided to enter the names, addresses, and other information concerning the man filling this position.

T. O. FORM....

EMPLOYMENT DEPARTMENT
WORK ANALYSIS

DEPT. MECHANICAL EQUIPMENT NATURE OF WORK QUALIFICATION

Fig. 1.

T. O. FORM....

EMPLOYMENT DEPARTMENT
WORK ANALYSIS
REVERSE SIDE

NAME OF EMPLOYEE	ADDRESS	HIRED	LEFT	REASONS FOR LEAVING

Fig. 2.

Hiring the man.—The old way of letting the foreman hire the men, regardless of whether he has the necessary experience and qualifications will always be expensive and unsatisfactory.

On the other hand, in some plants, the employment department does the hiring outright, and the department heads and foremen have nothing to say about it. This is hardly in keeping with democratic principles of management. It is, furthermore, hardly fair to hold the foreman responsible for results with his men arbitrarily thrust on him. This is particularly true in regards to skilled men, but it is believed that a better feeling is created if the foreman is given the opportunity to pass final judgment upon the unskilled applicants also.

The most satisfactory policy will therefore be, in the mind of the writer, to make the engagement of the worker subject to the approval of the foreman or department head. In this way, the foreman will feel that his dignity is upheld, he will be better able to keep the necessary discipline, and he will also, to a certain degree, be responsible for seeing that the man makes good.

In case he considers that the man submitted to him by the employment department is not suitable for the job, he must state fully, in writing, the reason for his belief. Space is provided for this on the introduction card, Fig. 4, described below.

Selecting the worker.—The first step in the efforts to build up a permanent working force is the selection of the right man for the job. This is particularly the case when a skilled worker is needed.

The ability to judge men, tact and common sense, in addition to familiarity with the work, are essential in doing the interviewing and selecting. This should therefore be in the hand of the employment supervisor and constitutes one of his most important duties. In this work, the work analysis record, described above, will be of great value.

It will probably be considered a wise policy to require that, as far as possible, all applications are to be made in person. The reason for this is that although a man may have a fair record to show, his personality may make him totally unsuited for a member of the organization in question. On the other hand, although an applicant's past record may be rather indifferent or even unfavorable, the employment superviser may find, on interviewing the man, that, with the proper training and supervision, he may become a valuable addition to the organization.

Fig. 3 shows a form used for recording information required of the applicant. This is used only in case the employment superviser considers the appli-

T. O. FORM....

EMPLOYMENT APPLICATION

Hired: Not hired
Rate.....
Date to start.....

Name of applicant.....Address.....Approved.....
Age....Nationality.....Religion.....Height.....Weight..
General Health.....Chronic diseases.....Physical defects.....
General education.....
.....
Special training.....
.....

EMPLOYMENT RECORD

Previous employ	Address	Work	Time employed	Date of leaving	Wages received

Fig. 3.

cant desirable. The employment record provides space for giving the names, addresses, etc., of the last three employers.

The application forms, used by some concerns, require the answering of every conceivable question, but, in the opinion of the writer, this is overdoing a good thing.

Personality is really the greatest determining factor in choosing the man, and this the employment superviser will draw out during the interview.

The employment card can be made very valuable as a progress record. On the reverse side, space can be provided for entering the initial wage paid, increases in earning capacity, good or bad characteristics, absences or tardiness, etc. Report in regard to absences or tardiness is supplied by the time office. Information concerning the worker's record of progress, on the other hand, should be given by the foreman, and it might be a good policy to provide for foreman's reports at fixed intervals.

When the application form has been filled in, the

T. O. FORM....

No.....

EMPLOYMENT REQUEST

Employment Dept:
Please employ for Department No..... Division No.....
To start work.....19 Nature of work.....
To replace..... { Transferred / Promoted / Released
To increase the force.....
Rate.....
Approved..... Signed.....
Superintendent Foreman

Fig. 4.

employment supervisor sends the applicant to the department head or foreman, who has made the requisition, together with an introduction card. Form for this card is shown in Fig. 5. In case the executive does not consider the applicant suitable, as before mentioned, he states his reasons fully in the space provided on the card and then returns applicant and card to the employment department with a messenger. If he accepts the applicant, he initials the card, retains a copy and sends the original to the employment department. The employment superviser then intials the card and sends it to the time office, where it is kept as an authorized engagement.

The applicant is then given his clock number, clock card and pay check, and is now ready to become a member of the organization.

Discharge and Transfer.—The autocratic power to summarily discharge a man (it is now generally recognized), is detrimental to the best interests of the company, and where such power is retained the temptation to fire a man on slight provocation is very great. It should also be remembered that dismissing a man unjustly not only creates ill-feeling and resentment within the organization, but extends out into the community and will very quickly set up an unenviable reputation for the company.

The reputation thus created, influences greatly the class of men applying for positions. As much care should therefore be exercised in allowing a man to leave the organization as was used in engaging him.

No man should be discharged or allowed to leave before his case has been investigated by the employment superviser, and the quit notice has been initialed by him as well as by the department head or foreman. If the employment superviser cannot agree with the latter in the matter of discharge, the question should be submitted to the manager for decision. In this way, the worker is assured that he always will get a square deal and that his services—however humble his position may be—are a matter of great concern to his employer.

It often happens that a man shows an unfavorable progress record, and that he is dissatisfied and desires to quit, because he is not suited for his present job. In such a case, an investigation by the employment superviser may help him to find a position, within the organization, for which he has a natural inclination or which is congenial to him, and he may thus be made a very valuable man to the company.

Before a man is transferred to another department, however, the matter is taken up with the respective department executives and their consent given. A new introduction card is then made out, the old card returned to the employment department, and the transfer recorded on the progress record.

T. O. FORM....

No.....

INTRODUCTION CARD

Department No..... Division No.....
Employee's Name.....Address.....
Employed as.....Rate.....To start work, date.....
Approved.....
Dept. Head (Foreman) Employment Supervisor
Department Head's (or Foreman's) Remarks:
Signed.....

Fig. 5.

It cannot be too much emphasized that the worker should be made to feel that he is always welcome to the employment superviser for advice and help. No man can give his best efforts to his work, if he is nursing grievances, or if he is having financial or other troubles in his home.

It is of as much importance to the employer as to the worker himself that he is happy and contented both with his work and in his family, and the employment superviser, through tact combined with genuine interest in the man, can accomplish much to allay troubles and grievances and to develop esprit de corps within the organization.

It is, of course, not intimated that every man engaged will turn out to become an efficient and loyal worker; there are always a certain number of men who drift from place to place, and others who are constant trouble makers.

But the great majority of men will become stable workers, if given the opportunity to develop their talents and to increase their usefulness and earning power, and particularly, if they are made to feel that their work with the organization is life work. Opportunities for professional training and education should therefore be given the workers, and this will form an important part of the employment's duties.

However perfect a system is organized, it will not succeed without the right spirit of co-operation and fair dealing; and, above all, it should be remembered that the worker is human material and, as such, should be given human consideration.

A USEFUL PUBLICATION ON "BELTING".

The Main Belting Company of Canada, 10 St. Peter Street, Montreal, have just issued a most complete, attractive and comprehensive publication setting forth the quality and merits of Leviathan and Anconda belting. The volume of 144 pages contains information with regard to power transmission, solution of modern belt problems, motor drives, belting in pulp and paper mills, and other industries.

A number of striking pictures are presented showing the strength, durability, economy, efficiency, etc., of the products of the Main Belting Co. of Canada. Users of belts in any form will find in the new publication, entitled "Belting," a valuable and convenient work with reference. An index is given which readily indicates where the data on any power problems may be found. Special pages are devoted to the capacity of belt, elevators, centrifugal belt elevators, continuous belt elevators, etc., while timely particulars are furnished with respect to belt dressings, belt fasteners, clinching hooks, steel belt lacing, belt punches, cutting pliers, etc.

The new publication is so arranged that any additional printed matter issued by the Main Belting Company can be added by unloosening two or three paper fasteners which bind the book firmly and, like a loose-leaf ledger, afford every facility for extension.

Gaspe Pulp Mill a Fraud

Canadian and American contractors to the number of forty-seven are anxious to learn the whereabouts of a German named Arthur Sande, who is alleged to have suddenly disappeared for parts unknown carrying with him the tidy sum of $117,500 in cash, the property of the said Canadian and American contractors.

The story told by the Quebec Chronicle of the deal, discloses a new scheme of fraud to obtain easy money.

Arthur Sande, who for a time resided at Hamilton, Ont., and occupied offices No. 313 and 315 in the Lester Building in that city, carried a neat business card for distribution, bearing the following inscription: Arthur Sande, Member of Society of Building Engineers' Associate member Engineering Institute of Canada, National Fire Protection Association, Offices, Lester Building, Hamilton, Ont. Inquiries made proved that Arthur Sande was actually a member of the above technical associations.

Mr. Sande, though known in Hamilton, was a stranger in Montreal and also in the United States. He managed, however, it is said, to worm himself into the confidence of the Bradstreet and Dunn commercial agencies, and likewise to have won the confidence of the forty-seven contractors who would now be greatly pleased to know of his present place of residence.

The first heard of Mr. Sande was the receipt of a letter from him by hundreds of Canadian and American contractors, inviting them to tender for a contract to build a pulp and paper mill, and, with it, a model town, at New Richmond, Baie des Chaleurs, in the Province of Quebec, at a contract valuation of approximately $4,000,000. Plans and specifications were at the disposal of all who sent in tenders with a certified cheque for the amount of $2,500 to accompany each tender as a proof of good faith.

Mr. Sande at the same time did a little building to introduce himself, visiting Montreal, where the representative of the Journal of Commerce had a short interview with him.

He was a jovial German of evident culture and good appearance, about 5 feet 6 inches in height with a fair complexion, blue eyes and brown hair. He was faultlessly attired and won favor with all who met him.

He was well looked after in Montreal, especially by one contracting firm whose members entertained him for three days and put him up at their clubs.

It was on the 25th of February that the circular letter calling for the building of a Pulp and Paper Mill at New Richmond, reached the Canadian contractors, which said that tenders would close March first. The offer was to say the least very tempting, and immediately attracted the attention of 47 Canadian and American contractors, among the latter being one who does business in the State of Florida.

According to a statement given out by tthe contractors, they did institute inquiries about Mr. Sande, who had told them that the Company was not as yet formed, but mentioned a rich business man of Toronto, Mr. A. J. H. Erkhardt, as one of the financial backers of the enterprise. They sought information from Bradstreets and the Dunn commercial agencies, and from what they learned, came to the conclusion that Mr. Sande's proposition was safe and sound, and they unhesitatingly forwarded their tenders with accompanying cheques for the amount of $2,500 each.

The Sequel.

During the second week of March, one and all of the forty-seven contractors are alleged to have received an autograph letter from Mr. Sande dated Hamilton, Ont., telling them that they had been awarded the contract, and asking them to meet him at the Windsor Hotel, at Montreal to sign the necessary papers.

Each and every one of the individual contractors thought he was the lucky bidder, and in consequence felt jubilant at his success. The date arrived for the signing of the contract at Montreal, when the representative member of each of the contracting firms packed his grip and hastened to the Windsor Hotel to keep his engagement with Mr. Sande.

The Windsor Hotel never saw so many contractors flocking to that hostelry before, and the clerks in the office wondered if it was a contractors' convention that they had not been advised of in advance. In the meantime the contractors were also surprised to see so many of their craft in the hotel, and not wishing to tell their business were frigid in their greeting with each other.

Finally one by one inquired at the office for Mr. Sande, and were each in turn is said to have been told that there was no such guest in the hotel.

The reservations were searched by the clerk, when it was found that a Mr. Arthur Sande had written to have two bed-rooms and a sitting room reserved for him for that day, but Mr. Sande did not appear on that day or any day since to claim them. After lounging about the house for some hours, it began to dawn on the contractors that something was wrong. Then they commenced to make inquiries, and found that they were all there on the same errand, and gradually realized that they not only were duped but defrauded out of $2,500 each. A consultation followed when the victims agreed to keep the matter quiet, and lose no time in having the machinery of the law put in motion to apprehend Mr. Sande. The Thiel Detective Agency was employed, and the combined strength of this agency in the United States as well as Canada, is looking for Mr. Sande.

Subsequent inquiries are reported to have brought to light the fact that the cheques received by Mr. Sande were deposited in the Bank of Hamilton, and later the full amount drawn by Mr. Sande, whose correspondance has been intercepted without giving a clue as to his whereabouts.

It is believed by most of the contractors that there was a real project on foot to built a pulp and paper mill at New Richmond but that at the last moment monetary interests behind Mr. Sande backed down. As he had gone to considerable expense in his work of promotion he probably took this method to recoup his losses.—The Journal of Commerce.

GOOD AFTER NINETY YEARS.

"Our rulers will best promote the improvement of the nation by strictly confining themselves to their own legitimate duties, by leaving capital to find its most lucrative course, commodities their fair price, industry and intelligence their natural reward, idleness and folly their natural punishment, by maintaining peace, by defending property, by diminishing the price of law, and by observing strict economy in every department of the State. Let the Government do this: the People will assuredly do the rest." Lord Macaulay, 1830.

Use of Balsam in the Manufacture of Newsprint

There is considerable discussion going on at the present time as to the amount of balsam which can profitably be used in the manufacture of newsprint; the discussion is partly based on the feasibility of driving the logs for any great distance.

In 1903 the U.S. Forest Service sent a circular letter to the pulp and paper manufacturess in the United States, asking for data on the use of this species with reference to pulp. About 70 per cent of the mills which reported, used from 2 to 30 per cent balsam. Those who did not use it said either that they used some other species exclusively, or that they could not get it, or that they did not use it "if they could detect it."

Spruce and balsam almost invariably grow together, and logs of the two species are found together from the time they are cut until they are made into pulp, the balsam, after it has been barked and kept in the water for a time, being hardly distinguishable from spruce, except with a microscope.

The greatest objection to the use of balsam in large quantities in groundwood pulp seems to be on account of the pitch which is said to gum up the machines. Freshly cut balsam is said to cause the most trouble, while in logs which have remained in the pond for a season the amount of pitch is apparently so small that little or no trouble results. Nearly all pulp and paper companies admit that from 10 to 25 per cent of balsam can be used in groundwood pulp without lowering the grade of paper, while others say that groundwood pulp can be made satisfactorily of almost pure balsam, although the grade of paper is somewhat lower. In chemical the chemical pulp pitch is removed to a great extent by the coating, and apparently any percentage of balsam may be used, although it is claimed that paper containing a large percentage of balsam is of inferior quality.

The complaints against the amount of pitch in balsam are rather strange since there is actually less resin in balsam than in spruce. Balsam bark does contain a large amount of rosin, but when the blocks are rossed there should be less resin in the wood than in spruce. It would seem then that the pitch must either come from the resin in bark left on the suface of the block, or from "pitch pockets" filled with pitch caused by the efforts of the tree to heal wounds received while growing. These pitch pockets are often quite deep and are therefore not removed by the rossing. When the wood is reduced to sulphite pulp or ground to mechanical pulp the pitch gets into the pulp and is probably the cause of the so-called gumming of the machines. If the pulpwood bolts can be inspected and the pieces on which bark still remains or which contain numerous pitch pockets culled out, or if the wood is ground under a high temperature, the trouble should be greatly diminished.

It can not be denied that woodpulp containing a large proportion of balsam is of inferior quality, but to what extent this is due to insufficient knowledge as to the proper method of handling, and not to the quality of the wood itself, is not known.

The fibre of balsam is weaker, shorter, and softer than spruce fibre, which may be one of the chief reasons why a poorer grade of paper results when the wood of spruce and balsam are worked up together in mechanical and chemical pulp, if there is a considerable percentage of balsam. With this difference in the fibre of the two species, if balsam were given a different treatment from that of spruce a better grade of paper might be produced than when a large percentage of balsam is mixed with the spruce under the same treatment. Many mills, however, get quite satisfactory results by mixing the two species indiscriminately. and others can surely do so if they adopt approved methods of handling of balsam. The idea that only a small proportion can be used as an exploded superstition.

Another disadvantage of balsam is its smaller yield of pulp per cord of wood. The following table, taken from Bulletin 55 of the U.S. Department of Agriculture, and based on actual experience, shows the yield in pounds per cord of chemical and mechanical pulp per cord of spruce and balsam.

	Mechanical Pulp Pounds	Chemical Pulp (sulphite)
Spruce..	1,800	1,200
Balsam..	1,500	1,000

This disadvantage of a smaller yield per cent could be overcome, however, by a proportional reduction in the stumpage price of balsam as compared with spruce. In New Brunswick, for example, this is already the practice.

Balsam, in the larger sizes is apt to be defective. In the younger and smaller trees, however, heart rot is not so common, and as the small logs make better pulp, the younger trees are preferable for pulpwood. Cutting small logs will of course, run up the logging expenses, as will also the higher percentage of cull in balsam. This might also be largely overcome by a reduction of the stumpage price.

Considerable difficulty is also experienced with balsam in the drive. The log floats heavily, those from young trees especially being full of sap, and many become water-logged and sink. It is estimated that on an ordinary drive of one season, about ten per cent of the balsam is lost through sinkage. Logs cut during the winter and driven the following spring do not get a chance to dry out, but if they could be left until the following season, the loss would probably be greatly decreased. Cutting into short lengths would hasten the drying, and fewer sticks would be lost by sinking. This would also enable a fuller utilization of each tree. On the other hand, the short logs in the water will not support a man's weight, and may be harder to drive, but they very seldom form jams.

It is well known that the growth of balsam is considerably more rapid than that of spruce, from 60 to 80 years being required to grow a spruce tree, under favorable light conditions, and from 40 to 60 years to grow a balsam tree of a size sufficient to be profitably cut for pulp material. Under conditions of suppression, as in the virgin forest, a much longer period of time is required. Much of the spruce and balsam now being cut for pulpwood is from 100 to 200 years old. This is especially so where there is a diameter limit, as in Quebec and New Brunswick, where the diameter limit for spruce on Crown lands is 12 inches.

Some companies restrict the cut of balsam to 10 per cent of the total annual cut of all species, regardless of the fact that it forms a much higher percentage of the entire stand on the limits. This not only favors balsam in the future forests, but allows a considerable waste of the species through insects and decay.

That balsam can be used is demonstrated by many companies. The point is to solve the problem as to the best method of using it. The available spruce supply in eastern Canada is rapidly decreasing, and balsam is not only replacing it to a great extent, but already forms a large percentage of the present forest. Unless the matter is investigated thoroughly and balsam utilized to its fullest extent, the pulp and paper companies of this country stand a fair show of finding themselves not many years hence in much the same predicament as their neighbors to the south are in at present.

A HANDBOOK OF METHODS OF QUANTITATIVE ANALYSIS.

Frequently the chemist needs a method for the determination of an element—possibly in a mixture involving difficult or unusual separations—either in research or in commercial work. It is necessary to make a thorough search of the literature or to devise a new method. After the latter course has been adopted, it may be discovered that there is a good method described in some journal not readily accessible to the worker. At present there is no general reference book in which **ALL** the methods of procedure are systematically listed. In any one of the many excellent text-books on quantitative analysis, only the representative methods considered most important by the writer are included, and these are usually discussed in detail.

The Chemical Catalog Company, Inc., 1 Madison Avenue, new York, have just completed the arrangements for the publication of a handbook of a compendium of quantitative analytical chemistry. The author is a member of the faculty of one of the universities devoting special attention to chemistry, and had extensive experience in applied chemistry and in chemical engineering. It is planned to include every method given in chemical literature, both in English and in foreign languages. The work will be in two volumes, one Inorganic and the other Organic. The Inorganic volume will be published first. Every journal and book likely to contain methods of quantitative analysis will be carefully searched. The material will be thoroughly indexed, not only under the elements and compounds, but also under the commercial articles in which the element is to be determined. Copious reference to the original literature will be given.

Naturally the preparation of such work is no light task and will require considerable time. However, every effort will be made to have the Inorganic volume of the work ready at the earliest possible date. The author will be assisted by the editorial staff of the Chemical Engineering catalogue and by an efficient clerical force.

The price cannot be determined until the work has proceeded long enough for costs to be calculated with some precision, but every effort will be made to keep it low enough to make the book available to every chemist interested in quantitative analysis. More detailed announcements will be made from time to time as the work nears completion and those interested will be given an opportunity to subscribe in advance of publication.

Editor's Note: From the skillful and successful work done by the Chemical Catalog Company in putting out several excellent editions of the Chemical Engineering Catalog and their first edition of a concise dictionary of Chemical products, the new ventures will be awaited with the greatest interest.

HOW TARIFF FAVORS U. S. AT EXPENSE OF GREAT BRITAIN

An interesting paragraph in "Investment Itemss" shows the curious effect of Canadian import duties on trade with Britain. It says:—

To-day our purchasing should be directed so far as possible to Great Britain and the other British Dominions, and our production and exports to the United States; an end the attainment of which is hampered, strange to say, by the operations of our own Canadian Customs Laws.

The Government is at present engaged in giving actual cash preference to the nations, and particularly the United States, from which we ought to be buying less, and imposing a heavy cash penalty upon imports from the nations chiefly Great Britain, from which we should be buying more. This peculiar and out-of-date ruling is the result of the Government's insistence upon treating the American dollar, the British pound sterling and other foreign currencies as if they were still of their normal value. Thus when an article valued at $100 United States money is imported into Canada, duty is levied upon it as if it had a value of $100 Canadian money, instead of $115 or more, and the importer is thus given an unjustified advantage of from 1/8 to 1/6 of the duty. Similarly, when an article valued at £100 sterling is imported, it is assumed to be worth $486 and duty is levied upon it accordingly; whereas its actual price may be less than $400, and the importer of British goods is thus penalized by an unjustifiable excess charge of at least 1/5 of the proper duty. The combined effect of this preference to the American producer and this penalty on the British producer, is to wipe out completely the preference established by law in favor of the latter, and to establish a read preference in favor of the former.

PULP OUTPUT REDUCED BY LONG STORAGE

How large a loss may be caused by decay in pulpwood through storage was learned in recent observations conducted by the U.S. Forest Products Laboratory at a sulphate pulp mill.

Pulpwood yielded over 3½ tons per digester when used green, after a year's storage yielded only 3 tons. Some which had been stored for from 2 to 3 years yielded only 2½ tons per digester. These losses in production, amounting in the latter case to over 25 per cent occurred without any compensating reduction in operating expenses. Hence the monetary loss was fully equal to what the lost product would have sold for f.o.b. mill.

Such losses can be largely reduced by so operating the wood yard that the wood is used as nearly in rotation as possible, without allowing any to remain in storage as long as one year.

The Theory and Art of Coloring Paper

(*Concluded from Last Issue.*)

Matching Shades.

It is almost useless to attempt to describe how to match shades, as this can be learned only by practice. The aniline colors are not pure colors—like the spectrum colors, and no hard and fast rules can be be laid down for color matching. Remembering that, in general, red can be neutralized by green, blue by orange, and violet by yellow and that mixing yellow and red produces orange, blue and yellow, green and blue and red produces violet, the laboratory worker can with practice foretell the color produced by mixing various aniline dyes.

The mixing of a ~~color~~ with the color to which it is complementary is a step towards darkness. In actual practice black is often made of a mixture of a reddish brown, a red and a greenish blue or other combinations. The brightest dyed shades are produced by using the color which most closely approaches the desired shade and then using a small amount of another dye to obtain the desired shade. Usually all shades can be matched with three dyes, or less, and the dyer should always remember that the addition of each dye is a step towards darkness. The possible combinations are limitless, and only by practice is the color sense developed so that, knowing the shades of the individual colors, it is possible to mix them to various proportions and to foretell the resulting shade. No better procedure can be followed by the dyer than first to prepare a pattern book showing .1 and .5 per cent dyeings of the various stocks with the dyes which he ordinarily uses. A large number of dyeings made by combining various proportions of one dye, such as auramine with the various basic colors, such as a brown, red, blue, green, violet and black will be a better training than attempting to learn the procedure from a text book. Space in this chapter is too limited to consider the theory of color matching and for further information the reader is referred to larger reference works dealing with light and color.

It is useless from the author's experience, to attempt to match tinted white paper in the laboratory as the amount of color required on a 3 or 5 gram laboratory sheet is so minute that no data of value for commercial purposes can be obtained.

Duplex Papers.

Duplex paper dyeings can be duplicated in the laboratory by placing in the mould a round piece of filter paper cut to fit the mould. The pulp is then poured into the mould and the two sheets removed, couched and dried.

Oatmeal Wall Papers.

Oatmeal wall paper can be matched by adding the sawdust stirred in a little water to the dyed pulp just before the sheet is formed in the mould. Duplex sheets made on a basis of 60 per cent of pulp, consisting of 80 per cent of ground wood and 20 per cent sulphite, and 40 per cent sawdust give good results.

Mottled Papers.

The mottling fibre, whether rag or sulphite, is usually dyed with substantive colors using alum and possibly heat and salt to fix the color. A sheet is then made of this colored stock and various percentages of it used with the stock to be mottled in the forming of the mottled sheet. A bone dry determination must be made of the mottling fibre in order to calculate the weight to be used. In the commercial manufacture of mottled fibre paper the fibre after dyeing should be drained one week preparatory to use. The mottling stock should be added to the beater about fifteen minutes before it is dropped with the roll well off the bed plate.

Dyes Suitable for Use in Vulcanized Fibre.

Most of the aniline dyes are affected by the zinc chloride as used in vulcanizing. To determine the resistance of the dye towards zinc chloride the colored sheet is passed several times through a bath of zinc chloride of proper vulcanizing strength until the paper is vulcanized. Note change in color, also whether or not the dyestuff bleeds into the bath. The vulcanized paper is then washed in successive baths of water, noting whether or not the color bleeds and if so, to what extent this occurs.

Dyes Suitable for Use in Parchmentized Paper.

Dyed sheets are passed through strong sulphuric acid, the color change and bleeding being noted. The papers are then washed in successive baths of water to note bleeding.

Resistance to Fading.

Samples of dyed paper cut approximately 3 in. x 1 in. or other convenient size, are mounted on carboard, one-half of the sheets being covered by a sheet of cardboard held in place by means of paper clips or other convenient means. Exposure is made to direct sunlight by placing the samples in a special cabinet with a glass cover. Comparison tests with dyestuffs chosen as standards should be made at the same time as the sason and the clearness or cloudiness of the day directly affect the time required to produce a definite change of fading through sunlight.

There are on the market various lamps, such as the flaming arc, apparatus using ultra violet light and other types of lamps to produce a more rapid and uniform fading of dystuffs. The writer has had no experience with these types of color-fading apparatus.

Sometimes special requirements have to be met, as dyed or tinted tissue paper to be used for the wrapping of silverware or paper used for the packing of needles, cutlery or other polished metal goods. The substantive colors are probably best suited for this purpose, and an excess of alum is to be avoided. Needless to say, the pulp for this special paper should be neutral and free from acid and chlorine residues.

Calender Colors.

Board and certain cheaper grades of wrappers are often colored on the calender. This coats the board with dyestuff merely on the surface and is cheaper than if the stock were colored in the beater. For this purpose acid dyes are mainly used, many of which cannot be used in the beater, on account of their lack of affinity for the fibre. Napthol yellow, tartrazine, acid magenta, light green SF yellow shade, acid violets and neptune brown are used for this purpose, but not for coloring stock in the beater. Other colors, such as the various brands of acid orange, nigrosine, direct black, etc., are used for both calender and beater coloring.

In the laboratory a set of three high small calender rolls equipped with a miniature color box can be

used for experimental calender coloring. The color solution should be prepared in the strength of four pounds of color per each 10 gallons of water. Those interested in calender coloring should study the solubility of the dye, freedom from insoluble matter, and the keeping quality of the solution to determine whether or not deterioration, such as thickening or color precipitation, occurs on standing.

The proper choice of dyestuffs to color special papers such as soap wrappers where the dye must be alkali resistant or for the production of any paper specialty can usually be settled by proper laboratory trials.

Laboratory trials can often aid the mill in working out cheaper color furnishes that will be entirely satisfactory. Further, by laboratory control, the dependence on color formulas supplied by the dye manufacturers can be obviated. While the larger dye houses have excellent laboratory facilities and trained and experienced color specialties whose facilities and knowledge should be used, the paper mill should be independent, and through its own laboratory control be capable of working out its own special color formulas.

The author finds himself in a rather embarrassing position in attempting to describe the various dyestuffs of American manufacture suitable for the coloring of pulp and paper as by the time this chapter appears in print many additional dyes not on the market at the present time, will be available to the paper industry.

As many of the same dyestuffs are now being manufactured by several American dye concerns, the author, in describing tthe individual dyes in order to conserve space, has given the name of only one manufacturer for each individual dye. More detailed information as to suitability and methods of application can be obtained from the manufacturer.

From correspondence with various American dye manufacturers it has been learned that the following dyes are now available for paper coloring.

Basic Colors.

Basic dyes on account of their brilliancy and great tinctorial strength and where fastness to light is not of primary importance, are used for the coloring of wall paper, cover, fibre and all grades of wrapping, roofing and sheathing, box board, tissue dyeing and for the tinting of news. Basic dyes are also extensively used for the topping of acid and direct colors.

DuPont Auramine O and Conc.

This is a bright lemon yellow dyestuff, and like other basic dyes, is of high tinctorial strength, suitable for the coloring of the cheaper grades of paper where no special light fastness is required, such as ordinary colored hanging, poster, fibre, wrapping (both sulphite and kraft), tissue, and board (beater coloring), glassine, etc. Auramine is also suitable for dipping and calender dyeing and for dyeing coated papers. Dyeings with the various acid oranges topped with auramine produce shades of deep orange to medium yellows. Mixed with basic reds, browns and blues or greens it produces the various brown or kraft shades, and is also well suited as a shading color. The dyestuff in solution is very sensitive to heat and should not be dissolved at temperatures above 160° F. It is generally found in the trade in two concentrations, namely auramine O and auramine conc. Auramine O is 60 per cent of the strength of auramine conc.

DuPont Chrysoidine R. and G.

These represent the reddish and yellowish shades of the standard chrysoidine used on grades of paper similar to those on which auramine is used. Chrysoidine is also largely used in the coloring of leather board, fibre container board and other grades of box-boards.

DuPont Basic Brown BXN and GX.

These colors represent the yellow and red shades of the well known basic or Bismarck browns, and serve as a basis, either alone or in combination with other basic dyes, for the production of various brown and kraft shades. The reddish shade of all basic browns is developed by the use of alum. Like the chrysoidine, the basic browns are extensively used for leather boards and boxboards, and for mixtures commonly known as paper browns.

Safrannine A (National Aniline & Chemical Co.).

Suitable for production of pink shades. By topping on a bottom of acid orange deep shades of bright red can be obtained and the combination has the advantage that backwaters are very lightly colored. The color is also suitable for the dyeing of coated paper.

DuPont Fuchsine TT.

This corresponds to the pre-war magenta or fuchsine, suitable for the production of bluish red shades. Dyeings made in combination with acid orange or acid scarlet produce deep red shades. Cheap black combinations can be made with mixtures of fuchsine, basic greens and browns.

Fuchsine is rather difficultly soluble so that care must be taken in its use to avoid the formation of color spots in the paper; this is especially true in the dissolving of mixtures in which fuchsine is used as one of the component colors.

In conjunction with the manufacture of fuchsine, products corresponding to cerise and diamond magenta I small needles will be placed on the American market.

DuPont Rhodamine B and B Extra.

A very bright bluish red, mainly used for tinting and the shading of whites in conjunction with basic blues. Rhodamine is also suitable for dyeing by the dipping process and use in coated papers. It has the advantage of working equally well on all kinds of stock. Rhodamine is usually found on the market in two strengths; namely, Rhodamine B and Rhodamine B Extra, the latter being five times the strength of the former. Rhodamine B is used more universally in the paper trade than the B extra, because the strength of the latter when used for tinting purposes, is so great that very slight errors in the amount of color used will throw the shade off.

DuPont Blue R. Conc. and DuPont Methyl Violet N.

These violets are suitable for the production of all violet shades. They are also suitable for the topping of direct blues for the production of deep blue shades. Combinations of these basic violets and basic greens are largely used for producing deep blues, which, however, change to a reddish shade under artificial light. By using a combination of methylene blue and a little basic violet, this can be avoided. Paper blue R. conc. is extensively used alone for tinting newsprint paper and produces the brightest shade for this purpose of any of the basic colors. The basic biolets are used considerably for the above mentioned work in combination with methylene blue or rhodamine, depending on whether the shade desired is bluer or redder than the straight violet.

Methyl violet N is used extensively for producing deep blacks and browns. These basic violets are suitable for calender coloring, dipping and for coating.

DuPont Methylene Blue ZX.

Methylene blue is used for the production of clear blue shades, which are but little affected by artificial light. It is also used in conjunction with basic violet and rhodamine in the tinting of whites. It can also be used for calender and coating work. Certain clays when used with methylene blue in the paper furnish have a tendency to throw it to a reddish cast.

DuPont Victoria Green Small Crystals.

The various properties of this basic dyestuff make its use advantageous on sized or non-sized wood pulp and for coating, calender work and dipping. It is used extensively for the production of various shades of green; mixed with auramine, bright yellowish green shades are made; with chrysoidine or the basic browns, olive green shades are made, while for deep blues a very economical combination can be made with the basic violets.

DuPont Victoria Blue BX and B Conc.

This is the brightest of the basic blues and is used whenever a bright brilliant shade of blue, not especially fast to light, is desired. It is advisable to add a small amount of acetic acid when dissolving this color, as it is quite sensitive to hard water or alkali. If used in a concentrated solution, there is danger of mottling the sulphite stock in a ground wood sulphite furnish. Victoria blue is suitable for dipping and calender dyeing;; also for coated papers.

Acid Colors.

The acid colors are extensively used in the tinting and coloring of the higher grades of writing, book, hanging, cover, fibre and wrapping, roofing, leather board, coated papers, and in the coloring by dipping of tissues and calender coloring of board. Soluble blues are largely used in both the tinting of high grade papers and of newsprint paper.

Chinoline Yellow (Newport Chemical Works, Inc.)

Chinoline yellow corresponding quite closely to the pre-war quinoline yellow, is a fast acid dyestuff of a bright lemon shade, and is especially suitable for the dyeing of brilliant greenish yellow shades on bleached wood pulp and rag stock. The dye is also used in dipping and calender dyeing and for the coloring of coated papers.

DuPont Metanil Yellow Conc.

This and other grades of metanil yellow on the market are suitable for the production of golden-rod shades, where no special fastness is required. Metanil yellow is often used in conjunction with auramine and acid orange. Besides beater coloring, metanil yellow is well suited for dipping, calender and coated paper dyeing. It is very sensitive to acid and care must be exercised to prevent the use of an excess of alum and excessive heat on the dryers tends to produce a brownish shade. Metanil yellow is being replaced to a large extent by direct yellows which are not subject to these drawbacks.

Azo Yellow (National Aniline & Chemical Co.)

This color closely corresponds to the pre-war Azo Flavine and is used like metanil yellow but is decidedly faster to alum and heat, and there is less danger of producing through its use, a two-sided effect on the paper.

Naphthol Yellow —SE (Dicks, David & Co.)

This is an acid dyestuff finding a limited application for use in conjunction with auramine for the dyeing of deep bright lemon shades, especially on rag and bleached pulps. As a color to be used by itself it is not suitable for beater coloring, but is used for coating and calender dyeing.

Tartrazine Conc. (Dicks, David & Co.)

This is a permanent yellow acid dyestuff not suitable for beater coloring, but suitable for dipping and calender dyeing and for coating.

DuPont Orange II Conc.

This orange is made by a number of concerns and produces bright orange shades on practically all grades of stock. A combination of acid orange and acid scarlets produces the brightest scarlet shades. Topped with eosine, bright scarlets are produced, while by topping with basic greens, various olive shades can be made. Acid orange dyeings are often topped with magenta, safrannine or rhodamine to produce various shades of red.

Aside from beater dyeing, the various acid orange dyes are used for coating, calender and dipping dyeing.

Croceine Scarlet MOO (National Aniline & Chemical Co.)

This and the various equivalent brands made by different manufacturers represent the most important dyestuff for the production of red shades. Alone, or mixed with acid orange, bluish or brilliant scarlets are obtained. Topped with safrannine or magenta deep bluish reds are produced. Aside from beater coloring this dye is extensively used for calender and dipping dyeing and for coated papers.

DuPont Eosine BA.

This is a brilliant bluish red acid dyestuff used for the production of bright pink shades, especially on stock free from ground wood. Eosine is not especially fast to light, but the fastness and blueness of the shade may be increased by the addition of lead acetate. Eosine, aside from beater dyeing, is suitable for coating and dipping.

DuPont Phloxine.

This is an acid dyestuff of a bright pink shade and is especially suitable for coating and dipping. It is used for light tints on sized papers not containing ground wood. Sugar of lead increases the blueness of the shade and its fastness to light.

Acid Magenta S (Dicks, David & Co.)

This dye is not suitable for beater coloring, but finds application in dipping and calender dyeing.

Wool Red 4 OF (National Aniline & Chemical Co.)

This acid dye is very similar to the pre-war naphthol Red S. It is not suitable for beater dyeing, but finds application in calendering and dipping dyeing and in coloring coated papers.

Wool Violet 4 BN (National Aniline & Chemical Co.)

This violet closely corresponds to the pre-war acid violets used quite extensively for coating, dipping and calender dyeing. It also has a limited applicaiton when admixed with soluble blue, for the tinting of white paper.

Soluble Blues.

Soluble blues of reddish and greenish shade of American manufacture are available. They can be used to make blue shades that are faster than can be obtained by a mixture of basic green and violet and will not change in shade, under artificial light, to nearly the same extent as the basic blue mixture. Soluble blues are used to a very large extent for the tinting of high and low grade white paper.

Pontacyl Blue Black SX.

This dyestuff has the advantage of dyeing equally well on various stocks, and is used for producing uniform light and deep bluish dyeings in the beater. Deep steel-blue shades, shading to bluish black, can be obtained in conjunction with soluble blue by topping with a basic violet. It is well suited for calender, coating and dipping dyeing, and when shaded with the necessary acid dyes, a full shade of black can be obtained.

Fast Acid Green B (National Aniline & Chemical Co.)

This color corresponds closely to the pre-war Neptune green SGX and can be used only for the production of light shades in the beater. It is adapted for calender, coating and dipping dyeing.

Pontacyl Green S.

This is an acid dyestuff of good fastness to alkali. It is not suitable for beater dyeing but is especially adapted for coating, calender work and dipping.

Nigrosine—(National Aniline & Chemical Co.)

This very important dyestuff is made by a number of manufacturers and is largely used for shading and the production of grey shades. Even light tints are dyed uniformly, and the dyestuff is fairly permanent and light fast.

Nigrosines are used for coating, calender and dipping dyeing.

Direct or Substantive Colors.

Substantive or direct cotton colors are used in the dyeing of higher grade wall papers, writing, book, cover, blotting, parchment, vulcanized papers, etc. They are especially well suited for dyeing of unsized blotting paper for vulcanized fibre and mottling fibre. The use of direct colors gives in most cases a clear backwater, the best results being obtained by using a slight excess of alum. With substantive colors it is difficult to produce even and uniform light shades due to the affinity of the dye to the cellulose.

Pontamine Yellow SX.

This color is especially well suited for coloring sized or non-sized papers, blotting, oatmeal, wall papers, etc. It is fast to both acid and alkali. It is used extensively for the production of golden rod shades either alone or in combination with auramine O.

Pontamine Yellow CH.

This color is a very fast substantive dye suitable for coloring sized and non-sized papers. It is extremely fast to alkali but on account of its expense finds but little use outside of the coloring of soap wrappers, where its resistance to alkali makes it especially valuable.

Pontamine Blue BX.

This is a direct blue of a somewhat dull shade used quite extensively in dyeing unsized as well as sized papers. It is one of the most economical of the direct blues where no special fastness to light is required.

Pontamine Blue AX.

This is a direct blue of a reddish shade. It is used for sized or non-sized papers, for dyeing stock to be used for mottled or granite papers, and in combination with pontamine black EX for the production of the deepest of blue shades. It is fairly fast to light, and like other direct colors of its class, leaves colorless backwaters.

Pontamine Sky Blue 5BX.

This dyestuff is used extensively for the production of mottled fibres for granite papers. Its shade is of a greenish cast as compared with the other direct blues.

DuPont Purpurine 4B Conc.

This is a direct red used extensively for unsized as well as sized papers. The addition of a small amount of soda ash greatly increases the brilliancy of this dyestuff.

Pontamine Green GX and BX.

These colors are the yellow and blue shade of a direct green particularly suited for sized or non-sized papers, and for dyeing cellulose fibres for mottled papers. They possess fairly good fastness to light and so are widely used for dyeing cover papers.

Pontamine Black EX.

This color is capable of producing shades ranging from grey to deep black and is especially suitable for the dyeing of cellulose fibres for mottled papers. It works equally well on sized or non-sized papers.

BUSINESS OUTLOOK FAVORABLE

Apart from the follies and futilities of Government action and inaction, the financial and business outlook in Canada, at this date of the opening season, for structural enterprise and industrial and agricultural expansion is excellent. A strong feeling of optimism is perceptible, especially among those who by their energy and enterprise give the lead in the Dominion's commerce and industry. It is no exaggeration to say that the foundation upon which the whole of this optimism rests is confidence in the early improvement and continued progress of sterling exchange. American financiers who have been devoting the past month to discussion of the prospects of repudiation of British indebtedness have changed their note and are now realizing, not only the debts due to them will be paid, but that the process of paying them will be far less difficult and more prompt than they had supposed. A continuance of strength in sterling exchange means a continuance of prosperity and confidence on this continent. In Canada, the outlook is for a season of lively activity in structural work of all kinds, and especially in those enterprises which increase the exportable surplus of Canada's products. The improvement in the credit of Great Britain automatically improves the credit of Canada, and therefore makes it easier for us to obtain the supplies of capital necessary for this expansion.—Investment Items.

BRITISH COLUMBIA NEWSPRINT GOES TO WINNIPEG.

The first shipment of British Columbia newsprint has gone to Winnipeg, for Peg newspapers.

This shipment consisted of 250 tons and was shipped from the Ocean Falls plant of the Pacific Mills, Ltd., during the week of March 15th.

NEW MONTREAL SALES OFFICE.

The Engineering and Machine Works of Canada, Limited, St. Catharines, Ont., owing to the rapidly increasing demand for their products consisting of boilers, tanks and plate work of all descriptions, etc., have found it necessary to open another Eastern Sales Office in the Birks Building, Montreal, where inquiries can be more quickly and satisfactorily handled. This is in addition to their Sales Office in the Sun Life Building, Sherbrooke, Que.

Newsprint Paper*

By R. S. KELLOGG, Secretary Newsprint Service Bureau, New York.

This is most truly a Paper Age, and, in the United States at least, a Newspaper Age. The consumption of news print paper has gone far beyond the limits that would once have been predicted by the most enthusiastic advocate the newspaper as a source of popular information and education. In 1880 we were able to get along with three pounds per capita of news print paper. By 1894 our requirements had increased threefold to nine pounds and twenty-five years later, or in 1919, the consumption of news print paper per capita in the United States was 33 pounds, or more than ten times what it was thirty-nine years earlier.

Leaving all the other means of publicity out of the question, the average circulation of the daily newspapers in the United States is now some 27,000,000 copies, or one for every family in the country, and a large proportion of these papers are not small ones, either. There are something like 70 newspapers with a daily circulation of 100,000 copies or more each, and for the past year these papers have averaged about 23 pages on week days, while the number of pages in those publishing Sunday editions has been over three times as great as in the daily editions.

The production of news print paper in the United States and Canada is a common industry with common markets. The total output last year was 2,183,000 tons and 90 per cent. of this total is classified as standard news such is used by the daily papers. In the form of sheets last year's production of news print in North America would cover 10,000,000 acres or belt the earth 50 miles wide. In the form of a standard 73″ roll it would unwind 13,000,000 miles or little more than seven years output at the same rate would reach from the earth to the sun.

The annual increased in production figured on a compound interest basis has averaged 6 per cent. for the last fifteen years. In 1904 the production in the United States, in round numbers, was 913,000 tons and practically none in Canada. In 1913 the production in the United States slightly passed 1,300,000 tons and that in Canada amounted to 350,000 tons. Since 1913 there has been little increase in the United States output, but a steadily ascending production in Canada, which in 1919 passed 800,000 tons, while the production in the United States amounted to 1,375,000 tons.

For the last six months the newspapers and trade journals have devoted much space to the discussion of a so-called shortage in news print supply, but there has been no shortage so far as production is concerned. It has been due entirely to greatly increased consumption. The mills have been producing more news print than before in history and the stringency in the market has come about entirely through the efforts of the publishers to use more paper than has been produced. This, of course, has been caused by the tremendous increase in advertising, while there has been little decrease in circulation over the high levels reached during the time of great demand for news during the war. During the past few months the total stocks in the hands of newspaper publishers or in transit to them have averaged between 30 and 40 days' supply, as compared with more than 60 days' supply during the summer of 1918 when the war was nearing a climax. On the other hand, mill stocks have been averaging only 3 or 4 days' production, thus showing the absolute necsesity for an unbroken flow of paper from mill to publisher.

Notwithstanding an increase of 185,000 tons in news print production in 1919 over 1918, new machines to come into operation in 1920 will, if all goes well, turn out nearly 90,000 tons of paper, while numerous other new machines are scheduled for 1921. If plans now actually under way are consumated, by this time in 1922 new machines and new plants not in existence in 1919 will be in operation with a total capacity in excess of 1,500 tons per day. This would seem to be ample to take care of the requirements of the publishers, but to predict consumption so far in advance is hazardous.

Newspaper advertising in 1919 was about 40 per cent. more in volume than in 1918, and it is starting off in 1920 some 40 per cent. in excess of the amount during the first part of 1919. Advertising experts insist that there is perfectly tremendous volume ahead. In fact, the enthusiastic publicity man seems to be governed entirely by the slogan

"Early to bed early to rise
Work like hell and advertise."

If he has his way the demand for news print paper will continue to press closely upon production.

*This is a summary of Mr. Kellogg's remarks at the Optimists Club, Syracuse, N.Y., March 3, 1920.

$6,000,000 WORTH OF RAGS AND PAPER FROM TORONTO.

(By J. L. LOVE, in the Toronto Star.)

Toronto has trained an organized army of 1,500 junk pedlars, "rags, bones and bottles" men, whose persistent efforts in gathering the city's waste materials are doing more toward beating the H. C. of L. than any other class in the community.

There are approximately 50,000 families in Greater Toronto. According to the leading wholesale junk factor, each of these households accumulates in the year waste paper, old rubbers, rags and scrap metal of an average value of $20,000. This means that the pedlar and his push cart collects in twelve months $1,000,000 worth of junk to be worked up into new material valued at four or five times that figure.

Not every housewife gets $20 for her junk, of course. There are several reasons to explain this. Many do not collect and store their waste carefully and systematically. It is regarded as so much undesirable litter to be got rid of and is either given away or placed piecemeal in the garbage can. On the other hand many good wives realize more than the average amount stated above, and particularly nowadays when junk, in common with all marketable commodities, has gone up in value.

At the end of a more or less perfect day the pedlar trundles his cart to one of the thirty or forty rag shops located for the most part in the Ward district. There his day's catch is bought and roughly assorted and thence it goes to a large wholesale store where it is re-assorted and packed according to its grade. Of wool rags there are nearly one hundred distinct grades and as the demand for this class of waste is prodigious, it forms the most valuable portion of the pedlar's collection, next to old rubbers.

PAPER LOOMS LARGE IN INDUSTRIAL WASTES

By WALTER H. DICKERSON, Atomized Products Corporation.

Our waste products may be generally classified under the following heads: Industrial Wastes Resulting from Industrial and Manufacturing Operations; and Municipal refuse throughout the United States, but their aggregate value would be staggering.

The item of waste papers alone is one which runs into enormous figures when taken in the aggregate throughout the country. There is produced in this country and Canada over 15,000,000 pounds of newsprint paper per day. There is no reason why, with proper co-operation and systems of saving, that the bulk of our newspapers could not be collected, de-inked and further treated and converted back into pulp and worked up into a new sheet of paper suitable for printing.

A very large percentage of the paper is produced from pulp made by chemical processes. In these processes the wood is digested by various chemical reagents depending upon the process used, with the result that the cellulose fibre is freed from the encrusting and binding material in the wood and made available for pulp to be converted into paper. It is an astonishing fact that only 50 per cent of the dry weight of the original wood used is recovered in the form of available pulp. The other 50 per cent of the original wood is lost in the waste liquors. The total production of chemical pulp in this country for the year 1919 was nearly two million tons, and some idea of the magnitude of the waste liquor from this industry may be gathered from these figures. In only a very few instances are the pulp and paper mills endeavoring to make any use of their waste liquors. Research has shown, however, that it is possible to recover from these waste liquors many valuable by-products, such as binder compounds, tanning extracts, ethyl and methyl alcohol, acetone, acetic acid, etc.—New York Journal of Commerce.

EFFECT OF DECAY ON PAPER-MAKING QUALITIES OF WOOD PULP

Clean groundwood pulp and pulp infected with molds and fungi have been used in recent comparative paper-making trials at the U. S. Forest Products Laboratory, Madison, Wisconsin. These trials showed that infected pulp was inferior to clean pulp in the following respects:

The infected pulp produced a very dirty sheet.

It required more sizing than the clean pulp.

It stuck to the couch and press rolls and gave trouble from excessive foaming.

Although groundwood pulp is usually considered too slow, the extreme freeness of the infected pulp caused difficulty in carrying the necessary amount of water on the paper machine to secure a good formation in the finished paper.

Based on the percentage of groundwood, the infected pulp used in the experiments yielded 10 per cent less finished paper than the clean pulp.

The strength of the finished paper was greatly reduced by the use of infected pulp. In a groundwood sulphite furnish, this decrease in strength would necessitate the use of a larger percentage of the more expensive sulphite pulp.—Technical Notes No. 84.

One of the hardest things in the world is to foot a bill without a kick.

THE PAPER MILL CHEMIST REVIEWED.

The Paper Mill Chemist:—Henry P. Stevens, M.A., F.I.C. Second revised and enlarged edition 1919. VIII—317 pages, 82 tables. Scott, Greenwood and Son, London. Price 10/6 net.

The same list of subjects treated in the first, 1908, edition has been maintained. Much new material has been added, especially in the chapter on Fibrous Raw Materials. The book is written from the standpoint of English practice and some of the data and tables must be used in America with due regard to the different values applied to such units as the gallon, ton and Baume degree.

Chapter I—English and Metric System of Weights and Measures.

Chapter II—Methods of Chemical Analysis, are unaltered.

Chapter III—Fuels—The value of this chapter would be improved if it contained something more than a mere mention of the bomb calorimeter. On page 37 last line, the factor 453.6 should be omitted.

Chapter IV—Water—A description of the Permutit water softening process has been added and the section on water softening plants improved by rewriting.

Chapter V—Raw Materials and Adulterants, remains practically unchanged except for the addition of the details of the titration method of analyzing rosin size for total rosin.

Chapter VI—Fibrous Raw Materials—Half Stuffs and their treatment. Special attention may be called to the following additions: A discussion of the relative effect of hot and cold grinding in the preparation of ground wood pulp; three new tables by Surface giving data from experimental work on cooking soda pulp; a table by Surface of sulphite pulp yields from different woods; a description of Koenig's ammonia process for the production of cellulose; a description of flax straw, hedychium coronarium, cotton hull fiber and bamboo as raw materials for pulp, together with a table of the valuable supplies and yields of nine crop plants; a section on the examination of cellulose and half stuffs including details for the mercerisation test and tests for the copper value, copper hydrate or cellulose value and the hydrolysis value, an enlargement of the section on bleaching including a description of laboratory tests for bleach consumption by pulp; a description of a "freeness" tester together with a discussion of its application to heating; and a revised section on coal tar dyes based upon British made dyes only.

Attention may be called to an error on page 169, lines 8 and 9, which has been carried over from the earlier edition. The practice in both Canada and the United States is to designate as free sulphurous acid all over and above that combined as normal sulphite rather than as bisulphite as stated.

Chapter VII—Paper Analysis and Paper Testing. The following additional material is found: two tables giving fibre dimensions for a wide range of wood species; several new stains for fibre analysis; the phloroglucine titration method for ground wood; a description of the Ashcroft Tester; new methods for determining starch in paper; and a table for the identification of coal tar dyes.

Chapter VIII—Sizes and weights of paper, and

Chapter IX—Paper Trade Customs are practically unchanged.

The book is neatly bound in the same handy pocket size of the earlier edition.—John D. Rue

PRICE BROS. MAKING GOOD FIGHT.

Hearings were held last week at Ottawa in the Supreme Court of Canada on the application by Price Bros. & Company, to test the constitutionality of the orders of the Board of Commerce, under which they have been shipping, under protest, certain quantities of newsprint paper to Montreal consumers at a fixed price.

Having made strong points in their argument Wednesday, when Mr. Justice Idington remarked that the Board of Commerce Act was the most extraordinary piece of legislation he had ever seen, counsel for Price Bros. rested their case Thursday, and Col. O. M. Biggar, K.C., opened the case for the Attorney-General of Canada, arguing that the paper control was created under emergency legislation to secure the distribution of a fair portion of Canada's newsprint production to Canadian newspapers at a fair price. Col. Biggar defended the constitutionality of the legislation which gave the Board of Commerce, as Paper Controller, the right to dictate to Price Bros. whether or not they should export all their production of newsprint to the United States, where a higher price can be obtained. Col. Biggar emphasized the importance of newspapers as the principal factor in supporting public morale.

Order Said to Infringe Provincial Rights.

This attitude contrasted with that of Aime Geoffrion, K.C., who represented Price Bros. & Co., and declared that far from being a question of national defence, it was one of "whether the public got its 'Mutt and Jeff' and 'Bringing Up Father' at two cents or three cents." Canadian newspapers could get their newsprint if they paid the market price, and the order of the Board of Commerce which he was disputing, he said, was an infringement of the rights of Provinces and was ultra vires of the powers of the board.

The argument, in which Eugene Lafleur, K.C., also took part on behalf of Price Bros., lasted Tuesday, Wednesday and Friday, and the decision involves an important point of jurisdiction of Government Boards in the control of the cost of living through fixed prices and compulsory marketing of products. The court's decision will not be forthcoming, of course, for a week or so.

PLANS FOR TECHNICAL MEETING.

The Technical Association of the Pulp and Paper Industry will hold its annual meeting in New York April 13-15, in conjunction with the annual meeting of the American Paper and Pulp Association. It is believed that this meeting will exceed in interest and value all previous annual meetings.

The convention will open this year with informal meetings of standing committees at the Waldorf-Astoria Hotel on Tuesday, April 13. The general meeting of the association will open in one of the large halls of the Waldorf-Astoria at 9.30 a.m. on Wednesday, April 14, and after routine business has been disposed of, the reading and discussion of technical and scientific papers will take place.

The annual banquet of the association will be held at the Hotel Astor, Forty-fourth Street and Broadday, on Wednesday evening, April 14, beginning at 7 o'clock sharp. Seats at tables will be assigned to suit the wishes of members, who may indicate their preferences for table companions in ordering tickets. The banquet proceedings will be in charge of Judge Charles F. Moore, who will act as toastmaster. It is requested that applications for banquet tickets be made promptly, accompanied by check or money order at $5 per ticket. Members of T. A. P. P. I. are eligible also to attend the annual banquet of the American Paper and Pulp Association on Thursday evening, April 15, and reservations at $10 each may be made through Dr. H. P. Baker, secretary, 18 East Forty-first street, New York.

TO MANUFACTURE ENGLISH MACHINERY

The Bawden Machine Co., Ltd., Toronto, have secured Canadian selling rights for Alley & MacLellan, Ltd., Glasgow, Scotland, and sole license rights to manufacture and sell in Canada the products of the following English and Scotch firms: Robey & Co., Ltd., Lincoln, England, John Thompson, Ltd., Wolverhampton, England; David Bridge & Co., Ltd., Castleton, Manchester, England; E. S. Hindley & Co., Ltd., Bourton, Dorsetshire, England; Brown Bros., Ltd., Edinburg, Scotland; and Bow, MacLachlan, Ltd., Paisley, Scotland.

These companies are supplying the Bawden Machine Co. with complete drawings of all their lines, together with engineering data, so that in case of breakage on any machines which have been or will be imported into Canada, the Bawden Machine Co. will be able to manufacture the needed repair parts without delay.

Alley & McLellan, Ltd., manufacture air compressors, valves and water works supplies, and are already well known in many parts of Canada. Robey & Co., Ltd., make a line of semi-Diesel oil engines, which should meet with good demand in Canada, and also manufacture steam engines and air compressors and mining machinery.

The Thompson water-tube boiler is new on this country but has been sold widely in Great Britain, South America, Africa and India, where the company has direct representation. John Thompson, Ltd., also manufacture corrugated furnaces. Bridge's friction clutch is known in Canada.

E. S. Hindley are well-known makers of high-speed steam engines.

WILL EXTEND T. & N. O. RAILWAY.

Premier Drury verified the story that there would be an extension to the T. & N. O. lines. Seventeen miles will be added to furnish transportation for the development of the pulp industry. It will be started just as soon as the Province gets the proper assurance from those interested in the pulp plants that they are really going to develop the industry. It will be operated by hydro-power.

FROM FINLAND.

The steamer "Jackson," which arrived in New York last Friday from Finland, brought the Lagerloef Trading Co. 256 tons of chemical pulp, 147 tons of ground wood, and 91 tons of wood boards.

San Francisco interests are said to be planning the erection of a $1,500,000 paper mill at Port Angeles, according to a news item. This may refer to the mill in which the Whalens are interested, as already mentioned in the Pulp and Paper Magazine.

Technical Section

REVIEW OF RECENT LITERATURE

A-14. Effect of cellulose hydration on structure. Sindall and Bacon. Paper Makers' Monthly J., Aug. 15, 1919 Paper **24**, 1140, (1919). Hydration changes afford an invaluable help in differentiating different fibers which are almost identical physically and chemically. This is illustrated in the case of flax and hemp. When treated with Schweitzer's reagent (cuprammonium) the cellulose constituting the canal wall of the ultimate fiber thickens and swells, assuming a spiral shape. The phenomenon is more marked in hemp than in flax. The same action can be noted during the maturing of cotton fiber.—A.P.C.

N-0 All-steam power not suited to all mills. P. A. Trost. Paper, **25**, 1115, (1920). A reply to "Cheaper power available in paper mills." John F. Ferguson Paper, **25**, 970, (1920), contesting the statement that the "actual fuel cost per unit power in paper mills completely steam driven should be the lowest of any class of manufacturing plant." Certain types of mills e. g., newsprint mills, require so much power that it is much cheaper to use hydro-electric instead of steam power; but in soda and fine mills a large proportion of the steam after it has generated power can be used in the process.—A.P.-C.

R-2. Paper research literature. Paper **25**, 1104-6, (1920). A list of contributions by the staff of l'Ecole Francaise de Papeterie (French School of Papermaking) at the University of Grenoble, compiled by Prof. Barbillion, Director of the School, arranged and edited by M. Hubbard.—A.P.-C.

R-2. Contribution to the history of papermaking in France. The mills of the Dauphine. H.F. Papeterie, **41**, 579-83, (Dec. 10, 1919); 41, 619-23, (Dec. 25, 1919); **42**, 60-8, (Jan. 25, 1920). Historical notes on the paper mills of the Dauphine (a province of France) from 1561 to the present day.—A.P.-C.

R-5. Manufactured paper production in Spain. Paper, **24**, 1158, (1919). A review of the present situation of the paper market in Spain.—A.P.-C.

R-5. The supplies of raw materials of the French paper industry. L. Vidal, Chimie et Industrie, **2**, 730-5, (June 1919). La Papeterie **41**, 232-40 (Aug. 10th, 1919). See Pulp & Paper Nov. 6, 1919.—A.P.-C.

R-13. Newsprint Service Bureau meeting. Paper **24**, 1066, (1919). Account of the meeting in Montreal in August, 1919..—A.P.-C.

R-0. Chemical work in the paper mill. E. Sutermeister. Paper, **25**, 1-4, (1919). A description of the various kinds of work that a chemist may be called upon to do in a pulp or paper mill, and of the training and qualifications which will best suit him to accomplish it successfully.—A.P.-C.

New Patents

K-6. Retting fibrous substances; Process of E. L. Rinman. Eng. Pat. 128,464. 30.8.18 (appl. 14-104/18 Rape and pineapple leaves, as well as flax, jute, etc, are treated with a waste liquor from a previous operation to which free caustic alkali has been added, at a temperature of at least 90° C., the liquor having a sp. gr. of 1.074 to 1.1. The presence of oxy compounds (acids) in the liquor modifies the effect of the alkali on the fibres to such an extent that they are not colored or tendered, and are easily bleached. When starting the operation a suitable waste liquor may be obtained by boiling wood, straw, or other vegetable substance with 02½ per cent solution of caustic soda or potash at a temperature of 100°1-20° C. for three hours.

F-5. Cellulose digesters. Circulating apparatus for— A. G. Westad and E. L. Haag, Hunsfos, Norway. U. S. patent, 1,309,267, 8.7.19. Appl., 8.3.-19. The mody of the digester has a cylindrical lower portion of the body, providing a steam compartment having openings at its lower end, and means for directing the course of the steam and liquor supplied to the body, so as to insure a continuous circulation of the liquor and steam upwards along the walls of the body and downwards through the centre thereof.

QUALIFICATIONS FOR MEMBERSHIP.

In answer to inquiries regarding the qualifications for membership in the Technical Section of the Canadian Pulp and Paper Association, we print the following extract from the By-laws.

The Technical Section is provided for under article 14 of the constitution of the Canadian Pulp and Paper Association, as follows:

"There shall be a Technical Section within the Association with its own constitution, by-laws and offi cers."

This section is an organization of individuals apart from the activities of the parent association, having its own by-laws harmonizing with the principles of the Canadian Pulp and Paper Association. The following by-laws stand as corrected and approved at the annual meeting, January 31, 1918.

Article 1—Name.

This organization shall be called "Technical Section of the Canadian Pulp and Paper Association."

Article 2.—Objects.

The objects of the Section shall be to stimulate interest in the science of pulp and paper making in Canada, to provide means for the interchange of ideas among its members and to encourage original investi gation.

Article 3.—Membership.

1. Membership in this Section shall consist of honorary members, members, associate members and junior members.

Members and associate members only are entitled to vote and hold office; junior members are not entitled to vote nor hold office, but are entitled to all other privileges of membership, and may be invited to serve on committees.

2. Honorary members may be elected at any time by the unanimous vote of the Council.

3. A member shall be 28 years of age, or over, and shall have a technical education at least equivalent to a Bachelor of Science degree. He shall have been actively engaged for at least five years, and shall have held a responsible position for at least three years: (1) in the manufacture of pulp and paper, or products closely related thereto; (2) in a scientific institution relating to the pulp and paper industry;

(3) as a consulting engineer or chemist, or assistant thereto in the field of pulp and paper, not engaged in selling materials or supplies.

4. An associate member shall be 28 years of age or over, and shall have been actively engaged for at least five years, and shall have held a responsible position, such as superintendent of a plant, for at least three years in the manufacture of pulp and paper, or products closely related thereto.

5. A junior member shall be 21 years of age, or over, and shall have a technical education at least equivalent to a Bachelor of Science degree. He shall be actively engaged: (1) in the manufacture of pulp or paper, or products closely related thereto; (2) in a scientific institution relating to the pulp and paper industry; or (3) as an engineer or chemist, or assistant thereto, in the field of pulp and paper, not engaged in selling materials or supplies.

6. A candidate for admission to the Section in any grade shall make application on the form approved by the Council, upon which he shall write a statement giving a complete account of his qualifications and experience, and an agreement that if elected he will conform to the by-laws and rules of the Section; he must refer to at least two members of the Section, both of whom must sign his application as proposer and seconder.

7. All applications for membership to any grade shall be presented to the Council, which shall consider and act upon each application, assiging each approved applicant to the grade of membership to which in their judgment his qualifications entitle him. Any person desiring to change his grade of membership shall make application to the Council in the same manner as is required of a new applicant. In each case four affirmative votes out of five members of the Council are necessary for election.

8. On the election of a candidate he shall be immediately notified by the Secretary. The candidate shall pay the annual dues before he shall be entitled to the rights and privileges of membership.

9. The annual dues for membership in each grade shall be as follows: Members $10,00; Associate members $10.00; Junior members $5.00, including in each grade subscription to the official organ of the Technical Section, the Pulp and Paper Magazine of Canada. A member who has not paid his dues at the end of the year is suspended.

10. A member in any grade who leaves the pulp and paper industry, or discontinues technical work therein thereby forfeits his membership.

Article 4.—Officers and Council.

The officers shall be a Chairman and a Vice-Chairman, elected for one year by the members of the Technical Section at the annual metting; and a Secretary-Treasurer, who shall be the legal secretary of the Canadian Pulp and Paper Association. The Chairman and three Councillors shall constitute the Council of the Technical Section. The three Councillors shall be elected for one year by the members of the Technical Section at the annual meeting. The Council shall be chosen to represent the various branches of the industry, namely, book and writing papers, newsprint, wrapping papers, boards, chemical pulp and mechanical pulp.

The Chairman, Vice-Chairman and Secretary-Treasurer shall perform the usual duties of these offices. The Council as a whole shall pass on membership, attend to business between meetings, and shall have general charge and control of the Technical Section.

On committees which are established from time to time by the Technical Section, the members shall hold office for one year unless otherwise provided for, the Council shall appoint the chairman of the committee as soon as possible after the annual meeting in the case of a standing committee, or after the establishment of a new committee with the approval of the Council.

Article 5.—Meetings.

The Technical Section shall hold at least three meetings annually if possible. The annual meeting for the election of officers shall be held at the time of the annual meeting of the Canadian Pulp and Paper Association. Two additional meetings shall be held as determined by the Council. Upon the invitation of a member of the Council, non-members may be admitted to the meetings of the Technical Section. Meetings are to be called in writing, and every member is to receive due notice of any meeting with a program of what is to take place.

Article 6.—Publications.

The proceedings of the Technical Section having the approval of the Council may be inserted in the official journal of the Section. The Technical Section shall also have priority rights as to the publication of every paper read before the Section, subject to the permission of the author. Stenographic records of meetings shall be subject to correction by the speakers.

Article 7.—Local Branches.

1. A Local Branch of the Technical Section may be established under the authority of the Council at the request of not fewer than 10 members who are desirous of forming themselves into such a Local Branch.

2. The members of any branch shall consist of those who reside within a distance of 25 miles from the headquarters of that branch, and those residing at a greater distance who desire to affiliate themselves.

INCOME TAX RETURN CALLED FOR BY APRIL 30th

The Department of Finance has given notice that Income Tax returns for the year 1919 must be made up and filled not later than April 30th, 1920. The very considerable number of enquiries for the booklet, "The Income tax and the Average Man," resulting from the publication of this notice has necessitated the printing of a second edition. Many clients have remarked that this booklet was of material assistance to them in preparing their returns. Clients who have not yet received a copy may secure one by writing to any office of Royal Securities Corporation.

Scientific power transmission and the selling of leather belting are being discussed with all the traditional practices and the newest developments in the industry, at a series of six conventions of The Graton and Knight Manufacturing Company of Worcester, Mass. The conventions are being conducted for the salesmen and dealers of the company on the following schedule: March 15, 16, Bellevue-Stratford Hotel, Philadelphia, Penn., March 18, 19, Piedmont Hotel, Atlanta, Ga., March 22, 23, The Grunewald, New Orleans, La., March 25, 26, Sinton Hotel, Cincinnati, Ohio, March 29, 30, The La Salle, Chicago, Ill., April 6, 7, The Bancroft, Worcester, Mass.

A feature of each convention is the showing of a motion picture on belt making and The Graton & Knight plant.

UNITED STATES NOTES

The appointment of Col. W. B. Greeley, assistant forester, to succeed Henry S. Graves as chief forester when the latter retires May 1, was announced last week by E. T. Meredith, Secretary of Agriculture. A native of California, Col. Greeley was graduated from the University of California and the Yale forest school and has been with the forest service continuously since 1904 except for two years with the American Expeditionary Forces. He was awarded the French Legion of Horon and the British Distinguished Service Order for his work as chief of the forestry section of the American Army in charge of 21,000 specially trained troops whom he had helped to recruit. Col .Greeley's work in the forest service has ranged through all technical grades from the lowest to the highest. His special assignments have included the supervision of the Sequoia National Forest in California and the place of district forester in charge of the national forests of Montana and Northern Idaho.

According to a report from Boston, Mass., the Eastern Manufacturing Company has contracted for 800,000 cords of pulpwood in a deal by the terms of which it has strengthened its pulpwood position so as to be virtually independent in this respect. The contract covers a 30 year period and the price agreed upon is fixed at only slightly more than the rate now prevailing. The Eastern management plans to utilize this new supply by cutting 35,000 cords annually for 14 years after which new growth will be encouraged. It will not touch its own timber tracts for the next decade. This contract, with other contracts, will enable it to cut from outside lands for ten years or more.

The Barrett Company reports for 1919 net profits, after all charges and Federal taxes, of $2,232,968, or $10-25 a share on its common stock outstanding after deduction of its preferred dividends. In 1918 its net profits amounted to $3,947,783, of 20.82 a share on its common stock.

The St. George Paper Company at Norwalk, Conn., upon which publications located in the surrounding territory have been depending largely for their news print supply, has been purchased by interests associated with the New York World.

The Department of Commerce was requested last week, following action upon a resolution presented in Congress, to furnish information regarding print paper shortages and any facts available concerning newspapers or periodicals that may have obtained preference over other publications in the supply of paper. Representative Harrison of Virginia pointed out that suspension of many small papers was inevitable unless action was taken to relieve the situation. Newspapers not having annual contracts, said Representative Mann of Illinois, have been forced to pay unusually high prices for paper. This is because they have to compete with larger papers for the limited supplies of free tonnage.

Notice of an increase of its capital stock from $100,000 to $300,000 has been filed with the Secretary of State of Vermont by the Mississiquoi Paper Company, which operates a plant at Sheldon Springs, Vt.

A score or more of commodities which may be manufactured from the pulp of fir, spruce and hemlock trees, are being exhibited by the West Coast Lumbermen's Association in one of the big show windows of the Meier & Frank department store at Portland, Ore. The exhibit was prepared in the United States Forest Products Laboratory of the University of Winsconsin, and is being sent to all parts of the country for inspection. Included among the articles is a cloth of a lustrous fibre, resembling real silk. There are also stockings and eighteen other articles of great commercial value, all manufactured from the wood pulp of great forest trees of the Northwest. The wood products are arranged in a large panel, and in addition to the fibre cloth in the stockings, there is gunpowder made from wood pulp, which is declared superior to gun cotton powder. Then there is a paper absorbent intended as a substitute for absorbent cotton paper bagging, rope and twine, linoleum, shingles, reed fibre for furniture and matting, paper lath, rug yarn, paper webbing and phonograph records.

The new buildings now in course of construction for the Peshtigo Pulp and Paper Co., at Peshtigo, Wis., are going up so rapidly that the officers of the concern are confident paper making operations can be begun April 1. Another new Peshtigo concern, the Peshtigo Fibre Company, announces that it is about to award building contracts for its $400,000 sulphite mill, which, if present plans carry, should be in operation no later than November 1.

Consular advices from Japan report the use there of paper bags as a standard unit for pricing Portland cement. Hitherto manufacturers have sold their product in wooden barrels. They are finding the paper bage not only a cheaper substitute, but a simpler means of computation as well. The barrels contain as a rule 280 pounds, and five and a half barrels are accepted as equal to a ton. The paper bags hold 95 pounds and computation is made at 4 bags to the barrel and 22 bags to the ton.

A new type of compressed air shake for paper making machine sis being tried out at the plant of the Lakeside Paper Company at Neenah, Wis. It is the invention of William C. Nash of Neenah. Those who have seen the new shaker work predict that paper makers generally will adopt its use once its possibilities become known to them.

In the ninth annual report of the New York State Conservation Commision, transmitted to the Legislature last week, Commissioner George D. Pratt points out that more acres of new forest were planted last year than ever before. Mr. Pratt also reports considerable progress in water power development and the prevention of steam pollution.

PORT ANGELES, WASH., IS BUSY.

The Crecent Boxboard Co. of Port Angeles, Wash., have a plant that has cost to date over one and a quarter million dollars, and they are now turning out 60 tons of boxboard per day. This is ont of four plants of a similar kind that belong to the Paraffine Company.

PULP AND PAPER NEWS

The Provincial Paper Mills, Limited, who have had their executive offices in the Bell Telephone Company's office on Adelaide Street, Toronto, have purchased the old Kirkpatrick home on Simcoe Street and after remodelling the interior will move their offices there. The price paid was $90,000. It is worthy of note that the Kirkpatrick home has been the residence of Sir William P. Howland and of Sir George Kirkpatrick, two former Lieutenant-Governors of Ontario. The house was occupied by Lady Kirkpatrick until about seventeen years ago. Royalty has disported itself within its walls, the late King Edward VII having stayed there when he visited Canada as Prince of Wales. What was once a great social centre in Toronto has now yielded to the expansion of the city's business district and will become an office building. The property has 179 feet frontage and a depth of 128 feet.

Owing to the demands of increased expense, due principally to the higher cost of white paper, both the London, Ont., Free Press and the Advertiser have found it necessary to increase their subscription rates. In announcing the change of rates they intimate that the increase expense is being divided between the advertisers, who buy space, and the subscribers. The new rates are three cents a copy or fifteen cents a week delivered to customers, and five dollars a year by mail.

The Provincial Paper Mills, Limited, are making preparations to proceed with the construction of an addition to their Thorold mill. The addition, which will be used as a storehouse, will be 50 x 136 feet and three stories high and will be made of brick and concrete. The building is expected to be ready for occupancy in May.

Mr. Brown of the National Gum and Coated Paper Company of Peterborough, was in Toronto this week. The National is a Canadian branch of the Nashua Company of Nashua, N. H. Mr. Brown reports good progress for the Canadian branch since its establishment .

The Canada Boxboard Company, Limited, of Montreal, has sent out announcements stating that by the arrangement preliminary to amalgamation D. F. Robertson, General Manager of the Northumberland Paper and Electrical Company, will assume charge of the sales department of the first named company.

Charles F. Mansell, of the Howard Smith Paper Company's Toronto office, is taking a well-earned rest and has gone to Florida in the hopes of building up his failing health.

N. E. Wainwright, of the sales department of the Canadian Export Paper Company, Montreal, was in Toronto this week calling on the trade.

Sir Adam Beck, the Ontario Power Minister, Premier Drury and Hon. Mr. Bowman had a conference this week with regard to the $5,000,000 Hydro project for the supply of power to the Great Lakes Pulp and Paper Co. at Fort Frances. The result of the conference was not made known. The Fort Frances power scheme practically commits the Government to the expenditure of $5,000,000 for the supply of power to the new pulp mills to be erected at this point and of this amount $2,000,000 has already been expended. The agreement, which was not in writing, was that the pulp mills should take the power at cost and the Great Lakes Company are now trying to make better terms with the Government. The whole matter is a legacy from the former administration.

The Beaverdale Board Mill, near Ottawa, which is one of the Beaver Board Companies' finishing plants, has been moved to Thorold Township and will be operated in conjunction with the Beaver Board Fibre Co. With the fibre mill and the laminating plant operating as a single unit big advantages are gained. Scrap and waste costs are reduced through the lessening of the handling of the rolls and excessive freight charges have been done away with. It is planned to put the single unit idea into operation throughout all the Beaver Board operations. At Thorold a new finishing plant, 125 x 362 feet of brick, steel and concrete mill construction, has been built, which will mean greatly increased production. It is understood that the new laminating plant will be operating immediately, providing for employment for over 100 men. The mill will be put on a production basis of 5,000,000 square feet of finished board a month. This quota will gradually be increased later and then all Canadian and export demands will be supplied through the Thorold operation. The companies are also building a new office 48 x 80 feet of brick, wood and concrete and this building will probably be ready by the middle of March.

A letter has been received in Toronto by the U. V. L. from the office of the Acting Premier, Sir George Foster, relative to their request that the Hearst publications be denied admission into Canada. The Premier states that during the war, these publications were banned by order-in-Council, but as the War Measures Act is no longer operative, the Government is unable to take action along these lines.

Port Angeles has another project now ready to take definite form. This is a $5,000,000.00 newsprint plant. This project has been waiting for the past three years to start, and now that the new water-power leasing act has gone into effect the company will start operations. They will bring their water-power from Lake Crescent.

Victoria, B. C.—The Massett Timber Co., Ltd., is intending to erect a paper mill on Massett Inlet, Queen Charlotte Islands, where the company has extensive holdings of spruce and hemlock. This concern has been producing timber for some time and exporting to Cuba, Australia and England. Forty men are already at work on the plant and within a few weeks there would be 800 men and 32 steam logging rigs. The paper mill will be started next year, power being developed from their sources.

Vancouver, B. C.—In the recent timber deal whereby the Canadian Robert Dollar Company purchased the timber holdings of J. A. Smith, near Coquitlam, for $500,000, the former concern secures 9,000 acres of timberland, six miles of railway and camp outfits, with equipment sufficient to produce 150,000 feet of logs daily. Logging has already commenced.

ANY OLD PRICE IS GOOD.

Offers from the United States to newsprint mills in British Columbia have been made, asking the mills to name their price f.o.b. the mills. These are surely abnormal times.

WESTERN PULP AND LUMBER CO. IN NEW QUARTERS.

The Western Pulp and Lumber Co., Ltd., of which Geo. F. Whalen is general manager has removed to new and more commodious quarters in the Yorkshire Building, 525 Seymour St.

"CANADIAN EXPORTER" TAKING B. C. PAPER TO NEW ZEALAND AND AUSTRALIA.

The Canadian Government Merchant Marine, Ltd., S.S. "Canadian Exporter" will leave the latter part of March for the Antipodes with a full cargo. This steamer is now loading at Ocean Falls, and will take on at that point 1800 tons of newsprint and 200 tons of kraft for New Zealand and Australia.

SHORTAGE OF PAPER IN POLAND.

Consul Harry A. McBride, Warsaw, reports a marked shortage of paper in Poland, which is at present keenly felt by the Warsaw trade. According to press reports, the Ministry of Industry and Commerce is taking the matter in hand and, in order to remedy conditions as much as possible, is ordering thirty cars of printing paper in Austria, and fifty cars in Czechoslovakia. This will mean a total order of some 800 tons of paper for the Polish trade. Negotiations are also being entered into with Germany and Finland for supplies of paper, but these have not yet been terminated.

BRAZILIAN STREAMS YIELD PAPERMAKERS' MATERIAL.

In the soft beds of mud that line so many of Brazil's sluggish rivers, the plant anhinga grows so profusely that an estimated total of 100,000 tons could be exported annually. The anhinga is now known as the raw material from which cellulose is obtained for the manufacture of linen paper; but recent experiments show that the fibers may be transformed chemically into an artificial cotton fiber of structure even superior to that of the genuine article. One mill is now busy with this new work.

BRITISH COLUMBIA MILL TO HELP PRAIRIE PAPERS.

Working in harmony with the suggestion of the Board of Commerce, the plant of the Pacific Mills, Limited, at Ocean Falls, B. C., will probably have started shipping newsprint to papers in Winnipeg and West of that point, by the time this issue of the Pulp and Paper Magazine reaches our readers. Although this company has some pretty heavy contracts to fill out different points in Canada and the U. S. they have been quite willing to do their share in helping Canada's papers at this time.

Moncton, N. B.—Lumbermen of Northern Maine expect to cut and bring out to the mills this winter about 1,000,000,000 feet of timber and pulp wood which will constitute a record for the Maine cut.

ASSOCIATE FORESTER RESIGNS WITH CHIEF

Washington, March 9.—Albert F. Potter, associate forester resigned today following the resignation yesterday of Henry S. Graves, chief of the forestry service.

MATTAGAMI INCREASING OUTPUT

The third digester at the Mattagami Mill has been in operation for some time, and output has been running from 80 to 90 tons per day of easy-bleaching sulphite pulp of an excellent quality.

Preparations are being made for the installation of a third drying machine, which should be in operation by September 1st, and will then have the effect of increasing the mill's output from thirty thousand to forty-five thousand tons per annum. Installation of this additional equipment will not only increase the output, but should materially reduce the cost of production per ton.

The Company is experiencing a steadily growing demand for its produce and has received many indications from its customers of the high quality of pulp produced. Sales price is now (March 12,) approximately $90 per ton, and as most of the pulp produced is sold in the United States, for which payment is made in New York funds, the additional profit accruing to the Company on account of the New York exchange premium amounts to a very considerable sum.

The Company's woods operations have been energetically conducted during the present season. Quantity and quality of wood cut to date indicates that the supply for the coming year will be most satisfactory.

Indications are that the Annual Report of the Company for its current fiscal year ending on March 31st should show a substantial surplus over and above depreciation and interest charges. Having in view the increasing of the Company's output, profits should continue to increase during the coming months in a most satisfactory manner.

NEW BRUNSWICK TALKS TO UNDERWOOD

Fredericton, N.B., Feb. 26.—The Underwood resolution now before the United States Senate, which calls for the appointment of a Commission looking toward the removal of the embargo on the exportation of pulpwood from Canada to the United States, was before the Provincial Government at its meeting which concluded here at noon to-day.

Premier Foster said the resolution had been received through the State Department at Ottawa, but he declined to state what action would be taken, beyond saying that New Brunswick would be properly represented when any negotiations were actually commenced and the position of this Province in the matter would be set forth.

"It might be well to point out," the Premier added, "that the American interests holding leases on Crown lands in this Province took out their present leases when renewals were made a few years ago, at a time when they had a full knowledge of conditions as they exist to-day, as there was an embargo in effect in this Province at that time, just as there is to-day. In that respect so far as they affect New Brunswick, conditions are different from other Provinces, which have perpetual leases."

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, March 20.—There are many evidences that the past week has produced no abatement of the acute condition that has developed in the pulp and paper trade. One of the biggest handlers of book and bond papers in Toronto declares that he has not a price list in his office with which to post his salesmen, all lists again having been withdrawn. The Howard-Smith Paper Company, for instance, have notified the dealers that what shipments are made will be as at date of shipment, while the Canada Paper Company, it is learned, has not only declined to take any further orders, but is, itself, in the market to buy paper. The Rolland Paper Mill at St. Adele has been closed down for a week and the Howard Smith Paper Company is booked up with July orders. All the mils are running away behind with their orders and with bleached pulp reaching upwards of $130 a ton and cheap rags at 18c. a pound, with ray stock almost impossible to get, owing largely to transportation difficulties, and the jobbers practically without quotations the paper trade is in about as an unsettled condition as it has experienced since the era of great shortage set in. As a matter of fact, users of paper are not asking for quotations. "Get us the paper, never mind the price", is the demand and none but old customers need make it for no new accounts are being opened. Both jobbing houses and mills are being harried for orders placed last December and are at their wits' end to keep the customers pacified, although as a whole the manufacturers say that the situation is pretty well understood and that it is being accepted philosophically by the users of paper.

There are one or two features, however, that give the future a brighter outlook, one of which is the dawning of milder weather, which wil have the effect of allowing the mills to run more steadily and increase the output of paper, and pulp, which has been seriously hampered by numerous freeze-ups and consequent loss of operating power. From now on the difficulties of the mills in this regard should be considerably less, although it is freely predicted that the coal supply situation is a problem that will have to be faced. Charles McGill, of the McGill Coal Company, who returned to Toronto this week, after making an exhaustive study of the coal situation in the States, looks for a complete suspension of coal mining on April 1st, owing to the unsatisfactory demands made on the owners by the miners. It is known that many of the pulp and paper mills are running pretty close to the wind, as far as fuel supplies are concerned, and a tie-up of the U. S. mines would seriously affect manufacturing operations. (A late despatch says anthracite miners will not quit work pending negotiations.)

A cheering announcement this week came in the annual report of the Riordon Pulp and Paper Company, Limited, in respect to its Kipawa enterprise. Active productive operations at that property were begun in December last and since then the output has exceeded the original expectations. By April next, it is anticipated, the new mills will be producing from 100 to 125 tons of bleached pulp instead of its present lower tonnage of the easy bleaching product, which should have an appreciable effect on the raw stock situation generally.

Jobbers in wrapping papers, Manilas, fibres and paper bags continue to report a well-sustained demand and one that they cannot always meet, for in these lines, as well as in the higher grades of paper, the shortage continues to be felt. One Toronto jobbing firm has adopted the expedient of despatching a man to camp right at the mills, ready to grab any odd lot that might come off the machines, on the principle that the man on the ground is liable to get the best service. The buyer spends ten days at intervals among the mills and as a result the resourceful jobber has been able to keep his customers fairly well supplied, although it is impossible to take on any new accounts.

There is a growing demand for all classes of card board, particularly Bristols, most of which are imported from the States, and dealers are hoping that the plans of one of the big Canadian mills to go extensively into this class of manufacture will not miscarry. Of a shipment of 30,000 sheets of Bristol which reached a Toronto jobber this week, nearly the whole of it was bought by an office specialty manufacturing firm for their card index systems and there is an

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equally big demand for card boards in other similar specialty lines.

Pulp of all varieties is still on the upward grade and the shortage is still very marked although the mills report that labor conditions are improving somewhat. As high as $27.00 a cord is known to have been paid by one mill for rossed wood and when it is realized that there has been a great scarcity of labor and exceedingly bad transportation facilities, the shortage of raw material and the high prices for pulp are better appreciated. The prevailing price for groundwood pulp is $65.00 to 70.00, while news grade sulphite is quoted at from $80.00 to $82.00 a ton. Easy bleaching sulphite is now selling at $110.00 a ton and sulphate has reached the even hundred mark. There are high figures but considerably more has been paid in the open market and the mills freely predict further increases.

There is still a shortage of kraft papers with an ever-increasing demand and rising prices. It is known that present prices lists are now being revised on a re-sale basis and that the tendency is upward.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$65.00 or $70.00
Sulphite, news grade	$80.00 to $82.00
Sulphite, easy bleaching	$110.00
Sulphite bleached	$130.00
Sulphate	$100.00

Paper.

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) in less than carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload), No. 1	13c.
xBook papers (ton lots) No. 1	13½c
xBook papers (carload), No. 2	12c
xBook papers (ton lots), No. 2	12½c
Ledgers	17c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tinted bonds	28c
White wrappings	$6.50
Writings No. 2 (M.F.)	13½c
Coated book and litho, No. 1	$14.50
Coated book and litho, No. 2	$13.50
Coated book and litho, colored	$14.75
Grey Browns	$5.75
Writing No. 1 (S.C.)	15½c
Fibre	$8.50
Manila, No. 1	$8.50
Manila B.	$6.75
Tag Manila	$8.50
Unglazed kraft	$10.50
Glazed kraft	$10.50
Tissues, bleached	$1.45
Tissues (unbleached sulphite)	$1.30
Tissues, cap	$1.05
Tissues, Manila.	$1.00
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.
Paper bags, Manila (discount)	30—35 per cent
Paper bags (kraft)	40—45 per cent
Confectionery bags, Manila	34—35 per cent
Straw board	$88.00
Chip board	$88.00
Vat lined chip board	$96.25
Filled wood board	$99.00
News board	$96.25
Manila lined folding board, chip back	$104.00
Pulp folding board	$113.00
Jute board, No. 3	$88.00
White patent coated board	$145.00
Grey folding board	$126.00

*Government fixed price to Canadian publishers.

xThere prices are for machine finish, supercalender one-half cent higher.

NEW YORK MARKETS.

New York, March 20.—Increasing strength has characterized the local paper market this week. Demand has undergone no abatement; on the contrary it has shown further broadening, and the pinched condition of available supplies has been even more pronounced than formerly. The shortage of freight cars and the general deterrent transportation conditions, are playing more or less havoc with the paper market. Shipments from mills to this and other consuming centers are being badly delayed, while manufacturers are having extreme difficulty in acquiring raw materials, all of which lends added weight to an already oppressive supply situation. Buyers seeking spot lots of paper in New York this week have met with but little success. Jobbers' stocks are down to the bone, and mill agents have refused flatly to make any guarantees concerning deliveries. The result is that new high prices have been paid for many grades of paper, and, unless some relief is afforded from prevailing conditions, still higher values are likely to be realized.

The newsprint market is strong to an extreme. Publishers in all parts of the country are literally clamoring for supplies and are not balking at the prices quoted when finding available parcels of paper. Under present circumstances, with a tremendous volume of advertising booked and with high rates of payment easily obtainable, publishers are willing to grant almost any figure to get newsprint. Of course, the principal cry comes from the small consumer. City publishers for the most part are protected by contract and are doing what they can to keep their consumption down to the amount of paper they are receiving on contract allotment, but small publishers who generally depend on open market purchases are anxiously inquiring for supplies and are going to any length to cover their wants. Judging from all the agitation in governmental circles for increased supplies and lower prices of print paper, the publishers of village and country newspapers are making innumerable protests to their representatives in Congress over the present paper situation. Whether or not the limitation placed by city publishers on their consumption is effecting any relief for the small consumer is hard to say. Taking the current demand as a criterion, it most assuredly isn't.

Spot lots of newprint in standard rolls continue to sell in the open market at as much as 11 cecnts per pound, and there seems no question that far larger tonnages could be readily disposed of at this price were they available. The contract basis is around 5 cents, at mills, and some manufacturers are securing better prices than this. More newsprint paper has been received during the week from Europe. In fact, it is becoming quite customary to find shipments of

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Rio de Janerio, Brazil.

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Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

print paper listed among the manifests of steamers arriving here from the other side of the Atlantic, but evidently these supplies are having scant influence on the market here.

The book paper market is firm, and available supplies are just about as short as is newsprint. Fresh orders are viewed by manufacturers as an unwelcome element and mills in general are refusing to consider offers of business excepting from regular customers. The production of book paper in the States is practically entirely sold for the remainder of the year, and when one stops to figure what this means, all surprise that might have been entertained regarding the scarcity of this class of paper is quickly eliminated. Coarse papers are quotably strong and are moving in steady volume, or as steady as prevailing transportation conditions will permit. Tissues are gradually climbing in price and are being more and more sought as supplies available for open-market trading grow lighter.

The board market exhibits pronounced strength. In fact, it is almost equally as hard to place orders for board as it is to find unsold supplies of newsprint and book papers. Mills are contracted ahead for several months and are reluctant to make commitments for a longer period. Plain chip board is freely selling at $90 per ton at mills and news board is commanding $100 to $105 a ton, the higher figure being quoted on solid news and the lower on filled news board.

GROUND WOOD.—Mechanically groundwood is practically unobtainable in sizable lots for prompt delivery. Manufacturers have little or nothing to offer, and dealers and mill agents are sold out for some time into the future. For a time about ten days ago, when milder weather set in, it appeared that some relief might be afforded from the pinched supply situation, but since then more severe weather has prevailed and production has been again curtailed. Prime spruce pulp is readily selling at around $70 per ton at grinding plants, and authoritative reports say that consumers are paying higher prices in some cases. A small parcel of Scandinavian pulp was sold last week for $100 per ton.

CHEMICAL PULP.—Continued firmness exists in the chemical wood pulp market. Demand and supply have reached a stage where price cuts little figure in the consummation of sales, buyers paying almost any price for pulp that is to be had for delivery. Offerings in the open market are nearly at a standstill. Domestic producers are besieged with inquiries and do not find it necessary to look for buyers in disposing of what surplus pulp they are fortunate enough to have, while importers have but scant stocks here here to sell. Current quotations on domestic bleached sulphite range between 6.25 and 6.50 cents a pound at mills; on newsprint sulphite at 3.75 to 4 cents, domestic kraft pulp at 4.25 to 4.50 cents, and soda pulp at 5 to 5.25 cents. Foreign bleached sulphite is quoted nominally at 8 cents on an ex-dock basis, foreign unbleached sulphite at 5.75 to 6 cents and foreign kraft at 4.75 to 5 cents. Importers say they are unable to contract for unbleached sulphite for shipment from the other side in the spring at a landed cost here of less than 6.25 cents, which would seem to foreshadow higher prices on foreign sulphite.

RAGS.—Trading in papermaking rags continues fairly active and prices as a rule are maintained. Demand for certain descriptions of material has eased up to an extent during the past few days, this being due apparently to the unfavorable shipping conditions which have held up deliveries to mills, and to the near approach of spring, yet the great bulk of sales have been made at steady price levels and there is a distinct disinclination shown by packers and dealers to lower quotations. Handlers of rags advance the argument that with high prices prevailing all during the present winter, collections have been stimulated and kept on a more or less even keel, and that consequently the usual increase in supplies which accompanies the spring housecleaning period is not likely to materialize this year. Paper manufacturers, however, evidently take a different view of the outlook and are holding off in buying as far as possible, limiting their orders to rags needed for direct use. Old whites are quotably firm and are fetching high prices in sales to mills. Roofing stock also is a firm item, with business reported done at a basis of around $3.70 per 100 pounds at shipping points for No. 1 packing. New cuttings have sagged in price in some instances, but the scope of price changes thus far has been negligible.

PAPER STOCK.—One or two grades of paper stock have declined slightly in price this week, but otherwise the market remains firm. The movement of supplies toward consuming mills has been slowed up by the difficulty in getting freight cars and the embargoes enforced on many railroads, and it is believed these conditions have been at the bottom of such declines as have occurred rather than any falling off of demand. No. 1 heavy book stock is now selling at about 3.25 cents a pound f.o.b. New York, against a previous basis of better than 3.50 cents, while folded newspapers are quotably lower by $2 to 3 per ton, sales being noted at 1.85 to 1.90 cents, as compared with recent price levels of 2 to 2.10 cents. Mixed paper is firm and in steady demand with No. 1 packing selling at 1.60 cents New York. Shavings also are firm, as are kraft and Manila papers.

OLD ROPE AND BAGGING.—Old Manila rope is in brisk demand and an eight cent market prevails for No. 1 packing. Some purchases have been made by mills down to 7.75 cents at shipping points, but dealers now are demanding 8 cents and seem to be securing this figure without difficulty. Old bagging, on the other hand, is in lax demand and is freely available at 3.25 cents per pound f.o.b. New York. Important consumers are doing little buying and the market appears to have larger supplies than other buyers have need for.

U. S. NEWSPRINT PRODUCTION GREATER.

The average or normal production of total print and standard news in the United States based upon the total combined production for the years 1917, 1918, and 1919 amounted to 99,728 tons of total print and 89,700 tons of standard news for a period corresponding to February. The actual production amounted to 114,235 tons of total print and 105,342 tons of standard news, an increase in the case of total print of more than 14 per cent over the average for the three-year period and an increase in the case of standard news of more than 17 per cent over the average. Total production for January and February in 1920 was 243,898 tons, compared with 219,402 in 1919.

The increase in the production of newsprint in February 1920 over February 1919 amounted to more than 10 per cent for the total print and slightly less than 12 per cent for standard news.

Mill stocks of both standard news and total print increased during February.



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and

Finnish Wood Pulp Union, Helsingfors, Finland

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CORRESPONDENCE SOLICITED.

The total time 188 newsprint machines were idle increased from 2,274 hours in January to 2,845 hours in February. No lost time due to lack of orders was reported by newsprint mills. The lost time due to lack of coal amounted to 276 hours, due to delays in delivery occassioned by weather conditions. The 170 hours lost for other reasons were due chiefly to cold weather, lack of material, lack of power and rulings of the Railroad Administration in regard to shipments.

The imports of newsprint for January 1920, were 5,112 tons greater than for January 1919. Norway sent 427 tons, Sweden 851 and Canada 56,296. The exports for January, 1920 were 8,927 tons less than for January, 1919. Nearly half of the 3,834 tons went to Argentina.

The imports of groundwood pulp for January 1920 were 5,253 tons greater than for January 1919. The exports of domestic wood pulp were 869 tons greater than for January 1919.

The imports of Chemical wood pulp (total 57,555 tons) for January 1920 were 27,915 tons greater than for January, 1919.

Jobbers' and Publishers' Stocks.

Stocks of rolls in the hands of jobbers at the end of February were 261 tons greater than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 32 tons less at the end of February than at the beginning of the month. The net increase in the total stocks of newsprint in the hands of jobbers at the end of February amounted to 229 tons. Stocks of the three items were each about half the figures for 1919.

Publishers' stocks decreased 6062 tons during the month. This, however, was more than offset by an increase of 8841 tons in transit over that at the close of January.

The average daily tonnage used during February was slightly greater than the average used in January.

Publishers' stocks and transit tonnage in February 29 represented slightly less than 34 days' supply at the existing rate of consumption.

Sixty publishing concerns held about 45 per cent of the tonnage on hand at the end of the month.

Mill Prices to Publishers.

The weighted average price of contract deliveries for domestic mills to publishers during February 1920, f.o.b. mill in carload lots for standard news in rolls, was $4.533 per 100 pounds. This weighted average is based upon February deliveries of approximately 65,000 tons on contracts involving a total tonnage of more than one million tons of paper manufactured in the United States.

The weighted average contract price based on deliveries from Canadian mills of more than 15,000 tons of standard roll news in carload lots, f.o.b. mill in February 1920, was $4.569 per 100 pounds. This weighted average is based upon the February deliveries on contracts involving more than 300,000 tons of Canadian paper. The greater number of these are short-term contracts covering the year 1920.

The weighted average market price for February of standard roll news in carload lots f.o.b. mill based upon domestic purchases totalling more than 7,000 tons was $7.997 per 100 pounds.

HAMMERMILL PAPER COMPANY
ERIE PENNSYLVANIA

HAMMERMILL BOND

MANUFACTURING DEPARTMENT

February 6, 1920.

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Portable Belt Conveyors for handling material horizontally or at a slight incline are described and illustrated in a new folder entitled "Type B Portable Belt Conveyors." This folder, just established by the Portable Machinery Co. of Passaic, N.J., contains prices of these machines which are made with 16 in. wide belt and in standard stock sizes as follows: 12 ft. 6 in., 16 ft., 19 ft. 6 in., 23 ft., 26 ft. 6 in., 30 ft., 33 ft. 6 in. and 37 ft. These machines in addition to being used for handling coal, sand, crushed stone, fertilizer, etc., are being used for handling coal, sand, crushed stone, fertilizer, etc., are being used for conveying many manufactured products, bagged material such as cement, etc. Used in series or in conjunction with fixed conveying systems, they afford a flexible, convenient and automatic conveying arrangement.

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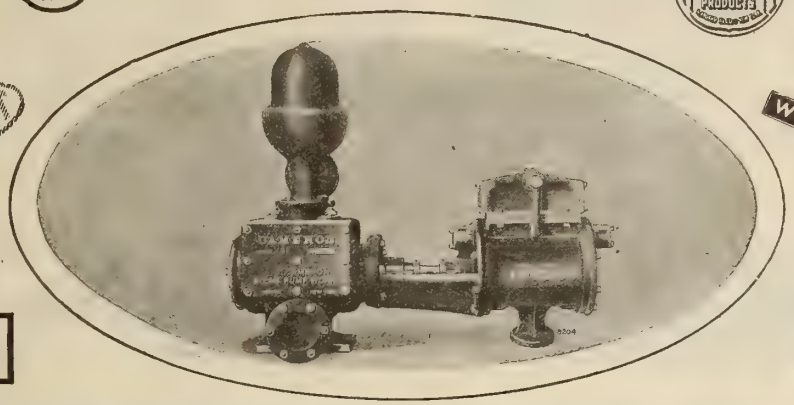
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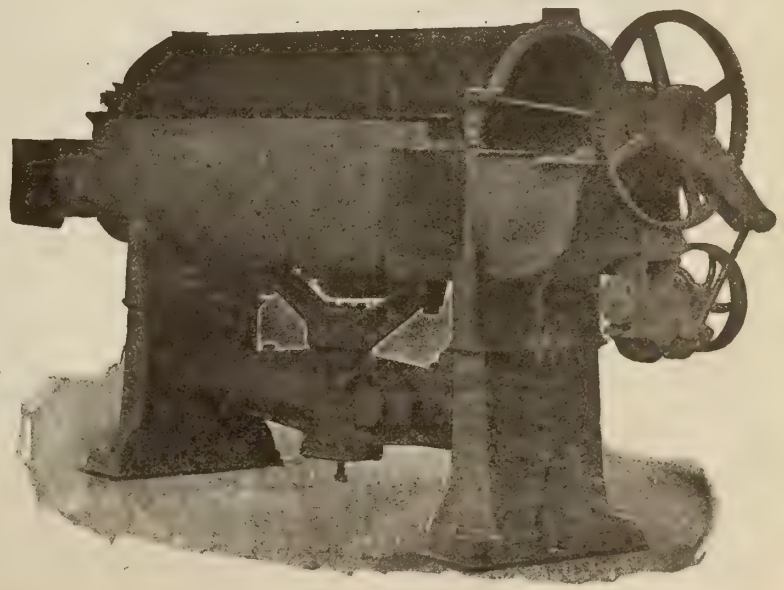
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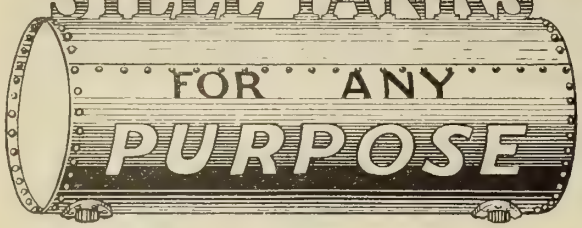
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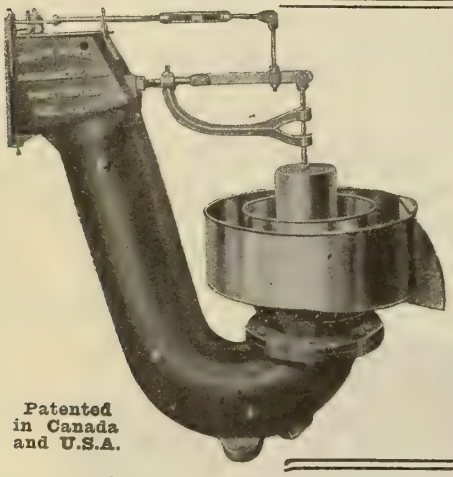
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDEN CITY PRESS, Ste. Anne de Bellevue, Que. No. 14

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J. NEWELL STEPHENSON, M.S., Editor.

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EDITORIAL

STILL LOOKING TO CANADA FOR PAPER AND PULP.

The editor had the pleasure last week of having a quiet chat with Mr. G. R. Hall Caine of London, who is visiting Canada in the interest of the several concerns with which he is connected. If we were blessed with the so-called newspaper sense we might have obtained data for a very considerable article, but sitting down in a friendly way with a pleasant companion is not suggestive of collecting copy. A few points in the conversation, however, may be of interest to readers of the Pulp and Paper Magazine.

Mr. Hall Caine has not been in Canada since this country has attained its present prominence in the pulp and paper markets of the world. As deputy paper controller and active worker in this department in England during the war and because of his extensive connection with the industry, Mr. Hall Caine has become a close observer of the tendencies of the industry. One of the conclusions that he has come to is that while Scandinavia has practically come to the peak of its development as a pulp and paper producing region, Canada is still in the ascendency and, in fact may be said to be just at the point of indicating what the future holds in the way of the development of this industry. Our English friend's view regarding Scandinavia was supported by remarks of the distinguished recent visitors, Baron Mannerheim and Mr. Storjohann, who intimated that in Sweden, at any rate, the pulp and paper mills are now producing their products practically up to the limit of the productiveness of their forests. These Scandinavians believe that it is industrial suicide to extend an industry dependent upon raw material of this nature to such an extent that supplies are consumed more rapidly than the rate at which nature, assisted by the most skilfull technical advisors, can produce them. Otherwise the situation would be entirely comparable to a man who, dependent upon the income from certain investments, uses not only the income but a portion of the capital and in consequence faces certain starvation. The man may have friends or may be able to obtain charity when his means are dissipated but the industry depending on the forest has nothing left to fall back upon, and the population dependent upon such an industry must needs find other employment and other residence.

It was natural that the conversation should turn to supplies of pulp and paper for British mills and on this subject Mr. Hall Caine proved a man of ideas as well as of a record of accomplishment. We believe that English mills will be more dependent upon Canadian firms for supplies of raw material for their mills and that the future will see many of them locating in this country for the purpose of manufacturing their own pulp for their paper mills on the other side. The demand for paper, board and their various and numerous products is increasing daily and there will be plenty of room for paper, not only manufactured in England, but also from Canadian paper mills

An amusing incident was mentioned by Mr. Hall Caine in his reference to the work of the paper control department of the British Ministry during the war. It seems that the work in educating paper users, and particularly those using the higher grades of paper, to economise in its use was so successful that business men and others were so well convinced of their former extravagance that even now the consumption of some papers is quite limited in proportion to what was previously used. The difference is largely due to the elimination of waste by the various means suggested by the paper controller's office. Mention was also made of the firmness with which newspapers tell an advertiser how little space he may have. It is Mr. Hall Caine's belief that England is on the verge of an advertising "spree."

It is a fine thing for Canada to have the privilege of getting acquainted with men like Mr. Hall Caine who represents the biggest and best in the paper industry in England, because there is nothing like personal contact to establish pleasant associations and develop mutual understanding and appreciation of each other's desires and problems.

One remark of our English friend which should bring a sense of considerable satisfaction to Canadian pulp and paper makers is his comment on the cordiality that exists among rival manufacturers and the generous and frank interchange of ideas among them. We were amused at the comparison drawn between this characteristic of the Canadian paper maker and the reticence of the English manufacturer when Mr. Hall Caine remarked that the Englishman would even go so far as to cover up a second hand pump with a blanket for fear a visitor to his mill might notice it was leaking. We are confident that this frankness and co-operation among Canadian pulp and paper makers will prove one of the biggest factors in the success of the industry.

IS IT FAIR TO ENGLAND?

If the opinion of careful and thoughtful persons familiar with financial affairs is worthy of consideration, the attitude of Ottawa towards British creditors is lamentable. There is apparently the same jumping to a conclusion from an unsound footing that characterized the launching of a price-fixing policy without first getting fundamental facts. Canada complains of the difficulty of buying in the United States because of the rate of exchange, and this would be worse if Canadian securities were refused admission across the line. Yet the Dominion government virtually says to Canadian industries, "Sell all you can to Great Britain, but you may not accept perfectly good Canadian securities in payment." It isn't fair.

COBWEBS.

The technical school proposed for Sherbrooke, will be a big advantage to the men in the pulp and paper mills in that district.

Paper and pulp mills in the Lake St. John country will benefit by the contemplated improvements of the Canadian National Railways.

The article in our last issue on the use of balsam in the manufacture of newsprint was written by Mr. C. R. Mills of the Commission of Conservation.

If the United States persists in the practise of manning battleships for states it will apparently not be long before some new states will be required.

The Literary Digest found this in the Shreveport Times: "We would ask spring poets kindly to bear in mind that the paper shortage is serious."

It was a pleasure to meet Mr. Carmichael of Sydney, Australia, who is here for the sixteenth time in twenty years. If some of these welcome visitors could only bring a paper machine along, they would have better luck getting paper.

This is a secret. If you find, when you get to New York for that convention, April 13-15, that you can't get a room in a hotel, there are two things to do. If you don't want to sleep, go to a roof garden, cabaret or something. If you do want to sleep, buy a railway ticket and berth to somewhere about four hours from New York, and then buy another to come back. The best way, of course, is to reserve your room NOW.

New York State College of Forestry is getting busy on a course in Pulp and Paper Technology. The work is in the hands of Prof. C. Earl Libbey, a graduate in the same course at University of Maine and later with the Bayliss Corp. The College of Forestry at Syracuse is an appropriate location and New York pulp and paper makers as well as manufacturers of equipment should give spontaneous and generous support and assistance. Such a school cannot live, much less succeed, without the vital stimulus of intimate contact with the industry.

On another page of this issue is the winning essay of the contest held last summer for student members of the Technical Section who were working in pulp and paper mills. It was only after a very careful comparison of the several excellent essays submitted that the first prize was awarded to Mr. Lafontaine. It is gratifying to note that most of the students who did summer work in the mills last year are going back into the industry, some of them having accepted permanent positions with the concerns for whom they worked last summer. Letters are already coming in from students who wish to make similar connections for the coming summer and, besides all of the mills who assisted in the work last year, some others are planning to take on some student workers this year. The movement is one that promises to be of great benefit, both to the mills and to the students.

WHERE WE GOT IT.

The interesting chart, showing the growth of the newsprint industry in the United States and Canada, used on page 298 of the Pulp and Paper Magazine for March 18, were sent us by Mr. R. S. Kellogg, secretary of the Newsprint Service Bureau. Lines acknowledging Mr. Kellogg's courtesy were set, but were inadvertently omitted in making up the magazine.

PRODUCTION RECORDS NOT LUCK.

The production records which the Abitibi Mills have been steadily piling up are far from being the result of chance or haphazard luck. The steady climb in the output figures is an achievement which could only have been attained by the sincere and hearty co-operation of every man in the vast plant says the Broke Hustler.

Months ago the Woods Department strained all its resources to create the immense reserve of pulpwood that goes to make up the block pile on the west side of the mills. Faithful and able men have worked tirelessly day and night, through cold and sleet, with dynamite and portable conveyors, to insure the delivery of a constant supply of spruce from the pile to the mill—an endless stream of blocks totalling five hundred cords a day. In the wood room these blocks have been barked and sorted, some thrown to the chipper knives to be turned into food for the digesters and some diverted to the grinder room where under hydraulic pressure they were disintegrated by huge grindstone. Here with scientific exactness as to speed of stone and temperature of stock, each little fibre of the spruce is separated from its fellow and is released undamaged, into the great sluices which conduct it through various screening and thickening processes to the mixing vats where it joins and mingles with its sisters coming by similar conveyances from the digestors where they have been cooking for hours under the watchful care of expert cooks in sulphur dioxide liquor made in the Abitibi acid plant.

The Service Division has contributed its quota to the general result. The size and quality of the chips in the wood room have been tested and are known to the foreman of the wood room. The quality and strength of the sulphur dioxide liquor in which the chips have been cooked has been taken at frequent intervals, and each test is known to the acid maker in charge. The freeness of the stock, and its quality, have been tested in the grinder room, and the results from time to time are known to the grinder room foreman. The reasons for the breaks on the paper machine have been noted, the output has been tested for weight, texture and cleanliness, and the results are known to the paper mill superintendent. Armed with this knowledge the various foremen, and the men that work for them, have done their best to standardize their particular part of the process, and this co-operation is resulting in production records.

Synchronization of operations and co-operation between department and men result as of necessity, in improved quality and increased output.

The Making of Rag Papers

By G. H. LAFONTAINE, Montreal.

In presenting the following article to the readers of the Pulp and Paper Magazine the editor has three objects in view. The first is to fulfill one of the provisions of the announcement by the Technical Section that the prize winning essay of the contest for students who were employed in pulp and paper mills last summer should be thus published. The second is to show managers and superintendents that our Canadian colleges are turning out men who will make good in the pulp and paper industry if they are given a proper chance to get acquaiinted with it and encouraged to begin at the bottom and learn by actual doing how the various processes are carried out in the mill. The third is to indicate to other readers who may happen to see this article that there is much of interest to be observed in a paper mill by one who uses his powers of sight, hearing and reason and much satisfaction in actually helping to produce one of the most important commodities of modern commerce.

While it was not practicable to show all of the numerous illustrations which accompanied Mr. Lafontaine's article the most important are here reproduced.

The Making of Rag Papers.

Cellulose is the basis of paper and it is cellulose which forms the essential parts of plants. Plants are said to be constituted of fibres and cells; the former may be taken as representing cellulose, while the latter represent an undesirable element which must be eliminated. Therefore the manufacture of paper will comprise such processes as will isolate the fibres from all impurities, and then convert the fibres into the finished product. From this we may conclude that paper is made in two stages:

1st.—The removal of all undesirable elements or the preparation of raw materials for what is technically known as half-stuff.

2nd.—The conversion of half-stuff into a sheet of paper.

1.—Preparation of the raw materials.

In the manufacture of rag-papers, the main sources of fibres are rags and wood, and incidentally paper waste, which contains both in a fibrous state. The quality of paper will depend on the percentage of rags employed in its making; the more rags the finer the product. The treatment to which the materials are submitted must also be taken into account, though it will not cause cheap sources of fibres to give a higher grade paper.

A—Rags.

In the case of rags, the cells and other impurities have been partly removed in the different processes of the textile industry; but they have taken up new organic and mineral impurities which must be eliminated with the remaining cells. The length and intensity of the treatment to which the rags are submitted depend on their state of cleanliness, that is. whether they are new, such as the trimmings from the textile manufactures, or old, such as worn and oily rags bought from the junk dealers.

The rags are received at the mills in assorted bales of 300 to 1100 lbs. These are brought to the duster room where all rags, except hard buckram trimmings, are whipped free from their loose dirt. The machine or duster in which this is done consists of a hollow metallic cylinder, 3 feet in diameter and 10 feet long, revolving in a wooden hovel; pikes are attached to the external face of the drum to grasp the rags and dust them on the sides of the hovel and small transversal beams placed above the drum. The dust drops at the bottom in drawers in which the rags are prevented from falling, by a wire screen. When the rags are sufficiently dusted, they are taken to wooden baskets by a conveyor belt. They are then brought to the assorting and cutting department where the assortment done by the jobbers is checked up and where any of the foreign elements are taken off; they are also cut in 1 foot lengths. This work is done by women and girls who stand before long tables which have screened bottoms and to which are fastened long curved knives to do the cutting. The rags are afterwards brought to the inspectors who supervise the assorting done.

Now the rags have to be torn into smaller pieces The rag-cutter which is designed for this purpose comprises two drums with short knives or teeth; while the drums revolve, the teeth come into contact with a fixed blade, the width of the machine is about 2 feet and the diameter of the revolving cutters is from 8 to 10 inches. The rags are carried from the drum to the other by a conveyor belt. By the same means they are fed into the first short rag duster and then into the second one. The former consists of five small cylinders similar to that of the duster described above; these rotate over an endless conveying screen travelling on an upward slope from the feed to the discharge. This arrangement secures a good long dusting. The principle on which the second duster works is quite similar; a shaft with attached oval paddles at 45 degrees, like ship propellors, revolves in a fixed horizontal cylinder made of large mesh wire screen.

Up to this stage they have been separated from the loose dirt they contained. There still remain the fixed impurities which will be removed in the three following operations that end the preparation of the more important source of fibres. The first of these is the boiling of rags with such basic chemicals as will form soluble soaps with the organic and mineral substances to be eliminated for paper-making purposes. This is a very important treatment in the preparation of the half-stuff since the qualities and properties of the fibres will depend mostly on it.

The boiling takes place in an horizontal revolving cylinder boiler, about 21 ft. long and 7 ft. in diameter. Up to 10,000 lbs. of rags are fed in through two manholes in the side of the boiler. Then the chemicals are added; these consists of quicklime (CaO) and soda ash (Na_2CO_3), in the approximate proportions of 2 to 1, 3 to 1, and 5 to 1, according to the condition of the rags; these bases react together in water and form caustic soda (NaOH) and calcium carbonate ($CaCO_3$). The caustic soda thus obtained has a very energetic action; it re-

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Note:—The essay is just a description of how rag-paper is manufactured at the Rolland Paper Mill, Ste. Adele. With the exception of a few minor details, it can be taken as a general description of paper-making.

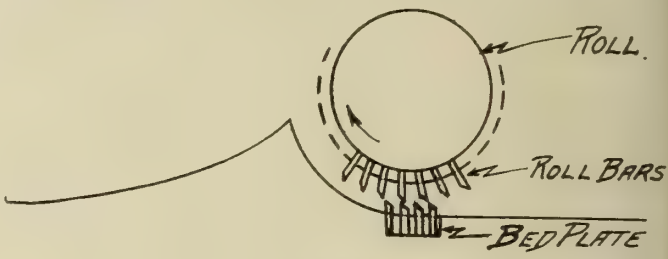
moves all the incrusting substances forming soluble compounds; it eliminates the oils, fats, glue, albumin, sizings and part of the coloring stuff, giving with them soluble soaps. The excess of lime decomposes most of the colors; care must be taken, however, that too great an excess of lime is not used since it injures the fibres and is liable to form water insoluble compounds with oils, resins, etc., which cling to the stock and form a coating that the bleaching agents employed in the subsequent operation cannot penetrate.

When the charging is completed, the lids of the manholes are screwed on tightly and the operation is started—that is—the boiler is set to rotate, while steam is let in through the trunnion at one end of the cylinder. The pressure is raised rapidly to about 20 lbs. and kept constant till the end of the operation by regulating the exhaust valve in the pinion at the other end of the boiler. The time of boiling like the quantity of chemicals used varies according to the condition of the rags; the operation lasts from 8 to 12 hours; the amount of quicklime runs from 200 lbs. to 700 lbs while soda ash goes from 50 to 300 lbs. At frequent intervals tests should be taken of the boiling liquor to ascertain the proceeding of the treatment. When the rags are sufficiently washed, the steam valve is closed and the exhaust valve fully opened; the boiler is brought to a rest and the liquor is drained off; a slight wash with pure water is applied. Then the rags are discharged in carts in which they are carried to the washing engines.

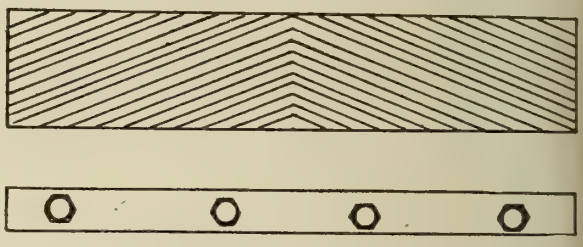
In them the remaining chemical and mechanical impurities will be separated from the softened rags by a thorough water wash. The treatment takes place in an oval trough 20 feet long and 9 feet wide; a partition, known as the midfeather, is fitted inside stopping short of the ends of the tub, thus providing a sort of continuous channel. Referring to the sketch of the beating engine which is built on the same principle, it will be seen that on one side of the midfeather is a cylindrical drum provided with blunt steel knives; these knives, as the drum rotates, come into more or less close contact with an opposing set of similar knives fitted directly under the cylinder in a plate called the bed-plate. The drum itself is adjustable and can be lowered or raised according to the character of the breaking desired. The floor of the trough assumes a rise upwards to the knife drum: this slanting is known as the breast; it is immediately followed by a downward slope or backfall. This arrangement offers a means of controlling the onward flow, the degree of desintegration and the effective circulation of the material. In the washing engine there is, in the channel on the opposite side of the midfeather, a second drum, termed the drum-washer; it consists of an octagonal frame covered with a fine wire cloth. A series of cup-shaped buckets is placed inside the drum; these, working on the principle of the dredger, automatically pick up the dirty water which continually passes through the wire cloth as the cylinder revolves; they are arranged in a slope so as to discharge their contents in the hollow shaft of the drum connected to a large pipe leading to the drains.

The operation in the washing engine or breaker comprises loading up with water and adding the boiled material gradually, the drums being set in motion meanwhile and causing the circulation of the stuff; while the dirty water is baled out by the drum-washer, a fresh supply of water is supplied at an equal rate. The washing and breaking treatment lasts from 3 to 4 hours; its object is to cleanse and desintegrate the stock; hence the knife drums do not require to be actually lowered so as to cut the rags.

When sufficiently cleansed and rended, the material reaches the stage at which it is termed half-stuff. Though clean and quite decolored, the half-stuff still contains a certain amount of non-cellulosic matter; it therfore requires a further treatment to eliminate that undesirable element and whiten the stock. This next operation, called the bleaching process, is carried on in the breaker. Bleaching powder or chloride of lime is the oxidising agent used; a solution of alum is also added to increase the rapidity of liberation of the



DETAIL OF BEATER



DETAIL OF BED PLATE

free chlorine which will do the decoloring. The quantity of bleaching powder employed depends on the condition of the half-stuff and varies from 7 to 112 lbs. per 1500 lbs. charge of rags in the washer; the proportion of alum is of 2 quarts per 15 lbs. of the above reagent. The stock is left to the action of chlorine for 3 to 4 hours; a slight washing is then applied to remove the excess of chloride after which the stuff valve in the floor of the trough is opened; the half-stuff flows down to vast chambers, called drainers, where the water will drain away.

Up to this stage, the rags have been cleansed from all chemical and mechanical impurities; they have been whitened and party defibred; they have therefore lost about 10 to 15 per cent of their weight. Now they are left in the drainers until required for the next cycle of operations; the production of the sheet of paper.

B—Wood.

Wood is a cheaper source of cellulose than rags and does not give as good fibres; therefore the presence of wood fibres in a sheet of paper will lower its grade and hence its price. It is however regarded as a very satisfactory substitute.

The description of the different processes by which wood fibres are isolated,—that is,—how pulp is manufactured, does not enter into the scope of this essay as the pulp is not made at the mill. Broadly, wood pulp

is obtained mostly from resinous wood either by a chemical or a mechanical treatment. Three chemical methods are in general use and the products are named from the process followed; thus we have sulphite, sulphate and soda pulps according to the fact that sulphurous acid, or an alkaline solution of soda is employed to dissolve the resin and other chemical impurities in the wood. Two kinds of pulp, with different qualities and properties, are obtained from the mechanical process according to the volume of water used in the grinding of the wood; hot or cold ground pulp; both pulps are known under the general name of mechanical or groundwood pulps. Cold groundpulp is best used for printing and book papers, while the other is employed for even cheaper products; for higher grade papers, chemical pulp is the best.

All wood pulp arrives at the mill either in a bleached or an unbleached condition. The former can be used in the beater immediately with the half-stuff obtained from the rags, while the latter has to go through the bleaching process. The machine in which the operation is carried on, the chemicals put in and the procedure are exactly the same as in the whitening of rags; the time of bleaching is also from 3 to 4 hours. The only difference is in the quantity of reagents used; from 250 to 500 lbs. of bleaching powder are fed in per 1500 lbs. charge, the quantity of alum varying accordingly, but in the same proportion as above. When the treatment is completed, the pulp is sent down in drainers similar to those where the half-stuff from rags is stored.

C.—Paper Waste.

Paper waste is used as a filler to replace part of the rags and wood-pulp; it consists of the shavings, trimmings and broken waste from the different machines in the mill; it is also supplied from other mills through the jobbers. Paper waste from this last source has to be screened and assorted to check up the assortment done by the jobbers. It is therefore fed into a revolving cylindrical screen built on a slope, the higher end being at the feed; this drum rotates slowly, thus squeezing out some of the possible foreign matter; at the discharge, the paper is taken up by a conveyor belt on each side of which stand girls to pick up the dirty pieces and other undesirable matter. Then it is brought in wooden carts to the pulper together with the paper waste from the mill which does not need to be screened and assorted.

The Lannoye pulper, used in the Rolland mill, consists of a hollow horizontal cylinder with attached curved spikes inside; a shaft provided with similar spikes revolves in it at a speed of 50 R.P.M. At one end of the cylinder is a feed box having at the top a perforated water pipe to furnish a spray sufficient to moisten the paper; at the bottom there is another pipe to supply water or steam as required. Under the combined action of the water and the spikes, the paper is converted back to a pasty condition. At the discharge the bulky stuff is received in carts in which it will be carried to the beating engines where it will be used with the raw materials already transformed into half-stuff.

The different substances from which the fibres are obtained are now ready to go through the remaining operations that will transform them into paper.

(To be continued.)

Beware of the lurking profiteer. He is always lying in weight for you.

Where Does The "Technical Department" Fit In?

Editor, Pulp and Paper Magazine,

Dear Sir:—

Though the battle was necessarily confined to a few mighty gladiators from the news mills, the debate on wide vs. narrow machines was both interesting and instructive to all who had the pleasure of being present. Such 'talk and argument' is a grand thing to clear our minds of false ideas and make us realize that we must look at all sides of our problem and not allow ourselves to be carried away by undue importance attached to either the good or bad features of machines or processes. But would it not be better to let us have a discussion in which all can enter, even if some of us can bring to bear arguments which, compared to those of the previous debate, are as peashooters to sixteen inch guns?

Perhaps such a general discussion would overrun the time which could be allotted to it at Convention, but is there any reason why the Pulp and Paper Magazine should not act as a continuous meeting under the chairmanship of yourself, Mr. Editor? As a starter I would like to suggest the discussion of "How can the mill laboratory be made of more value?". And by the word 'laboratory' I mean to include all that portion of the staff whose duty it is to provide the scientific or technical knowledge for the operations of the mill, whether their work lies in the laboratory or out of it. Quite a large percentage of your readers are, or have been, in this part of the work and naturally have their views as to its field and how well it is covered. Another large fraction of your readers are operating men who are in a position to realize the shortcomings of some of the technical organizations of which they have had experience. Even the 'Capitalist' might emerge from his private office and give us his opinion on the subject. Let it be a free fight and let us all get in it.

As an outline of what I mean I might suggest a few points which would be interesting. In the first place, do the technical departments of the mills work to the best advantage with the rest of the mill organization? Do they show good team-work? I believe it will be admitted as a general thing they do not. As a rule the laboratory people complain of the obstinacy of the other departments and of their reluctance to adopt new ideas. But is this not frequently the fault of the technical staff? I think it is and I put it down chiefly to two factors. One of these is largely the question of language. The operating man has acquired in the course of time a large vocabulary of colloquial terms which are peculiar to his work. When he thinks of his work, he thinks in these terms and though his language on all other subjects may show no trace of his trade, when he talks shop he immediately drops into the vernacular. He may be able to avoid this but to do so is an effort, just as speaking a foreign language is to most of us. In the same way there is a jargon of the laboratory which is equally far removed from everyday speech. When the laboratory man, after many days or weeks of work, goes to the operating man with his ideas clothed more or less completely in the language of the laboratory, is there any wonder that there is difficulty in putting it across? Who is to blame? The same language difficulty is often largely responsible for the

misunderstandings which arise between the laboratory and the mill. Each is more or less foreign to the other and each regards himself as the other's superior. The laboratory man appears as an impractical dreamer with the idea that the mill man 'can't see beyond his nose'. This feeling may develop into actual suspicion. I know of one very large mill in which the operating staff look on the laboratory staff as a sort of glorified detective force spying on their work.

The other factor making for lack of teamwork is the passion for grandstand play. Rather than accept the improvements offered by the operating staff or from outside the concern altogether, the research staff may allow things to go on in an inefficient manner, hoping meanwhile to discover a substitute improvement for which they will get the credit. Neglect to adopt an improvement as soon as posible causes loss and even the development of an equally good one at a later date does not make it up. I think some of this spirit is due to the name Research Laboratory so generally applied to the technical department. To live up to it they continually pursue some far off treasure and neglect that which lies ready to their hand. If every mill were to adopt at once all the improvements now available the increase in efficiency would be enormous. There is plenty of work for the technical staff in examining the proposed improvements and they should get as much credit for recommending the purchase of a profitable improvement as they do when they successfully speculate with their services in discovering one. The money of the firm is spent in both cases, though in the former it is more likely to prove a sound investment.

Then there is the question of the organization of the technical department itself. Its activities fall into a number of more or less distinct divisions. In many mills the first beginnings of such a department are in connection with purchasing. Machines must often be designed and subjected to frequent tests and inspection during the building; materials must be tested and analysed to assure the quality desired; and comparison must be made between the competing samples submitted to the purchasing department. This, then, may be considered as one division of the work of the technical department. The next is that of control. This includes the routine testing of the product as it goes from stage to stage of its manufacture, the keeping of a continuous watch over the efficiency of the various processes and machines involved and it may even include the study of the efficiency of the human element as well. Following this comes the testing of the finished product and the comparing it with that of competitors for the assistance of the sales force. Last of all comes the research work,—the developing of new processes, new machines and new products. The first three divisions cover work that is done in every mill, somehow, by someone, whether there is a recognized technical department or not. They are simply specialized parts of buying, manufacturing and selling. The research work is more of the nature of speculation and is wisely left alone by many conservative firms although when rightly conducted it is more than likely to bring hugh profits.

In view of these conditions there are endless ways of approaching the subject of how to increase the value of the technical department. Should it be split up and put under the purchasing, manufacturing and selling departments or should it be established as a separate one by itself? Should it be subordinate to any other department and, if so, to which? If it is a separate department which is called in consultation with others should the dictum of the Technical Superintendent necessarily be followed by those others? What should be the measure of the appropriation for a technical department?

Is there not room for discussion of these points?

March 14th., 1920. W. B. Campbell.

Editor's Note:—

Mr. Campbell has the right idea of what the Magazine is for, anyway. As the official organ of the Technical Section and, even more, as an agent whose principal purpose is to serve the whole industry, the Pulp and Paper Magazine should be a clearing house for the exchange of thought and experience of its readers. Correspondents need not hesitate using either mill or laboratory language as the editor happens to have been inoculated with both.

Now, Mr. Barker, Mr. Cook, Mr. Beaterman, Mr. Foreman, Mr. Super, and others, what do you think of the "'Technical Department"? How can you help them and how can they help you? You were making pulp or paper before many of them left high school. You must have had some ideas and found some inspirations in that time. Send them in. We'll print them and pay for them too.

BOARD POWERS CHALLENGED

A direct challenge was hurled at the Board of Commerce in Toronto this week when, with the object of determining whether public officials under the Combines and Fair Prices Act of 1919 can enforce an order affecting the disposal or sale of newsprint manufactured by it, the Fort Frances Pulp and Paper Company issued a writ against the Attorney General of Canada, the Board of Commerce and W. F. O'Connor and James Murdock. The writ is endorsed as follows.

"The plaintiff's claim against the Attorney-General is for a declaration that neither the Board of Commerce of Canada, nor W. F. O'Connor and James Murdock, either as members of the said Board of Commerce or as individuals, has or had under the Combines and Fair Prices Act, 1919, or under the order in Council of 29th January, 1920, P.C. 230, any jurisdiction or authority to make or enforce against the plaintiff, certain alleged orders of the Board of Commerce of Canada, dated, respectively, March 4th and March 5th, 1920, and styled orders Nos. 6 and 9, respectively.

"And the plaintiff's claim against the said Board of Commerce and the said W. F. O'Connor and Jas. Murdock, is for an injunction restraining them, and each of them, from enforcing or attempting to enforce against the plaintiff, the said orders or either of them, and from making or enforcing against the plaintiff any orders affecting the plaintiff in the sale and disposal of newsprint manufactured by the plaintiff.

HIGHER WOOD PRICES PREDICTED.

Watertown, N. Y.—Thirty-five dollar pulpwood next year is being predicted by local pulp and paper manufacturers for four-foot Canadian peeled wood. E. W. Elsworth, of this city, a well known dealer in Canadian wood among the mills of the North Country, when asked about the matter, said that $29 is now being paid for this wood, and expressed the possibility of wood going to $35 during the next year on account of labor conditions and wages.

Manufacture of Paper Pulp from Flax Straw

How Western Canada Can Supplement Present Shortage of Paper Pulp

In previous issues of the Pulp and Paper Magazine, reference has been made to the possibilities of using cereal and flax straws for a better purpose than an occasional illumination of the landscape. In the following article, Mr. Ommaney of the Canadian Pacific Railway, gives some important data relative to the supply and collection of new material. Incidental to article Mr. H. N. Lee, formerly microscopist at the Forest Products Laboratories of Canada, has supplied photo-micrographs of the fibre mixtures and the cross sections of the papers made from linen rags and from flax straw.

* * * *

The demand for high grade paper pulp has never been greater than it is to-day, current demand is in excess of the offered supply, and prices, higher than ever before, are decidedly on the up-trend. Meanwhile the paper industry is undergoing a boom, an increase of as much as one hundred per cent in the higher grades of paper manufacture in Canada being the actual experience of some Canadian manufacturers. On the American Continent the demand in these lines is not being met by the supply, and a great deal more business could be done by the paper manufacturers if the raw material were forthcoming.

Cotton rags are selling as high as fifteen cents a pound ,and high quality material from which paper can be made comparable with cotton rag content paper should readily command as much as $300 per ton. The United States daily consumes over 1,000 tons of high grade papers. Canada manufactures about 250,000 tons of high grade bleached pulp, a large proportion of which is exported to United States. It takes somewhat over one and a half cords of pulpwood to make one ton of pulp, and the demands on our forests consume some 20,000 acres of pulp wood limits per year, in which connection it is interesting to note that it takes from fifty to one hundred years to grow a spruce tree suitable for pulp production. Timber limits are rapidly increasing in value, and with the rapid depletion of the forests lumbering operations must every year go further from transportation lines.

Of Direct Interest to Western Farmer.

This situation is of direct interest to the Western farmer, because he is annually wasting about one million tons of raw material from which it has been proved that a paper pulp can be made convertible into a high grade paper comparing well with the linen rag product, for which price and demand are to-day higher than ever before. The material referred to is flax straw, at the present time burned and wasted wherever flax is grown for linseed, the straw crop therefore, representing a dead loss to the farmer. In the 1919 issue of the Monthly Bulletin of Agricultural Statistics, published by the Dominion Government at Ottawa, we read: "Another question of direct economic interest is the possibility of utilizing the linseed straw in Western Canada, which so far has been found useless, and is mostly burned. Any use that could be established for this by-product, which would increase even to a small extent the total money yield of the crop to the farmer would be a very important factor in extending the cultivation of flax throughout larger areas in Canada."

It can now be definitely stated that such a use for flax straw has been demonstrated in the manufacture of pulp (bleached and unbleached half stuff) for conversion into high grade papers. All that is required



A field of flax in Western Canada.

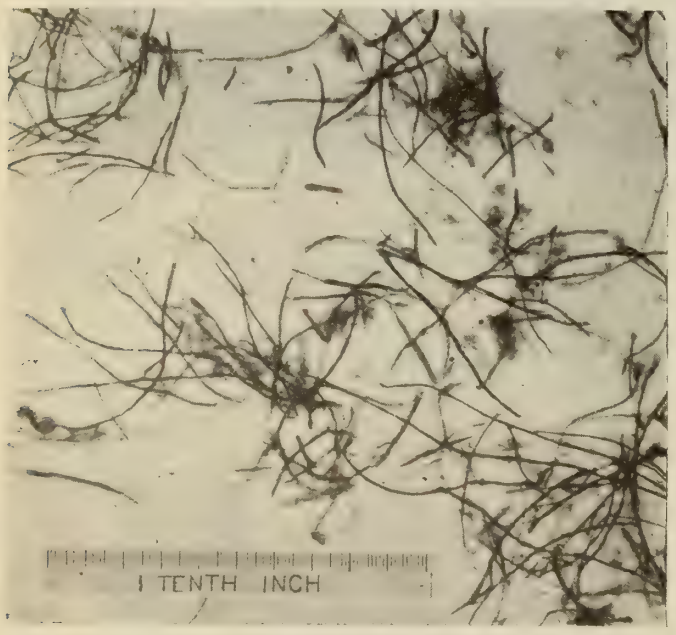
is co-operation on the part of the farmers in the collection and delivery of straw, and interest of the necessary capital to organize a new industry which will revolutionize the flax-growing problem and at the same time stimulate the important paper industry of Canada with a supply of high quality pulp.

This is no question of experiment. That stage has been passed, and production on a semi-commercial scale has actually been accomplished. Over a ton of unbleached flax straw pulp has been manufactured, and then made into paper in two paper mills. This was submitted to various large paper manufacturers for their opinion, and from them it received the highest commendation. It is thought that the following points cannot fail to be of interest to the Western flax grower and also to the paper manufacturer.

Year	Manitoba Acres	Manitoba Bu. per acre	Saskatchewan Acres	Saskatchewan Bu. per acre	Alberta Acres	Alberta Bu. per acre	Total Acres
1910	34,684	5.09	396,230	7,68	14,300	4.48	445,214
1911	79,765	14.44	570,000	11.25	40,275	10.39	690,040
1912	100,000	12.49	1,463,400	12.94	111,400	12.83	1,674,800
1913	54,000	11.70	1,286,000	11.24	105,000	11.00	1,545,000
1914	40,000	8.44	958,000	6.40	80,000	7.67	1,078,000
1915	14,505	8.27	395,234	13.30	48,000	13.96	457,739
1916	15,684	13.38	542,034	12.35	95,063	13.79	652,781
1917	16,300	9.00	753,700	6.25	139,800	7.00	909,800
1918	107,961	10.00	840,957	5.00	95.920	5.00	1,044,838
1919	106,000	10.75	841,000	7.00	99,000	1.75	1,046,000

Conditions Essential to Successful Manufacture.

The conditions essential to the successful manufacture of flax pulp are:— (1) Sufficient quantity of flax straw. (2) Suitable mill locations. (3) Suitable markets. Dealing with each of these headings, it is obvious that the first is of primary importance, the available supply of the basic raw material straw, the possibilities of collecting that supply, and the price at which it can be so collected, are factors on which depend the practical commercial possibilities of this development.



Bank note paper from linen rag.
Separated fibres magnified 20 times, showing a small amount of small lighter fibres due to breaking down of whole fibres. Fibres can be measured by comparing with the scale. Prepared and photographed by H. N. Lee.

Taking first the available supply, we find that there has been in the past an enormous increase in flax acreage in the West. In 1870, the total Canadian crop was 118,044 bushels. In 1903, this had increased to 884,000 bushels, and this increase continued up to the enormous crop of 25,978,00 bushels in 1912. The fall in prices in the next few years was reflected in diminished production, but recovery has been rapid, and in 1918 a crop of 5,776,000 bushels was harvested in the Prairie Provinces, the estimated crop for 1919 being 7,117,000 bushels, of which Saskatchewan is credited with nearly 4,600,000 bushels. The following table gives acreage and yields for the Prairie Provinces during the past ten years, taken from volumes of Census and Statistics published by Department of Agriculture of the Dominion Government, Ottawa.

Crops such as those of 1918 and 1919, would each yield over 1,000,000 tons of straw, capable of producing over 100,000 tons of pulp. Canada to-day manufactures annually 250,000 tons of high-grade pulp, practically all for export to the U. S. A.

Practically all of this flax is grown for linseed. It is well known that flax cultivation for this purpose is an entirely different farming proposition from growing flax for fibre. For fibre flax a special seed must be selected, and the crop is closely sown to encourage long slender growth of straw with small tops. Special cultivation, harvesting methods and subsequent treatment of the straw must be resorted to.

The question of growing flax for fibre to replace the great shortage from which Europe is now suffering, though also a problem of the first importance to the Canadian West, is an entirely different problem from that now under consideration, viz:—utilization of the present supply of straw for paper pulp. With linseed flax, Canadian common seed is used sparsely sown to encourage plants to develop large tops; the flax is cut at a later stage of its growth, and threshed for its seed. The resulting straw is too short, broken and brittle for use in the textile trades and has hitherto been piled alongside the thresher and burnt.

Ordinary Flax Straw Utilized.

It is this identical straw, just as it is to-day piled from the thresher, which can be utilized by the process now described. Emphasis is here laid on the fact that no new methods of flax cultivation are involved. The straw of the flax grown to-day from Canadian seed, under Canadian climatic conditions is used, just as it is to-day accumulated by the Western farmer in the ordinary process of linseed flax cultivation. What is required is co-operative action on the part of the farmer to haul and deliver the straw to centrally located tow mills at reasonable cost.

A canvass of the principal flax growing farmers will probably be undertaken next season, to determine the possibilities in this regard. Clearly, the supply of straw and its cost are the basic factors which affect the whole commercial possibilities of the development. Saskatchewan has to-day about four times the combined flax acreage of the other provinces, but Manitoba is also interested, having over 100,000 acres and an average yield per acre more than one-third greater than Saskatchewan. Manitoba can also offer strong claims to advantages in such matters as transportation facilities, labor, freight and cheap power. This leads to Item 2:—

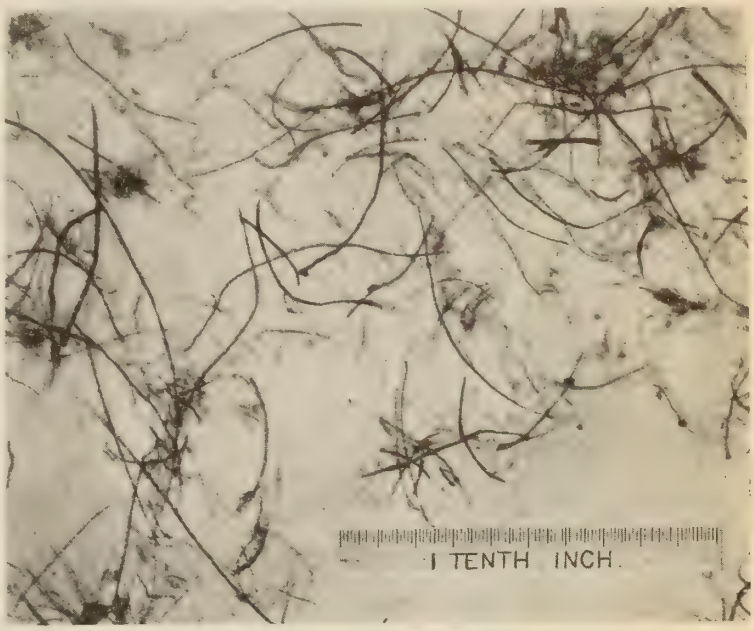


Sheaf of flax straw ready for threshing. The stalk furnishes this paper making material.

Suitable Mill Locations.

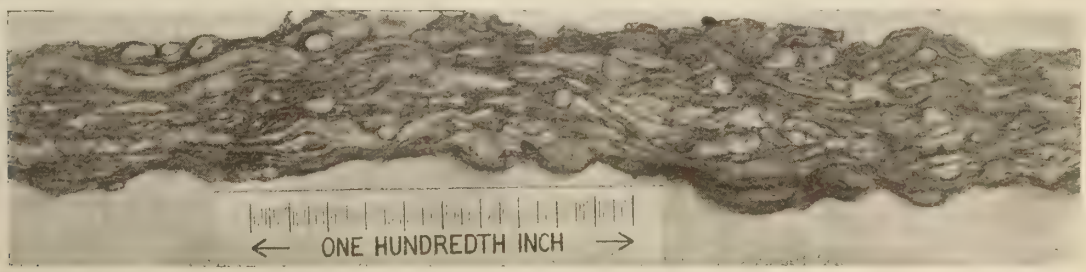
Figuring conservatively, it takes about nine tons of air-dried straw to produce one ton of flax pulp. This emphasizes what has been said as to the importance of initial cost of straw; it also clearly shows the impracticability of hauling straw any long distance to pulp mills.

The difficulty is met by the establishment of portable tow mills, where shive is stripped from the straw, and pressed into baled tow. Again, this arrangement adapts itself admirably to existing conditions of flax cultivation. Flax is essentially a migratory crop, and these tow mills can be of cheap portable construction, distributed throughout flax growing areas, and able to follow the movements of the flax centres of distribution. In some cases, the tow mills may be individually owned and operated by the farmer.

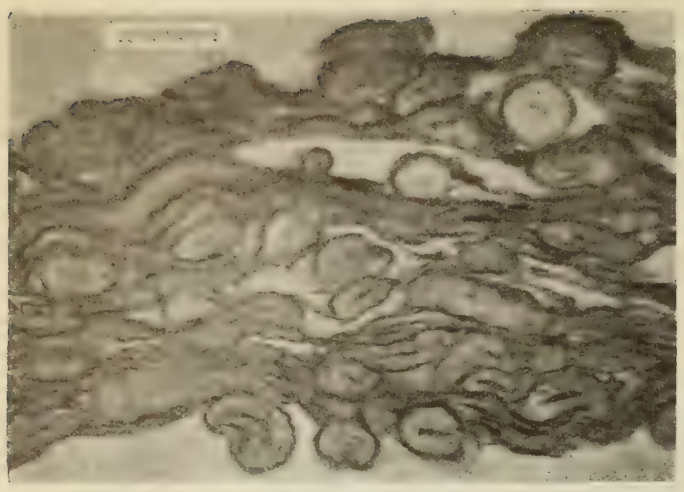


Flax straw pulp paper, showing separated fibres (x 20). The small, lighter colored fibres are from the wood and parts of the flax straw other than the bast. The bast (linen) fibres are large and dark.
Prepared and photographed by H. N. Lee.

A tow mill would be the centre of collection of straw for a radius of about ten miles. In Manitoba it is thought that one and a half tons of straw should be obtained per acre, and taking an average yield of 11 bushels per acre, we find that a point shipping 33,000 bushels would be a centre for 4,500 tons of straw. Assuming now a pulp mill capacity of 20 tons a day, or say, 6,000 tons per annum, this would call each year for about 18,000 tons of tow, which in turn require



Section of linen rag bank note paper (x200) cut "across" the machine direction, showing general distribution of fibres.
Prepared and photographed by H. N. Lee.



Section of same linen rag paper (x 500) cut in "cross" direction, showing the large "linen" fibres, many of which appear as breaking down.
Prepared and photographed by H. N. Lee.

54,000 tons of straw, the reduction in process of manufacture of raw material to finished product being about in the ratio 3 to 1 to 0.32. Such a plant would therefore require to feed it some ten tow mills, each yielding 5,400 tons of straw per annum. In Manitoba, locations such as Winnipeg, Winkler, Rosenfeld, Marquette and Kaleida are flax shipping points suitable for mill locations, and farther west, Brandon, Melita, and numerous other locations, could be developed.

After threshing and freeze-up, the farmers would haul straw to the tow mills. This they should be able to do at a reasonable price per ton, as they would secure a market for what would otherwise be wasted, and employment for horses, help, and equipment which otherwise must be maintained in idleness or only partially employed.

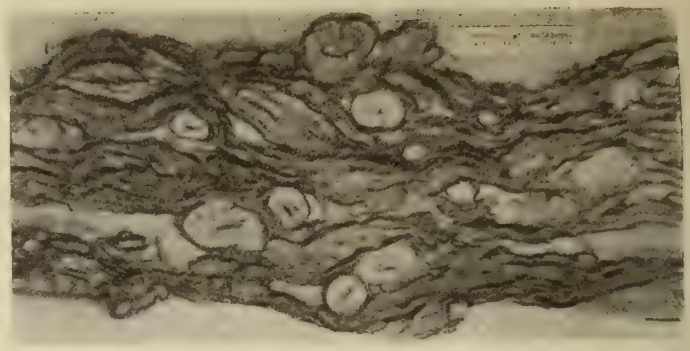
The Establishment of Tow Mills.

The establishment of these tow mills will also tend to stabilize labor, and encourage increased flax production. Flax is a crop that has special attractions for the farmer, in that it is (1) A late crop—(can be put in in a backward season) (2) Hardy against wireworm—(good on new breaking). (3) Less bulky than grain—(cheaper to transport to railroad.) (4) A good crop for heavy soils.

The old tradition that soil is injured by flax, and that flax cannot be successfully grown on the same soil several years in succession without the appearance of "Flaxwilt," has been exploded with the discovery that the disease originates in the seed, and has nothing to do with soil depletion. It has, in fact, been demonstrated that an average crop of flax uses less total plant food per acre than a crop of wheat or oats. The remedy for "Flaxwilt" appears to lie in the careful selection of seed.

Pulp Mill Locations.

In Manitoba, with tow mill locations as indicated above, the logical location for the pulp mill appears to be Winnipeg, the essential requirements of good water supply, power, and good collecting and distributing channels being fully met at that point. Following development in other districts and provinces, such points as Saskatoon, Medicine Hat, Moose Jaw and Regina would undoubtedly become centres for pulp mills, the pros and cons of cost of materials, construction of raw materials and finished product, requiring careful consideration in each case.



Flax straw paper cut in "cross" direction (x 500). Bast (linen) fibres are large, wood and other fibres are small and usually flattened and do not show distinctly. Note cracks in bast fibres, showing beginning of separation of fibre, probably due to beating.
Prepared and photographed by H. N. Lee.

Suitable Markets.

As already stated, at no time has the demand for high grade paper pulp been greater than it is today. Flax fibre is very long and slender, resembling cotton fibre, the raw material having a length of from 7 to 55 inches, and an ultimate length after manufacture of 1.18 inches. Bleached pulp produced from it is comparable with pulp made from a fair grade of cotton rags. Rags today cost 15 cents a pound, and bleached flax pulp should sell at $300 per ton. From it high-grade papers for writing, bond, deed, and fine correspondence, can be manufactured.

Assuming a conservatively high figure for initial cost of straw, and making no allowance for by-products such as seed, shives for cattle-feed; briquetted shives for fuel, all of which are recoverable from tow mills, and are marketable, it is thought that the cost of production today should not exceed $200 per ton. The market exists, and it may be pointed out that expansion of that market may reasonably be expected to follow increase of population in the West, and the ultimate expansion of Canadian paper mills to meet the demands of that population.

Details of Plants, Processes, etc.

A tow mill installation will consist of portable corrugated iron and steel buildings for boiler and engine houses, machinery building, and storage warehouse for tow. About 80 h.p. is required to run mills, and enough short straw, weeds and refuse are available to supply all fuel. The tow required is three-run tow, 65 per cent fibre made in three-brake mill, and the machinery in-



Flax straw paper cut in "cross" direction, showing the narrow canal and characteristic markings of the flax bast fibre when cut lengthwise.
Prepared and photographed by H. N. Lee.

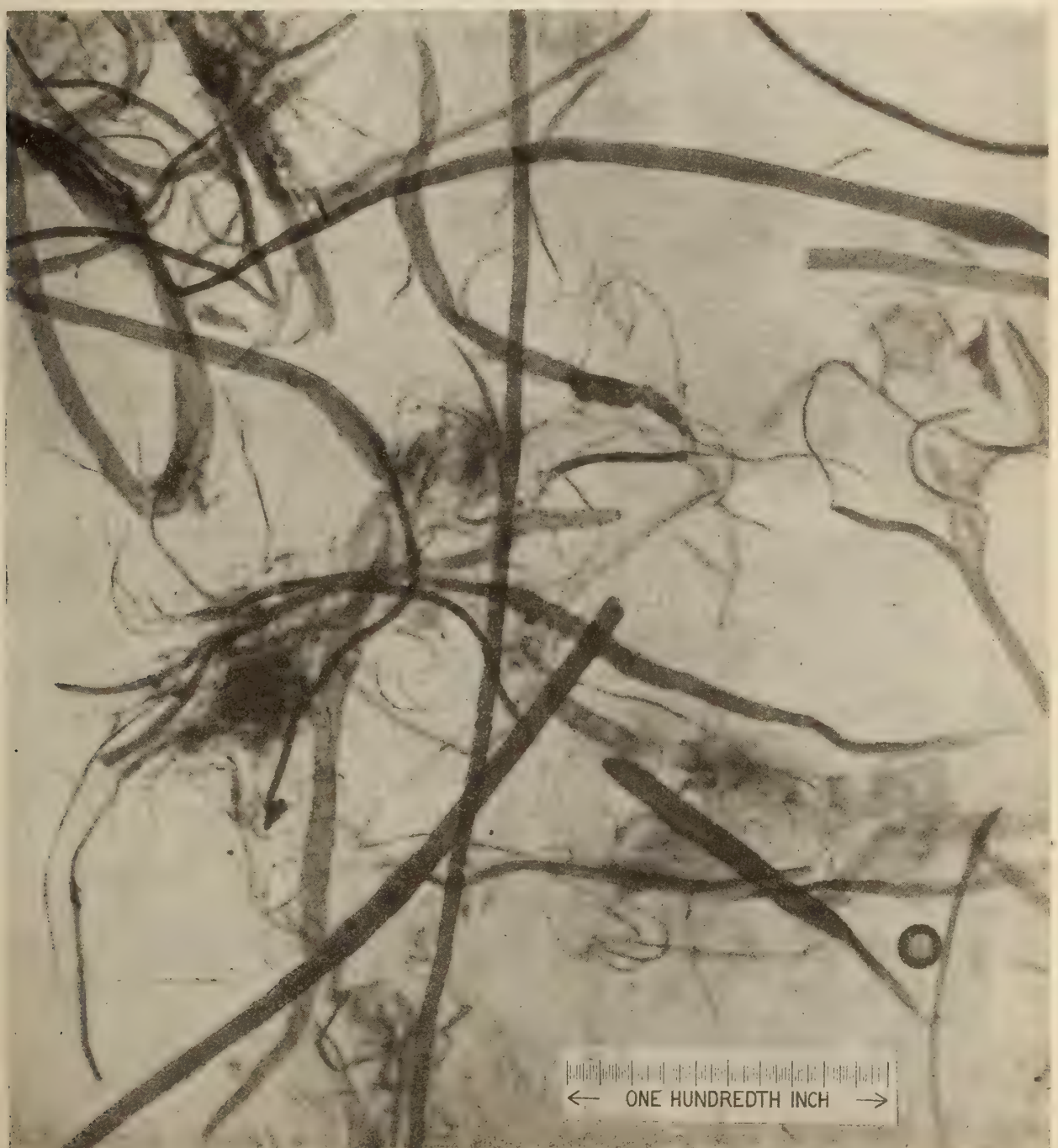
cludes separator to recover seed from brakes, one self-feeder, three shakers and kickers, and one press. Tow mills would run nine to ten months of the year, and each would employ one foreman and about eight laborers. Straw can be stacked in the open, requiring about 750 cu. ft. of space per ton, but warehouse space must be provided for several days' output of tow, which occupies about 9 cu. ft. per ton.

Pulp Mills.

Pulp mills would comprise the usual corrugated iron and steel buildings, and plant would occupy some 90,000 sq. feet of land, and would include in its machinery (a) 2 Digesters, (b) Washing Machine (4 diffusers), (c) Bleaching Equipment (2 vats), (d) 3 Patent wet machines, (e) Recovery system, comprising an Evaporator, an Incinerator and 2 Melt furnaces, (f) a Causticizing equipment, and (g) a Sewage system to carry off liquor. The buildings required are one for main plant, one for recovery system, and one for power house. Such a plant would employ about 150 men, and pure water at the rate of 5,000 gallons per ton of pulp must be available.

The power consumption of the mill may be classified under four headings, viz. (a) Cooking, (b) Running Machinery, (c) Recovery system, and (d) Heating system, and a 20 ton per day capacity will require about 1,000 h.p. to operate. The raw materials entering into the manufacture are, Lime (650 pounds per ton of pulp) Salt cake (350 pounds per ton of pulp to replace 15 per cent loss on each cycle of operations), and Bleaching Powder (200 pounds).

In operating, 10 to 15 pounds of tow per cu. ft. of di-



Flax straw paper showing separated fibres (x 200). Most of these fibres are from the wood and parts of te flax straw other than the bast. Only the four strongly marked fibres not wholly included in the picture are bast (linen) fibres.
Prepared and photographed by H. N. Lee.

gestor space may be obtained, depending on whether unbroken bales or loose tow can be used , the liquor ratio in the digestor being about 4 to 1, or 0.50 gallons of liquor per pound of flax tow. It must be remembered that the above are estimated figures, based on semi-commercial experiment, and may require revision as result of experience on large commercial scale.

Tests of Linen Rag, and Flax Straw Papers

Test	I	II
	Regular Bank-note 100 per cent Linen	Bank-note using A.D.L. Flax Straw Pulp. Linen - 1/3. Flax Straw - 2/3.
Tensile strength, lbs. per inch		
Machine Direction	34	31
Cross Direction	20	18
Folding strength, double folds.		
Machine Direction	1150	517
Cross Direction	910	305
Bursting strength, lbs.	66.6	62.4
Thickness, inches	.0038	.0035
Strength Ratio	1.75	1.78
Stretch, per cent		
Machine Direction	5	4
Cross Direction	8.8	6.5

GOVERNMENT INTERESTED.

Appropos of the foregoing article is the following despatch, dated March 26th, from Ottawa, saying that Mr. Glass, of Middlesex East, who has raised the question of flax production in previous sessions, urged in a resolution which he submitted to the House, the establishment of experimental and demonstration stations; scientific standardization and grading, and encouragement in the perfection of mechanical appliances for harvesting the crop.

The Resolution Carried.

Mr. Glass' resolution advocated the development of the production of flax, hemp and other fibres for which the soil and climatic conditions of different parts of the Dominion have proved their suitability. The resolution stated that national economies demanded the fullest development of the natural resources of the Dominion. It mentioned that propaganda waged during the war for increased production produced a stimulus that justifies a continuance of similar efforts, especially as regards products of the soil.

The methods which Mr. Glass recommends in his resolution for developing the production of flax and hemp are by establishing experimental and demonstration stations convenient to the area within which such fibres have been successfully grown, so that scientific instruction may be given to growers; by lending such encouragement as may be needful to the perfecting of mechanical appliances for harvesting the crop; by scientific standardization and grading of seed and fibres; by competent direction and encouragement in order that the production of these fibres may be extended to all the provinces of the Dominion wherein the climatic and soil conditions justified the expectations that they may be successfully grown; and by continuing and further extending such encouragement as may be necessary to develop the spinning industry in Canada.

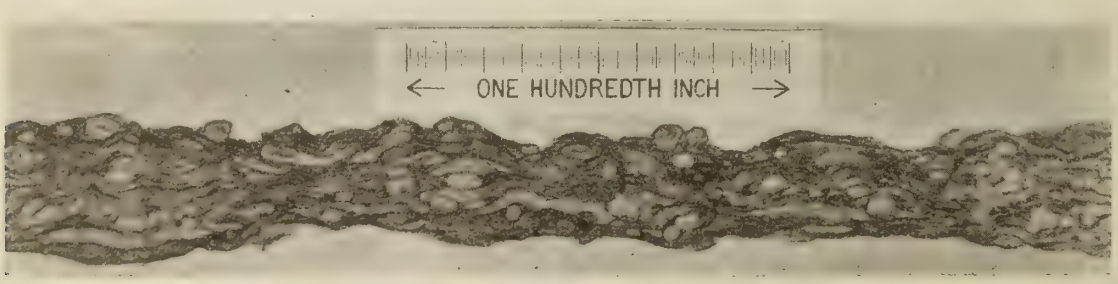
Mr. Glass said the farmer should also be convinced that the growing of flax was injurious to the soil. In the past year Canada has shown that it could compete with any other country in the world in the matter of producing good flax-seed. He commended the work done by the department of Agriculture in grading seed and in taking up this important phase of the industry with Great Britain. It was now possible when buying seed to ascertain the name of the producer and also the authority which had been responsible for the testing and grading of the seed.

The growing of flax, Mr. Glass said, could be made profitable; and he instanced experiments made in this regard in the country of Carleton, Ont. The soil and climatic conditions in Canada were peculiarly fitted to the growing of flax. The head of the Belfast Knitting Mills, the chief industry of this sort in Ireland, was arranging, Mr. Glass understood, for the cultivation of some 2,000 acres of flax in Ontario and Quebec. This might eventually mean that the mills of this great company would be moved to Canada, because half of Ireland's export was to the United States, and it would be well to have the mills near the raw material. Mr. Glass said that the utilization of the flax straws of Western Canada should also be developed.

Mr. Glass concluded with a warning to the Government that a stop must be put to the exodus from Government departments of men highly trained in special subjects, who were paid by the Government not nearly so much as they could get elsewhere. Mr. Glass mentioned the case of an expert in the cultivation of flax who had left the Department of Agriculture to work for a small flax mill. This little mill could afford to pay him a larger salary than he got from the Government.

Government Assisting.

Dr. S. F. Tolmie, Minister of Agriculture, assured Mr. Glass that the Government was fully alive to the importance of developing flax and hemp production. The Government had established at the Central Experi-



Flax straw paper cut "cross" direction (x 200) showing interweaving of fibres.
Prepared and photographed by H. N. Lee.

mental Farm a mill for carrying on experiments in conection with flax. Ottawa had been chosen for this work, because it was thought to be wise to have it done under the eye of the director at the Central Experimental Farm.

The result of the experiments here, said Dr. Tolmie, had been the collection of some very valuable information, which gave an excellent idea of flax and hemp production all over Canada. He mentioned that the best flax section for this province was in southwestern Ontario. The province of Quebec was also a great flax producer. The Maritime Provinces produced flax, and a certain section of British Columbia was also suitable for this crop, besides several large sections in the Prairie Provinces.

Dr. Tolmie stated that experimental work was being carried on looking to the development and perfection of machines used in connection with the flax and hemp industries. This was very important if the Canadian product was to compete successfully in the world markets, because labor could be secured more cheaply in other countries than in Canada. Canadian seed, he said, had been able to compete in the markets of the world with the best seed there, and flax from Canada was selling in Belgium, France and Ireland. There is a good market for the Canadian product in the United States.

Dr. Tolmie assured the mover of the resolution that the Government would take his recommendations into consideration. Close attention was being given to the grading of fibre and seed. With regard to the exhaustion of land, through the growth of flax and hemp the Minister expressed the view that this could be prevented by a proper rotation of crops.

TWENTY SEVEN NEW PAPER MILLS!

An American contemporary prints the following list of new mills which will be built within the next two years:

O. B. Andrews Paper Mill Company, Chattanooga, Tenn., test board; Apex Paper Manufacturing Company, New Orleans, La., news print; Brockville Paper Manufacturing Company, Brockville, Ontario, paper; Canadian Box Board Company, Toronto, Ontario, box board; Castanea Paper Company, Lockhaven, Pa., book; Chillicothe Paper Company, Chillicothe, Ohio, book; Cincinnati Paper Board Company, Lockland, Ohio, board; Clark Brothers, Bear River, Nova Scotia, sulphate; Crown-Willamette Paper Company, West Lynn, Ore., news print; George W. Diamond, Depere, Wis., board; Eagle Paper Box Company, Toledo, Ohio, board; Fort Howard Pulp and Paper Company, Green Bay, Wis., tissue; Great Lake Pulp and Paper Company, Port Arthur, Ontario, news print; M. G. Henry, P. O. Box 1538, Tacoma, Wash., paper; Hoskin Morainville Paper Company, Menominee, Mich., paper; International Paper Company, Three Rivers, Quebec, news print; McGillion, Asmuth Company, Menasha, Wis., tissue; Manistique Pulp and Paper Company, Manistique, Mich., paper; Oneida Paper Company, Stevens Point, Wis., lightweight specialties; Peshtigo Pulp and Paper Company, Peshtigo, Wis., tissue; Price Bros., and Co., Ltd., Saguenay, Quebec, news print; Pride Pulp and Paper Company, Tomahawk City, Wis., catalogue paper; Red River Paper Mills, Ltd., Winnipeg, Canada, paper; Sweet Brothers, Phoenix, N. Y., specialties; Spalding Logging Company, Salem, Ore., news print; Springles Mills, York, Pa., board; Washington Pulp and Paper Corporation, Port Angeles, Wash., paper.

Aside from these new mills other mills throughout the country are increasing their production by the installation of new machines. New book machines, for instance, will be installed within the next two years having a daily capacity of about five hundred tons.

The following book mills are among those which will install these new machines:

Bergstrom Paper Company, Neenah, Wis.	1
Castanea Paper Company, Lockhaven, Pa.	4
Chillicothe Paper Company, Chillicote, Ohio	1
Crocker Burbank and Co., Fitchburg, Mass.	1
Fitchburg Paper Company, Fitchburg, Mass	1
Hoskin Morainville Paper Company, Menominee. Mich.	1
International Paper Company	1
Kimberly Clark, Appleton, Wis.	2
Mead Pulp and Paper Company, Chillicothe, Ohio	2
Oxford Paper Company, Rumford, Me.	1
Provincial Paper Mills Company, Mille Roche, Ontario, Can.	3
S. D. Warren, Cumberland Mills, Me.	1

Twenty-seven news print machines will be installed in the United States and Canada within the next two years. These new machines will have a capacity of more than one thousand five hundred tons daily. A Complete list of the companies which will install these new machines, as shown by the facts compiled by the News Print Service Bureau, is as follows:

Abitibi Pulp and Paper Company, Ltd.	3
Consolidated Water Power and Paper Company	1
Crown-Willamette Paper Company	1
Cuchnoc Paper Company	1
Escanaba Pulp and Paper Company	2
Great Lakes Paper Company (Port Arthur)	2
International Paper Company (Three Rivers)	4
Laurentide Company	2
Manistique Pulp and Paper Company	1
Menominee Pulp and Paper Company	1
Ontario Paper Company	1
Price Brothers and Co.	5
Spanish River Pulp and Paper Mills	2
Washington Pulp and Paper Company	1

In addition to these new machines there are others not listed making board and other grades of paper. Besides this there is the vast amount of equipment of all kinds for pulp and paper mills which is needed to speed up production and to replace old equipment so that the mills can run at full capacity. Every machine shop which makes paper mill equipment is busy night and day. This means that the members of the allied trades, as well as the paper manufacturers and paper dealers, are enjoying the greatest prosperity in the history of this industry.

SPANISH RIVER MEETING.

The date of the special meeting of Spanish River Pulp and Paper Co. to clear off the dividends owing on the preferred, etc., will be held, it is learned, on April 20. The present plan seems to be to pay $40 a share in extra preferred stock and give $2 in cash, thus paying up to June 30, 1920.

The Beaver Cove Lumber and Pulp Co., Ltd., are turning out pulp regularly at their Beaver Cove plant. Shipments have been made to Australia and Japan, and these shipments will increase as the mill gets into the running.

British Trade News

BRITISH MILLS INCREASE PRICE OF NEWSPRINT

(From Our London Correspondent)

London, March 6, 1920

This month the price of newsprint goes up 1½ cents per pound. The announcement has been made by the British mill owners, and it was fully expected. Indeed, I am surprised it was not advanced a month ago. The price now in London is 9½ cents per lb., or £44 6s. 8d. per ton. The pre-war price was 2 cents per pound, or about £10 a ton, and the controlled price during the war was about the same as it is today. No reduction in the size of newspapers has commenced, but there is a movement all round to increase their prices owing to the increased cost of production. Small newspapers in the Provinces, it is contemplated, will be tthe first to be affected by the world shortage of newsprint. At the present moment they are not touched, except that they are paying more for their newsprint, but dealers fear that these provincial newspapers are in for a bad time and they are trying to keep the wolf from the door. At the prices of pulp today, and in February last, it is marvellous how the British mills warded off increased prices until this month.

What the Press Say.

The "Western Mail," an influential paper among the thriving centres of Cardiff, makes some comment this week on the paper shortage. The Editor says that outside the newspaper world people are asking why is there this shortage of paper; why should there be a greater shortage now than during the war period when shipping was so scarce and labor so difficult to obtain? The reason is simple. Canada, from which country we used to secure large supplies, is not exporting to this country the Americans taking everything on this side. The American, and consumers in other countries, are also going to our biggest provider, Sweden, for pulp. Many of the mills which manufactured newsprint in pre-war days are now manufacturing paper of a superior quality for which there is an illimitable demand. But this is not the only trouble. Labor troubles have brought about a scarcity of pulp and unless a way out is discovered newspaper proprietors will be hard pressed for another 12 months to bring out their publications. The only solution for newspapers the world over is to reduce sizes and so economize raw material. Though the labor troubles in Canada in the pulp industry have been small, this statement by the "Western Mail" shows that big owners of newspapers are beginning to realize their position in this country.

French and Australian Scarcity.

News has reached London that the scarcity of newsprint in France and Australia is also being felt very considerably. Australia is one of those countries which depended largely in the past on the products of British and other mills and they are feeling the shortage very keenly today. Mills here had distributing centres in Australia, with the result that highest freight and insurance rates, added to the scarcity of shipping between England and Australia, have pushed up prices. The Australian never contemplated enlarging his paper manufacture, with the result that today he sees the results of his wasted time. Germany and Japan are helping the markets and efforts are being made to get supplies of pulp from Canada and Scandinavia, an import duty of 5 per cent being charged on all cargoes.

In France the newsprint scarcity still continues, but no definite arrangement has yet been reached about ceasing publication on Mondays. Most of the newspapers are reduced to the bare limit of a sheet and the reduction must have a telling effect on the auxiliary trades. Efforts are now being made to increase the prices of the newspapers—or to fix a minimum for the sale of weeklies and dailies at not less than 20 centimes.

Pulp Prices.

Prices of pulp are uncertain today—there is a continual rise. The demand for sulphite is good, but the position of ground wood is causing considerable anxiety to buyers and sellers alike. Prices at present in London are about as follows:—

Good quality sulphite	£50	0	0
Easy bleaching sulphite	45	0	0
News sulphite	40	0	0
Unbleached soda	41	10	0
Soda, kraft unbleached	34	0	0
Groundwood, moist	15	0	0
Groundwood, dry	26	10	0

In connection with raw materials, chemicals are in good demand and the markets are bare. Prices show an upward tendency all round, a point which is not going to help the paper market.

German Paper.

Small supplies are coming into the British market. German newsprint today is 1.15 per cent above the 1913-14 quotations. Their pulp prices are tlso up on a high level, but it is comewhat difficult owing to the rate of exchange and the unsettled positions to get at the actual cost of German sulphite per ton.

Paper Imports.

During the past week 500 tons of paper, mostly newsprint, was landed from Germany. This is the first decent consignment received since war ended.

Comparing the imports of paper during February with those of January there is a decrease of 7,700 tons and in the reports of British mills there was also a decrease of 2,100 tons. We have now reached a point showing decreased imports, decreased exports, and a substantial decrease in raw materials on the past two months trading. The imports, however, are slightly above those of February of 1919. Here we see the material effect Canada and Newfoundland have on the market. No supplies are coming from the Dominion and this accounts for the reduced returns.

The Pulp Market.

There is no improvement to announce, the market being unsettled for sellers and buyers alike. The demand exceeds the supply. Bleached sulphite is £60 a ton and easy bleaching £50. Such prices are records and they will go higher. Mechanical at £19 to £20 a ton is scarce. News sulphite is up to £47 a ton.

FROM THREE RIVERS.

Word was received on Monday that the large plant of the Wayagamack Pulp and Paper Company, which is built on Baptist Island, was in danger of being flooded. If the water rose another eighteen inches, the plant would have to shut down. Fortunately the ice jam at Portneuf broke and the situation is easier.

NEW BRUNSWICK TIMBER DEAL EXPECTED.

Some action in regard to the development of the Grand Falls on the St. John River in New Brunswick, the biggest water power in Eastern Canada, is expected to take place shortly, and is likely to embrace a proposition to include the taking over of the extensive timber lands of the New Brunswick Railway Land Co., Limited, in which connection it is said that some $5,000,000 will be paid for rights in connection with the timber limits of the company's holdings, which in all amount to 1,647,772 acres, and which are largely in the district of Grand Falls.

The Grand Falls are at present under lease to a syndicate which has been controlled by the International Paper Co. interests and the estate of the late Sir William Van Horne, who have posted $60,000, which must be forfeited unless development to the extent of not less than $100,000 has been carried on in a "bona fide" manner within one year of the return of peace following the war. This period will elapse on January 10th, 1921. It is said that the International Co. is not prepared to go on with the development and are likely to dispose of their interests.

BEAVER BOARD IMPROVING MILLS

Since the acquisition of The Tonawanda Board and Paper Co. by the Beaver Board Companies several thousand dollars have been spent on improvements. The Beaver Board Companies officially took over this plant about the middle of August, 1919, and at that time the average daily production of chip and container board and special papers, was less than 110 tons. At the present time the mill is averaging better than 140 tons daily and with the installation of additional new machinery and equipment the mill under the new management will be producing 200 tons daily.

The Beaver Board Companies have completely overhauled this mill which is now known as the Tonawanda Division. The mill has been painted inside and out, new roofs have been put on over the stock and better rooms. A new two story addition, 40′ x 100′has been constructed which will be used for machine shop and store room. All machinery and equipment have been painted and improvements have been made in the power plant.

Although the mill itself is more than 15 years old, the 2-five cylinder machines, trimming 97 and 120 inches respectively are in unusually good condition. The 120-inch machine is equipped with seventy-eight dryers and the smaller 97″ machine has ninety-one. Ten more dryers are to be added to each machine and the speed of machines increased.

It is also contemplated equipping the mill with electricity throughout and doing away with steam entirely, except that necessary for the drying process. Even though electrically driven paper machines have not been used extensively heretofore, the several mills which are now operating entirely by electric power find it a decided advantage over steam. The electric driven machine has been made possible only recently by the development of a unique and practical controller. The paper machine driven direct from an electric motor does away with slipping belts and decided changes in speed. These factors in the paper mill cause great losses in time and money and greatly increase the percentage of "broke."

Because of the great demand for Beaver products the box department will probably be discontinued in the near future and the entire production of the two machines will be used for Beaver Board. To take care of this a laminator and other necessar yequipment is being installed which will soon be in operation.

This mill employs about three hundred men and is one of the leading mills in this locality. It is advantageously located for the receiving of the raw material and the shipment of the finished products. It has dockage on two sides, the Niagara River and the Canal and with switches accommodating more than twenty cars.—N.

COMMERCIAL USES OF BIRCH.

Many pulp and paper mills and others are interested in uses for the hard woods in mixed forest stands. Birch is the most important of the non-coniferous trees.

The bulk of birch lumber sold is sweet birch (Betula lenta), and this is the material that is largely used for hardwood flooring and furniture. Yellow birch (Betula lutea) has a wider range of distribution, is used for wood distillation and often substituted for sweet birch. White birch, (Betula alba var. papyrifera) is the commonest species of the three, but does not usually grow to timber size and is of little commercial value, being used for turnery, spools and small woodenware. Birch is Canada's most abundant hardwood and is rapidly gaining in favor as the supply of the more expensive hardwoods is exhausted. It is fairly hard and strong with a fine grain; it is easily worked, takes a high polish and can be stained to imitate more expensive woods like mahogany, cherry or walnut. "Wavy" birch is an accidental form due in cross-grain, and is highly prized for ornamental work. Birch is difficult to season, being apt to shrink and check, and is very perishable. This material is also largely purchased in the province, about nine-tenths of the supply being in Ontario.

WILL ALSO BENEFIT PULP MILLS.

Quebec, March 25.—Officials of the provincial Department of Colonization are preparing plans and estimates for development and colonization work in the region of Lake St. John. The idea is to start work on development operations in that district as soon as the fine weather sets in and the expenditure prepared for will run up to $120,000. So extensive, in fact, is the work contemplated, that it is feared it cannot be fully completed during the coming summer, and it may have to be carried well into the summer of 1921.

Mr. H. Biermans, general manager of the Belgo-Canadian Pulp and Paper Company, Shawinigan Falls was in Montreal this week after a visit of three months to the other side. He reported that business in Brussels—where are the headquarters of the company—is picking up very satisfactorily.

BRAWN AND BARKERS FOR FRASERS.

The Fraser Companies, whose pulp plant is located at Edmundston, N.B., are now turning out bleached sulphite and the capacity of the mill is about 100 tons daily. They intend installing two more barking drums in the plant. The Company have found the past winter a very good one for operation in the woods and will have a considerable increase in their cut of pulpwood. F. W. Brawn has resigned his position as superintendent of the Cascade Mill, Berlin, N. H., and has been appointed general manager of the Fraser pulp plant at Edmundston. He has entered upon his new duties.

Technical Association Started

(From our London Correspondent.)

London, March 15th, 1920.—The Technical Section of the British Paper Makers' Association has made a start and its progress will now be watched with interest on both sides of the Atlantic. Last week the inaugural meeting was convened in industrial Manchester and a more ideal place could not have been selected because the northern City gives us the lead in industrial research and technology. The Section is now at detail work and making plans for future meetings. When these are completed and the committees decided upon we may look forward to some useful papers being read. Of course, it is naturally to be expected that some of the old established paper manufacturers have no sympathy with the Section. That is probably one of the reasons why we lived to see the inaugural meeting of the Section in the year 1920. There are some who believe that because they succeeded in the past without a Technical Section there is no room for such a valuable auxiliary in paper mill life today. The future, however, has to be considered and the Technical Section should prove a valuable adjunct to the paper man. Indeed, no industry can thrive in these days without a Technical Section as "times have changed and we with them."

The Newsprint Situation.

The recent increase in the price of newsprint announced by the paper mill owners and the curtailment of imports are two matters receiving serious attention from the newspaper owners. All kinds of announcements are being made, through the columns of the Press, to the reading public and 14 newspaper owners announce this week that their papers will go up two cents more owing to increased cost of production. The "Weekly Despatch," one of London's most modern weeklies for photographic and news items says: "Newspapers throughout the world are faced with a real shortage of paper and there is little prospect of relief for some years. American demands have enabled the Scandinavians to rise prices enormously. Mechanical pulp, which in pre-war days used to sell for £2-10s to £3 a ton is now costing £38. This material forms 75 per cent of the newsprint. Sulphite pulp, which forms the other 25 per cent. is dearer still and has advanced correspondingly. As a result, the quotation for foreign paper for June and July and August delivery is about 7d per lb. British mills at present using pulp bought months ago are charging 4¾d. for March, which is as high as the controlled price at the worst period of the war. It is bound to go higher when the dearer pulp comes forward."

Newspapers Closes Down.

In the Provinces the price of newsprint varies, everything depending on the railroad charges. Down in the Isle of Wight owing to the scarcity and price of newsprint, for instance, the "Inland Star," a liberal newspaper, has been closed down this week after appearing regularly for a good many years. It is unfortunate, but the conditions prevailing today in outlying places, renders it impossible for a newspaper to exist owing to the transport charges. They cannot be met in conjunction with the price of newsprint and the uncertainty of deliveries. Though the mills charge 4¾d. per lb. for newsprint today it must be remembered that this applies only to newspaper owners who have standing contracts with the mills. To buy a spot supply runs considerably higher. But 4¾d. is the minimum and by the time the outlying districts are reached by rail the cost per lb. is considerably advanced, no two cases being alike. Lord Riddell, who is President of a big newspaper combine in London told the Associated Wholesale Newsagents at a dinner the other night that the Sunday newspapers might increase their prices. Mr. Horatio Bottomley, M. P., had told them that they were about to pass through very trying times. He did not believe they could pass through any times more trying than the five years of the war. From the commercial point of view, undoubtedly, they were faced with a very serious position. During the last two months the price of paper had risen a penny (two cents) or more a pound. Wages were rising every day. A penny a pound might not seem a very serious matter. It was only when one calculated what it meant to the whole newspaper trade that one could see what the effect of it was going to be.

"Make the Public Pay."

Lord Riddell was one of the guests at the Paper Makers' Association recent dinner when he remarked that the British paper maker was to be congratulated in producing paper from the poor materials at his disposal during the war and the publishers by keeping the public happy and gay, thus rendering a great service to the country. Mr. Horatio Bottomley, M. P. told Lord Riddell at the Associated Wholesale Newsagents' dinner that the solution to the difficulties at the present time was to make every penny paper double the price, and every four cent paper a four and a half cent paper. "Make the public pay," he added with gusto., "that was the motto—at a trade dinner, of course. The public must hve their newspapers and proprietors must have their dividends." That being the policy in the newspaper world the paper mill owner today can rest contended that any increase in newsprint prices to meet his increased cost of production so. Indeed the value of the imports are down by £1,330,000 odd.

Imports of Pulp.

During February the imoprts of groundwood were as follows, compared with the corresponding period in 1919:—

	1919 Tons	1920 Tons
Sweden	152	1,934
Norway	20,878	25,841
Canada		

A total of 27,775 tons, valued at £264,382, compared with 21,030 tons, valued at £182,338 in February 1919. The tonnage from Jany. 1, to Feby. 29, now amounts to 51,075 tons (valued at £470,260) as against 29,457 tons (valued at £261,829) for the corresponding period last year.

The imports of chemical pulps were as follows:—

	1919	1920
Chemical, Bleached (Dry)	578	2,688
,, Unbleached (Dry)	17,363	16,978
,, Wet		
Groundwood (Dry)	6,547	1,156

Most of the supplies are from Scandinavia. Germany sent 32 tons of bleached sulphite to England in February.

So far the supplies of pulp do not show any decrease, when compared with February last year, but in comparison with January last the decrease is 52,096 tons—a very serious matter the effects of which will be felt in another month or so. Indeed the value of the imports are down by £1,330,000 odd.

Technical Section

REVIEW OF RECENT LITERATURE.

A-1; Q-0. Prevention of decay in the timber of pulp and paper mill roofs. R. J. Blair Pathologist, Forest Products Lab. of Canada, Montreal. Paper, **25,** 819-27 (1919 Pulp and Paper, **18,** 7-10, 27-30 (1920). A discussion of the various conditions which favour the decay of timber in mill roofs and suggestions as to what may be done to avoid the losses arising from this source. The conditions affecting the lasting qualities and service given by a mill roof are (1) natural ability of the wood to resist decay, (2) heating the mill so that the roof of the mill does not get too cold in cold weather, (3) insulation of the roof against loss of heat through it, (4) removal of the moisture from the mill by ventilation. The most important point in designing a mill roof is that at all times the timber should be too dry for the fungus plant to get an opportunity to grow within it. This is obtained by properly building the roof with an insulating layer on top, separated from the main part of the roof by at least 3 thicknesses of mopped tar paper, and by having efficient heating and ventilating systems installed.—A.P.-C.

A-3. French colonial plants suitable for papermaking... Crolard. Chimie & Industrie. **2,** 1247-51, (Oct. 1919). The reasons for which the French colonial resources for raw materials for the paper industry have not been utilized to any great extent up till now are largely economic, notably, lack of transportation facilities, high freight rates, difficulty of creating an industrial organization in the colonies, and the large amount of labor required for harvesting certain plants which can be used for nothing besides papermaking. The point to be considered in judging the suitability of the plants is the quantity, quality, and cost of gathering and working up. The author enumerates the most suitable ones, dividing them into 3 classes (1) grasses (including alfa-grass, esparto, drinn (Aristida pungens), dyes, (ampelodesma tenax), wild bananas, bamboos, etc.), (2) trees, (3) by-products of agricultural and industrial processes (including jute, agave, Manila hemp, coconut fiber, dwarf palm, oil palm, rice hulls, rice straw, peanut leaves and stalks, sugar-cane bagasse, the stalks of cotton, flax, sorghum, maize, etc.) In the case of grasses, all of which occur in fairly dense growths, only those which can yield by-products should be considered, the production of pulp alone not being sufficiently remunerative. They can be either dried, baled and shipped; or else converted into an alkaline half-stuff before shipment. Most of the trees suitable for papermaking grow isolated, and not in dense growths. There are good prospects of using large quantities of waste from woods used for structural purposes and cabinet making, preferably by converting it into a semi-chemical pulp. Groundwood could be easily made in the Colonies, but this would hardly be advisable in view of its cheapness in Europe. Of the chemicals required to make chemical pulp, lime and carbonated alkali (in the form of wood ashes) could alone be found on the spot. The most rational method would therefore be an alkaline treatment, the liquor being obtained by firtering a wood ash solution through a slaked lime filter, as practiced in Michigan and Wisconsin. The pulp should be shipped in the form of an alkaline half-stuff, as it can thus be kept in good condition almost indefinitely.—A.P.-C.

A-14. Test for animal size in paper. Paper Makers' Monthly J., Nov. 15, 1919; Paper, **25,** 622, (1919). To the hot water extract is added some conc. alum solution and a considerable vol. of tannin solution. A voluminous, coarse, flocculent precipitate, settling very slowly, indicates either starch or animal size or both. On boiling, the starch precipitate redissolves. If the precipitate be examined under the microscope after staining with I, starch will be blue and animal size yellow or yellowish brown. If the precipitate be ignited the smell of burnt horn indicates animal size. —A.P.-C.

A-15. Tests for the quality of cellulose. E. Hagglund, Papierfab., **17,** 301-5, (1919); Chem. Zentr., **90,** 296, (1919; J. Soc. Chem. Ind., **38,** 894A, (1919); Paper **25,** 876, (1920). Schwalbe's method for the estimation of the Cu value may be simplified by using Pertrand's volumetric method for the titration of the Cu_2O by means of $Fe_2(SO_4)_3$ and $KMnO_4$. The author could find no relationship between the$CuSO_4$ absorption value and the bleaching capacity of unbleached Mitscherlich sulfite pulp. The bleaching quality shows a more consistent relationship with the lignin value as determined by Klason's method. None of the usual chemical tests showed any satisfactory concordance with the strength and mechanical qualities of the cellulose. Only in certain very pronounced cases can any definite relation be found between the tensile strength and the degree of digestion of the pulp. It may frequently happen that a fully digested pulp is as strong or stronger than an underdigested material—A.P.-C.

A-15. The nature of lignin... E. Hagglund. Ark. Kemi, Min-och Geol., **7,** 1-20, (1918); Chem. Zentr., **90.** 186-7, (1919); J. Soc. Chem. Ind., **38,** 895A, (1919); Paper, **25,** 876, (1920). Lignin was prepared by treating powdered wood, previously extracted with acetone and ether, with saturated HCl of 43 per cent concentration. The isolated lignin preserves the microscopic structure of the wood cells; it gives color reactions with phlorglucinol, aniline sulfate, dimethyl-p-phenylenediamine, and ferric ferricyanide, but does not show Maule's reaction. It has the composition C 65.47 per cent, H 5.74 per cent, methoxyl value 14,39 per cent, and furfural value 3.69 per cent. It is only slightly soluble in Ca bisulfite solution, but is almost completely dissolved with 5 per cent NaOH at 170 deg. C. The product of chlorination contains 41.2 per cent Cl, but is not a definite substance; the Br compound contains 64.4 per cent Br. Lignic acids are formed by fusion with KOH; other products include formic acid and protoatechuic acid; acetic and oxalic acids are absent. Oxidation with alkaline $KMnO_4$, KCl and HNO_3, or fuming HNO_3 yields acetic acid, but no oxalic acid. Destructive distillation yields methyl alcohol and acetic acid, and a little acetone; the tar is rich in creosote. —A.P.-C.

"You need all of your fingers and all of your toes. Be careful in the factory," says the Safety League.

UNITED STATES NOTES

The resignation of Robert S. Ramsay from the editorship of "Advertising and Selling," a report of which appeared in these columns several weeks ago, has been confirmed and announcement has just been made by the American Writing Paper Company that Mr. Ramsay is to take charge of its sales promotion and publicity department. Mr. Ramsay is one of the best known advertising experts in the country, having been engaged in sales publicity work since his graduation in 1906 at Eastman, Poughkeepsie, N.Y. Before he became editor of "Advertising and Selling," Mr. Ramsay was advertising manager for the Art Metal Construction Company, Jamestown, N. Y., and his connections prior to that were with the Wales Adding Machine Company at Wilkesbarre, Pa., and F. S. Royster Guano Company, at Norfolk, Va. Mr. Ramsay has won a country-wide reputation as a public speaker, and through Appleton's he has recently launched a book entitled. "Effective House Organs," which is evoking favorable notice in msot of the reviews. The writing paper company's new publicity man is also known to readers of the leading business publications and the popular magazines through his frequent contributions to both. In securing his services, the American Writing Paper Company undoubtedly will have "pep" and "punch" injected into its promotion and publicity department.

Reports that the International Paper Company has under consideration new financing plans were denied last week by P. T. Dodge, president of the company. Gossip of Wall Street had it that the concern is preparing to issue $10,000,000 bonds to raise working capital for development projects and new construction work. Mr. Hodge also took occasion to deny reports that a common stock dividend declaration is contemplated by the directors. "We are running our business to make paper," he said, "and not to speculate in stocks."

Wage increases of 12½ per cent, agreed upon at a recent conference, were paid out last week by Holyoke paper manufacturers to their employees. The total for the week thus paid out approximated some $20.000 above the former pay-roll totals. It is estimated that about $60,000 more will have to be given to the workers as back pay, the agreement being retroactive to February 1.

When the new mill being constructed by the International Paper Company at Three Rivers, Quebec, is completed, the total output by the company of newsprint paper will be increased by 240 tons daily. The corporation's present daily output is said to be 1600 tons, of which 1,000 tons are newsprint, the remainder being higher grades.

Exports of paper and typefounders' supplies from the United States to Africa have had a tremendous growth since 1913. During that year the total amount of those commodities sent from the States to the dark continent amounted to but $50,000 in value, while for the year 1919 over $1,000,000 worth of similar goods were shipped there. The rapid development of this market by American exporters was due largely to the inability of England and Sweden to meet the South African demand in the last five years.

The Fitzdale Paper Company has under construction at Fitzdale, Vt. a large new 1-story brick power plant to be used for general works operation. The structure, with equipment installation, will cost, according to estimates, about $100,000.

Listed among "recent incorporations at Albany, N. Y., is the Corrugating Machinery Corporation, Manhattan, which is to engage in the manufacture of machinery for making corrugated paper, etc. Its capitalization is given as $125,000, and the incorporator named in the papers is S. Samuels of New York city.

Five daily newspapers in Westchester County, N. Y., have been forced because of the scarcity and high cost of newsprint paper to increase their retail price to three cents.

The Union Bag and Paper Company reports for 1919 a surplus, after charges and federal taxes, of $1,680,619, or $16.91 a share on its outstanding capital stock, against $1,416,719, or $14.32 a share, earned in eleven months ended December 31, 1918. Net earnings for 1919 were $2,335,255, against $2,619,173 in 1918, and depreciation of $348,221 was charged off, against $460,710, leaving a balance of $1,987,034, compared with $2,158,462. Other income was $140,625, against $46,375, making total inocme $2,127,659, against $2,205,337. The total surplus at the close of the year was $3,948,987.

Tariffs on wood would be suspended for one year under a bill favorably reported last week by the Ways and Means Committee of the lower house of Congress. Committee members said such action was necessary to stimulate importations from Canada and other countries and to increase the supply of print paper available for newspapers in the United States.

An increase in capital stock from $1,100,000 to $2.200,000, was announced by officers of the King Paper Company of Kalamazoo, Mich., following the annual meeting of stockholders held recently at the company office, Kalamazoo.

Improvements that will cost close to $2,000,000 are being planned by the Consolidated Water Power and Paper Company of Grand Rapids, Wis., according to an announcement made last week. Included in the project is the installation of equipment with which it is expected the capacity of the mill can be almost doubled. Its present output is 100 tons daily.. A large new paper machine which is being built by the Beloit Iron Works at Beloit, Wis., from plans prepared by Mr. De Guere, the well-known paper mill engineer, will have a speed of 1000 feet per minute immediately upon starting, and can be speeded up to a maximum of 1200 feet within a few minutes. It is to be of the "two-roll" type, and will exceed by 300 feet per minute almost the fastest machine now in operation. Besides the installation of this giant machine, the improvement program includes the erection of two new machine rooms, construction of a new wood preparing room, a new sulphite mill, new power station, construction of a transmission line between the Stevens Point and Grand Rapids mills, rebuilding of some of the old equipment, and extensive alterations on the Biron division plant.

PULP AND PAPER NEWS

British America Publishers, Limited, has been granted a charter by the Ontario Government, among the incorporators being W. J. France, manufacturers' agent; J. H. Arnstein, clothing salesman; and Sydney France, book salesman. The company is capitalized at $40,00 and its head office is Toronto. Authority is given to carry on a general publishing business and to print and deal in all kinds of periodicals.

Construction work on the new sulphite mill at Three Rivers, Que., which is being built for the International Paper Company is reported to be proceeding ahead of schedule. The sulphite mill, which will have a capacity of 100 tons of sulphite pulp daily, will be completed before the end of next summer. The newsprint mill, which was planned for a capacity of 200 tons of newsprint daily, will not be completed until late in 1921. In the meantime the company will ship sulphite pulp manufacture at Three Rivers to its newsprint mills in the United States. The restrictions which prohibit the exportation of wood on Canadian Crown Lands do not apply where the wood is manufactured into pulp in the Dominion, so that the company will be free to ship its product to the mills of the United States.

The Artistic Stationery Company, Limited has been formed in Toronto with a capital stock of $40,000 for the purpose of acquiring the printing and bookbinding business of John T. Bradford and the business of Robinson & Colby, 166 King Street, East. Among the incorporators are L. B. Campbell, C. C. Martin, F. E. Breen and W. A. Murray.

N. G. Gzowski, general manager of the Canadian Box Board Company, has resigned his position after about seven years service with the company

W. R. Barnard, of W. R. Barnard Company, Ottawa, whole sale paper dealers, and Mrs. Barnard, were in Toronto this week on their way to Welland.

The many frieds of W. D. Woodruff, general manager of the Lincoln Paper Mills will regret to learn that he has not yet sufficiently recovered from his late illness as to be able to be in his office.

The recent floods in the vicinity of the Don River at Toronto caused the Don Valley Paper Company to close its plant for about ten days, but it is hoped that with the repairs recently made no further difficulties will be encountered. After the breaking of the Company's dam, a pipe line was laid and water pumped from the river. This in turn was washed out but more permanent repairs have since been made.

The "Saturday Night" interests have acquired by lease the Robert Bond building on the north-east corner of Shepherd and Temperance streets and the same interests have also bought out the Brown-Searle printing plant on Pearl street. After June 1st the plant will be removed to the basement of the Bond building.

On Wednesday a deputation from Fort William waited on the Ontario Government at Toronto to explain the position of that municipality in regard to the dispute between the Great Lakes Pulp & Paper Company, the Government and the Hydro Electric Power Commission. The company is waiting for approval of its proposed new location near Fort William. It is unwilling to pay the extra cost on power, which would be necessary because of the extension of transmission lines from the original site near Port Arthur. The Hydro Commission will not agree to this since it will be impossible to give the municipalities of the district power at a price which would be within reason, unless a big block is sold, as was anticipated to the paper company. The Hydro Commission has advised the Government that no approval be given of the change in the site and that the Government wait for the company to come to it.

Senator Blondin, the Postmaster General, told a caucus of the Unionists in Ottawa that owing to the increased salaries paid to employees of the post office department throughout the country the surplus this year would not be very substantial. There was some discussion on the statement and the suggestion was made by some of the members that more should be charged for newspaper postage. It was calculated that the cost for this service was six million dollars in excess of the receipts.

For the purpose of supplying "Ready prints" to weekly newspapers and with a capital stock of $200,000, the Canadian Newspaper Service, Ltd., has been incorporated by the Ontario Government. In addition to supplying ready prints, they will publish a new weekly newspaper in Toronto to be called the Toronto Free Press, and the new organization has power also to buy and sell feature articles for syndicating to Canadian newspapers, to conduct a news distributing bureau and to start an advertising agency. W. Nelson Wilkinson, formerly managing editor of the Toronto World is general manager; E. S. Smythe, is editor of the service and C. R. Shibley, manager of the advertising service.

R. W. Ashcroft, formerly advertising manager of the United States Rubber Company in New York has been appointed director of publicity of the Ames-Holden-McCready System and will shortly return to Montreal to take up his new duties.

Two cars, one of which contained newsprint, dropped into the river at Windsor, Ont. on Wednesday, owing to defective coupling. The other car contained lumber.

The shareholders of the Provincial Paper Mills, Limited, have been called to meet in Toronto on April 3rd for the purpose of approving the sale of the company to a new concern, probably of the same name, and to increase the capital stock. It is stated that preferred shareholders will get share for share in the new company, while common stockholders will get three shares of the new for every two shares of stock now held.

Major A. S. Wallace, associate editor of the Manchester Guardian, spent the week-end in Toronto. This is the Major's first visit to Canada. The Guardian is to publish a special Canadian number, dealing

with Canadian resources and the associate editor is making a transcontinental trip to gather material.

The Peerless Carbon and Ribbon Company, dealers in carbon and other papers have sold their premises on Adelaide street, Toronto and will move into larger quarters at 214 King street, W.

Guy F. Warwick, of Warwick Brothers and Rutter, stationers, Toronto, who died suddenly on April 4th last year, left an estate valued at $70,418.

A large new factory building will be erecter for the Fielder Paper Box Company on Berkeley street, Toronto, at a cost of $50,000. The factory will have a frontage of 55 feet on Berkeley street.

Two distinguished visitors in Montreal last week were Mr. G. R. Hall Caine of London, and Mr. Wm. B. Carmichael of Sydney, Australia. Mr. Hall Caine will be in Canada for some time, having extensive interest in the pulp industry in Quebec, New Brunswick and Nova Scotia. He is making the Ritz Carlton Hotel his headquarters. Mr. Carmichael has started for Australia, via Vancouver.

OBJECTS OF THE PAPER BOX ASSOCIATION

S. J. Frame, Secretary-Treasurer of the Canadian Paper Box Manufacturers' Association, 24 King street, West Toronto, has sent a circular to the trade setting forth certain changes in the bylaws of the Association as they affect its claims and objects. These include the following:—

"By mutual co-operation among the members to uphold the standing of the paper box business, by educating the general public to a realization of the usefulness and increasing necessity of the paper box and the extent and size of the paper box industry.

"Raise the standard of general efficiency of those in the business whereby the capital involved shall have a proper return thereon, the management shall be adequately rewarded, the wages paid, and factory conditions shall be such as to attract a good class of labor, and to improve the quality of the product turned out.

"Exchange information as to costs and other matters of general interest relating to the paper box business.

"Maintain and continue, by social intercourse, the good feeling at present existing among the trade and those supplying it."

THIS IS GOOD NEWS.

There are increasing indications that the levelheaded rank and file of union members are beginning to assert themselves against the agitators of distinctly reddish hue who recently succeeded in foisting themselves into the councils of trade unionism in this country.

The casting out of trouble-breeders will be hastened as soon as industry begins to slacken its war-bred furious pace. Reports, as a matter of fact, are already coming to hand that workers in certain large plants are beginning to show more industry and efficiency, due in part to a little weeding out of shirkers and incompetents by the management. The return of a full day's work for a full pay envelope is nearer than it was a month oga.—Forbes' Magazine.

WHALEN PULP AND PAPER OUTPUT INCREASE

The Whalen Pulp and Paper Mills, Limited made a new production record in February, when a total of over 5,000 tons of pulp was produced from all the plants of the company.

During the past few months the company has been making steady headway and is beginning to obtain the full benefit of the many improvements that have been carried out during the past year. Up to within a short time ago, the Whalen Pulp and Paper Mills were in the construction stage but from now on new records are likely to be established from month to month.

There has also been a very big demand for lumber and it is estimated that this year the total cut of lumber by the company will reach over 50,000,000 feet. Much of this will go into the American market.

TO GET NEWSPRINT CHEAP

The newsprint situation in South Africa is one of dependence on Canadian supplies. Small spot stocks of newsprint are reported in the Union. A rationing scheme by which Canadian paper mills will supply South African consumer at a somewhat lower cost than that prevailing in the market recently is announced by the Standard Bank of South Africa as having been completed. American paper mills were reported as being congested and not prepared to quote at the beginning of the year. Scandinavian shipments cannot be made until the third quarter, and British producers of newsprint stated their inability to develop until March.—Toronto "Globe."

SHORTAGE OF WOOD

Ottawa, March 26.—Several paper mills in this district may be forced to close their doors in the course of the next few days owing to the shortage of pulpwood. The congestion of the railways at various points where cars were held up during recent severe storms and the inability of the railways to supply other cars were given this morning as the cause. Only an early opening of the Ottawa River would permit the companies to secure their logs via the river route, it was said, could relieve the famine.

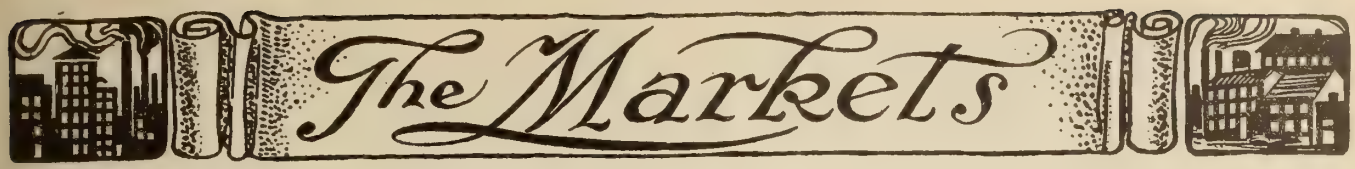
The J. R. Booth Company, one of the larger concerns report an empty yard where usually there is a supply of thousands of tons. "We have been moving heaven and earth," said Mr. C. J. Booth, this morning, "to get the railway companies to let us have cars, but so far have not met with any success."

The E. B. Eddy Company is more fortunately situated according to Mr. Charles Millen, the president, who says the company lays in a winter supply of pulpwood. This, he says, will be enough to carry them through until the river opens. The company does not ship their pulpwood supply by rail.

NEW BUILDINGS FOR SMITH PAPER COMPANY

The Smith Paper Company, Lee, Mass., has awarded the contract for two new mill buildings at its plant there. The Columbia mill is to be supplanted by a new mill building 50 x 140 feet and two stories high. The engineer is E. D. Jones, of Pittsfield.

The tern schooner Nova Queen recently carried a cargo of baled pulp from Liverpool, N.S. to New York on her way to the West Indies.



CANADIAN TRADE CONDITIONS.

Toronto, March 27.—Ascending prices continue to feature the pulp and paper trade, while there has been no relief in the situation as far as the shortage in raw products is concerned. Unbleached sulphite is showing an upward tendency and this presages another advance in the lines of paper in which the bleached commodity is used. Another one cent a pound was added this week. One mill sent up the price of tissues 10 per cent and toilet papers 15 per cent but these advances have not yet become general. Most of the available supply of groundwood pulp has been gobbled up by the mills and the shortage of newsprint continues. During the past week a Toronto pulp user told of a case where as high as $80.00 a ton had been offered by one firm for groundwood pulp, f.o.b. shippoint and payment to be made with U. S. funds. It was an attractive order but it could not be filled.

The shortage in krafts and Manilas continue to worry the jobbers as well as the consumers and the demands for book papers and card boards is far in excess of the supply. Coated bristols are off the market entirely. The "insides" of the bristols come from the States but they are coated in Canada and very little coating is being offered by the mills which are behind with their orders in this and practically all other lines as well.

According to reliable advices received by the Toronto correspondent of the Pulp and Paper Magazine the supply of pulpwood is much less this year than last, some of the dealers placing the discrepancy as high as fifty per cent, although more conservative estimates place it at from twenty five to thirty five per cent. The price of peeled pulpwood has advanced steadily since September of last year and may be said to be on an average of $6 to $7 per cord higher. The present price of 4-foot peeled pulpwood varies from $17 to $18 on the G. T. R. and Quebec Central points, to $13 to $14 per cord in Eastern Quebec and New Brunswick where freight rates are higher. These are prices paid to the farmer.

The demand for peeled spruce and balsam pulpwood is very great and there has been no difficulty in placing the wood at attractive prices, nor has the demand been any where near being met. A considerable quantity of rough wood has been got this winter and although the demand is not so great for it the dealers paid $5 more for the rough stuff than they did last year for the same class of wood. From present indications the 1920—21 production of peeled pulpwood is going to be large as the high prices are likely to prove attractive to the contractors. Shortage of cars is proving a very great difficulty in getting wood to mills. In fact one mill in Ontario had to close down part of its operation for lack of wood.

The Thompson-Hyland Lumber Company, head office Toronto, report that spruce has been pretty well cleared out of the northern woods and that they are now going after poplar which is used largely in book and writing papers. Mr. Hyland has just returned from Manitoulin Island, where he has complete arrangements for the taking off of poplar on a large scale. The island and vicinity abound in the wood, which is peeled by the farmers. It is the firm's intention to take the wood by boat to Erie, Penn., and ship it from there to its destination. There has been no over-production in poplar for a long time and it is believed that the market will absorb all of it that can be produced. Although there has been considerable difficulty in getting cars, the transportation facilities have improved somewhat with the advent of mild weather. The price being paid for poplar by the contractors is from $11 to $12 f.o.b. cars.

All branches of the paper industry continue to enjoy an era of unprecedented prosperity and practically all the jobbers are doing business without price lists. The paper box industry is experiencing the greatest difficulty in filling orders, so great is the demand, while there is also considerable shortage of material from the mill to the manufacturers. Paper box dealers are only accepting orders for delivery at prices prevailing at time of shipment and as one manufacturer put it, "we are building for the future and are taking new orders, knowing that the time will come when business will not be so easy to get. We frankly explain the situation to both our old and new customers in regard to the shortage of raw stock and the fluctuating price list and although naturally we endeavor to fill the orders of our old cus-

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tomers first, we also do our best to get goods to any one who asks for them. By treating the latter class considerately we are developing a trade that is going to benefit us when the reaction sets in."

While the rag and paper stock dealers are still busy they predict no permanent drop in prices although they are running into a temporary slump and in a few weeks it is anticipated that there will be a downward revision of the price lists. They have been advised that a lot of shipments that had been held up owing to the rough weather are now getting through to the mills, which will stock up the mills fairly well and buying will not be so active. In the meantime, collections and stocks are low at the warehouses and some of the cheaper grades are being offered at slightly lower price than has prevailed in the past few months.

Rag and Paper Stock Prices.

F.O.B. Toronto.

No. 1 shirt cuttings	19½—20c
No. 1 unbleached cotton cuttings	17c
No. 1 fancy shirt cuttings	13—13½c
No. 1 blue overall cuttings	13c
Bleached shoe clip	14c
White cotton hosiery cuttings	17½
Light colored hosiery cuttings	13½
New light flannellette cuttings	13½
No. 2 white shirt cuttings	13
City thirds and blues (repacked), No. 1	5¼—5½
Flocks and satinettes	$4.00
Tailor rags	$4.00
Gunny bagging	3¾—4c
Manila rope	7—7¼
No. 1 white envelope cuttings	$5.25
No. 1 soft white shavings	$5.00
White Blanks	$3.25
Heavy Ledger Stock	$3.75
No. 1 magazine	$3.50
No. 1 book stock	$2.50
No. 1 Manilas	$3.25
No. 1 print Manila	$2.00
Folded news	$2.00
Over issue, news	$2.25
Kraft	$3.75
No. 1 clean mixed papers	$1.60

NEW YORK MARKETS.

New York, March 27.—Continued firmness characterizes the paper market, and local demand this week has been of even broader dimensions than heretofore, this being due in a large measure to the unusual shortage of stocks in this city as a result of delays in the shipment of supplies from mills. The transportation situation has improved to an extent, but it is still bad and is holding up considerable business in paper and in various other commodities that could readily be put through if local dealers and distributing firms had the necessary material to dispose of. The chief factor in the shipping situation at present is the car shortage. Much is heard here regarding the serious dearth of empty freight cars in Canada, but it is to be doubted whether conditions there are any worse than on this side of the border. According to reliable information, the average paper manufacturer today has large stocks of his finished product piled up at mills, which is held up because of the difficulty in obtaining cars, and the same situation affects in no small degree the shipment of raw material to consuming points. Obviously prevailing railroad conditions are badly hampering business all around.

Jobbers in New York are demanding and getting premiums for spot lots of paper of almost every kind. Printing concerns of the smaller type and other consumers of paper who depend on purchases from day to day to fill their requirements are experiencing extreme difficulty in locating available paper for immediate delivery and are meeting the stiff prices asked. As previously pointed out in this report, it is not a question of price these days so much as it is in securing prompt deliveries that bothers paper buyers.

The newsprint market rules exceedingly firm. Offerings by manufacturers and mill agents are fully as light as they have been in recent months, and consumers are faced with just as stern a problem in their efforts to secure additional supplies. Publishers in New York and other large cities have adopted a new scheme seeking to reduce their consumption of newsprint, namely the temporary discontinuance of certain of their daily editions. Publishers of afternoon papers are mostly following this procedure, and are doing away with their early issues. Indications are that regardless to what lengths newspaper publishers go in reducing their consumption of newsprint, the market will remain in its present strong position for some time to come. In fact, there is still a large potential and actual demand which is going unfilled, and the only way in which small town and country publishers can be assured of paper is for the city publishers to cut their use to a greater percentage than they already have done.

The book paper market is firm and supplies are in fully as tight a condition as is newsprint. Mills have little or nothing to offer for some months and are running along with the one idea in mind—that of fulfilling their contract obligations. Practically no manufacturer of book paper in the States is looking for new business; on the other hand, they are doing whatever they can to discourage buying unless the need is pressing. The manner in which consumers are inquiring for supplies, however, would indicate that nearly all of them have pressing need for further amounts of paper.

Quotations on some grades of wrapping papers have advanced this week. Kraft wrappings are about half a cent per pound higher and there is still a strong upward tendency to prices. Fine papers are moving in consistent fashion and prices are firm. Demand for this class of paper from export sources is steadily expanding and there is no doubt that manufacturers could readily dispose of much larger tonnages of writing, bond and ledger stock if they were in a position to offer supplies.

The board market rules firm to strong and prices have shown no change. Plain chip board is selling freely at $90 per ton at mills, and filled news board is quoted at around $100 a ton. Box makers appear to have covered their spring requirements fairly well but in doing so they have tied up mills to such a point that there is virtually no surplus product now to be had. Board manufacturers the country over are said to have enough orders on their books to keep them running full for two to three months and are paying but scant heed to offers of additional business.

GROUND WOOD.—Pronounced firmness marks quotations on ground wood and current trading is being limited only by a lack of available pulp in the open market. Demand is pointed and it can be said that the major portion of it remains unfilled simply because manufacturers haven't the wherewithal to satisfy the

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wants of buyers. Around $70 per ton at grinding plants is the figure generally named on spruce ground wood for shipment during the next month or two but prices on the whole are mainly nominal because sellers haven't any supply to dispose of. Sales have been made at levels in excess of $70 in some cases, and, judging from present indications, it would not be at all surprising to see a further sharp advance in ground wood values during April.

CHEMICAL PULP—The insistent demand for chemical wood pulps and the dearth of unsold supplies in the market have promoted a further rise in prices on some grades. Kraft pulp has led the advance and quotations on this kind of wood fibre are about $5 a ton above the levels prevailing a few days ago. Sales of domestic kraft of standard quality have been reported at as high as 5 cents a pound at pulp mills, while foreign kraft has sold at 5.25 cents. Even at these figures offerings have been unusually light, only scattering lots finding their way into the open market. Soda pulp continues on the uptrend and quotations now range from 5.50 to 5.75 cents per pound. Sulphites are quotably strong and are absorbed as quickly as they are offered. In fact, demand is well in excess of the available supply, and dealers and importers say they are altogether unable to fill the wants of buyers. Only occasional shipments from Scandinavia are arriving and it is becoming more and more apparent from the advices received from the other side that consumers in this country must necessarily have to depend on domestic and Canadian pulps almost entirely for the balance of this year.

RAGS.—The rag market is holding its own although some grades have sagged in price to a slight extent during the past few days. One reason for this is that paper manufacturers are now getting supplies which have been held up by railroad embargoes and other transportation difficulties and are holding off in absorbing further supplies for the moment. This results in a narrower demand for some descriptions of rags and makes for a little easier price tone. On the other hand, dealers and packers have looked for this period of curtailed buying in that it invariably occurs in the early spring of the year and are not pressing mills to buy, it being their contention that they are not getting any more rags from country sources and that there is consequently no inducement for them to liquidate their present holdings at cheaper prices. Thirds and blues are a bit lower in value, with sales of repacked blues reported at 5 cents, and, in out of the way instances, at down to 4.75 cents at shipping points. Roofing rags also are available at slight declines, current quotations ranging around 3.60 cents f.o.b. sellers' points for No. 1 packing, while certain grades of new cuttings are selling at a trifle less than they were a short time ago. Old whites are a firm item and are commanding just as high figures as heretofore.

PAPER STOCK—High grades of old paper rule quotably steady under a consistently good movement of supplies into consuming channels, whereas some of the low qualities, notably those consumed by box board mills, are off somewhat in price. Sales of folded newspapers at 1.70 cents a pound f.o.b. New York have been noted and No. 1 mixed paper is offered in at least some quarters at as low as 1.35 cents. Books and magazines are now quotable at around 3.25 cents at shipping points, against a basis several weeks ago at 3.65 to 3.75 cents, and buyers are reported trying to effect a further reduction in prices. Shavings are selling at firm figures, with No. 1 hard whites fetching 6 cents and more f.o.b. New York and No. 1 soft whites 5.25 to 5.50 cents. Kraft papers are in steady demand and are quotable at maintained prices.

OLD ROPE AND BAGGING.—Old Manila rope is in steady demand and continues to command 8 cents a pound at shipping points for No. 1 quality stock. Dealers in general seem to be well fortified with mill orders and are shipping out supplies about as rapidly as they accumulate them. The situation in scrap bagging is marked by quietness and No. 1 packing is freely available at 3.25 cents New York.

MANUFACTURE OF SEAWEED PULP FOR PAPER

A company has been formed in Japan with a capital of yen 2,000,000 to anufacture pulp from seaweed. Its prospectus states that the quantity of pulp annually consumed in the country as material for making paper is nearly 300,000 tons, including what is produced in Japan and importations.

Paper mulberry (mitsumata), hemp, rice straw, etc., are used in Japan as material for paper. Of late, however, wood pulp represents 70 or 80 per cent of the total quantity of material used. Wood pulp is actively produced in the Hokkaido and Karafuto, but as the wood, when felled, is not restored to its old condition until several dozen years have elapsed, it is considered by this company that the wood available for the making of pulp will get more scarce as time goes on.

The company has a patented process for manufacturing pulp out of seaweed of the name of "ajimo," of which there is an inexhaustible supply around the coast. Its growing power is said to be so great that four or five months after being cut off it is found to be ready for another gathering.

In addition to its power of rapid growth, another convenient feature of this weed is that it grows collectively and its great vitality prevents other weeds from growing near the place where it is found, thus making the process of gathering easy and convenient.

Comparative Costs.

The company compares the cost of production with the the cost of wood pulp, as under:—

	Yen.
Cost of production of sulphite wood pulp (Hokkaido)	10.4
Cost of production of crushed wood pulp in Japan proper (used as material for paper for newspapers, etc.)	6.5
Cost of production of "ajimo" pulp (material for Japanese paper and superior European-style paper)	4.8
Average market price of native pulp (produced in Karafuto)	14.5
Average market price of imported pulp	20.0
Probable sale price of "ajimo" pulp	8.5

The objects of the company are given as:—

(1) The manufacture and sale of pulp.
(2) The manufacture and sale of paper.
(3) The manufacture and sale of machines for making paper or machines for making material for paper.—Board of Trade Journal.

Winnipeg, Man.—The Manitoba forest area so far examined, according to official figures, is 46,272 square miles containing approximately 25,000,000 cords of timber of which 30 per cent. is poplar, 29 per cent. jack pine, and 16 per cent. tamarac and birch.



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PULPWOOD IS NOT ALL THE AMERICANS WANT

Ottawa.—That some method will have to be devised for the conservation of Canadian forests against the inordinate demand for lumber and newsprint for south of the boundary is generally admitted here.

Probably the most serious feature of the situation is the fact that owing to the tremendous demand in the United States for Canadian lumber, it is almost impossible for Canadians to secure any lumber at all. The situation is particularly acute in the western provinces, and complaint has been made to the Board of Commerce from various western and Ontario points.

Cost appears to be no object to United States consumers. It is said that they simply request the best price from Canadian lumber dealers and express a willingness to grant a premium of anything up to twenty-five per cent on that. In addition to this the dealers are encouraged by the prospect of an exchange rate of about fifteen per cent, consequently Canadian consumers must pay, if they wish to get the lumber, a premium of something like forty per cent. In fact there are inditications that United States consumers are willing to outbid Canadian consumers no matter what the price.

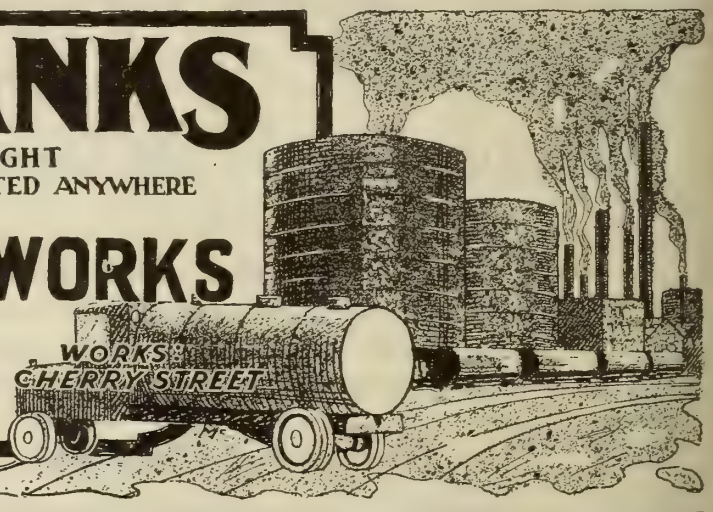
The situation has several serious aspects. Apart entirely from the imminent danger of the denuding of Canadian forests is the more immediate menace to settlement, immigration and housing.

Soldier settlement on the prairies is being threatened by the prospect that prospective settlers could only have shacks. Rent profiteering is being encouraged by the virtual responsibility of building at prices which the United States is willing to pay for Canada's entire output. In fact, the situation is becoming decidedly acute. The denuding of Canadian forests might conceivably be prevented by the placing of a limit upon the annual cut of timber and by an aggressive campaign of reforestation. Leases too easily obtained in the past are nevertheless renewable from time to time. To reduce the "cut" to a limit commensurate with reforestation possibilities might save Canadian forests from ultimate destruction, but it would not mend the situation as far as Canadian and American demands are concerned, for the United States would surely absorb the total reduced supply.

There are only two solutions, an export duty or an embargo on export. The federal authorities invoke the War Measures Act in the matter of newsprint supplies. As a matter of fact, legislation may be anticipated at the coming session which will have as its purpose the conservation of resources which are indigenous to the country and which are in danger of utter denudation through the inordinate demand for them from countries which do not possess them.

It may be pointed out that the danger of denudation of Canadian forests does not lie entirely to the south. Australia's forests are of a resinous character and their wood not fit for pulp manufacture. And Australia is not only looking to Canada for newsrpint supplies but actually demanding that contracts be filled.

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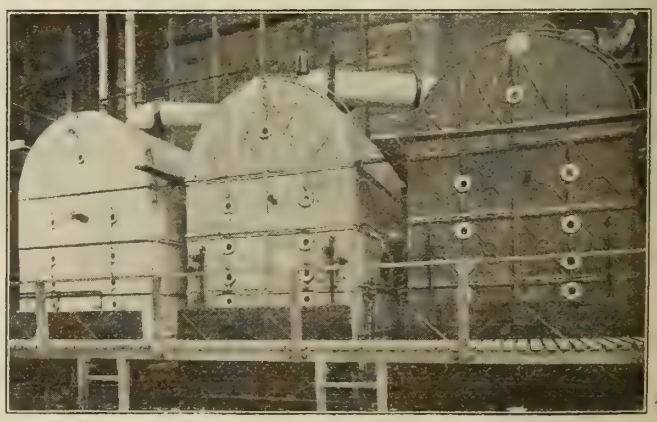


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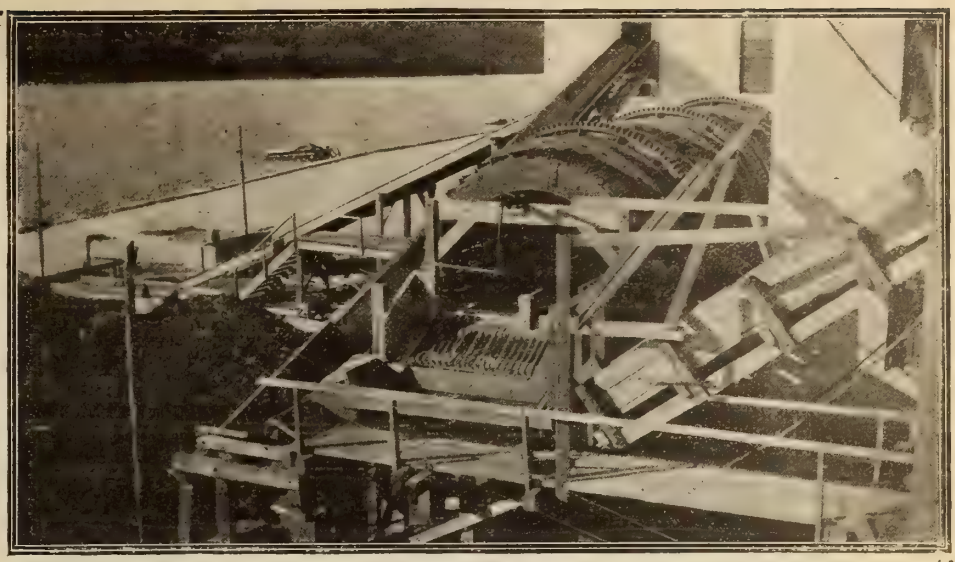


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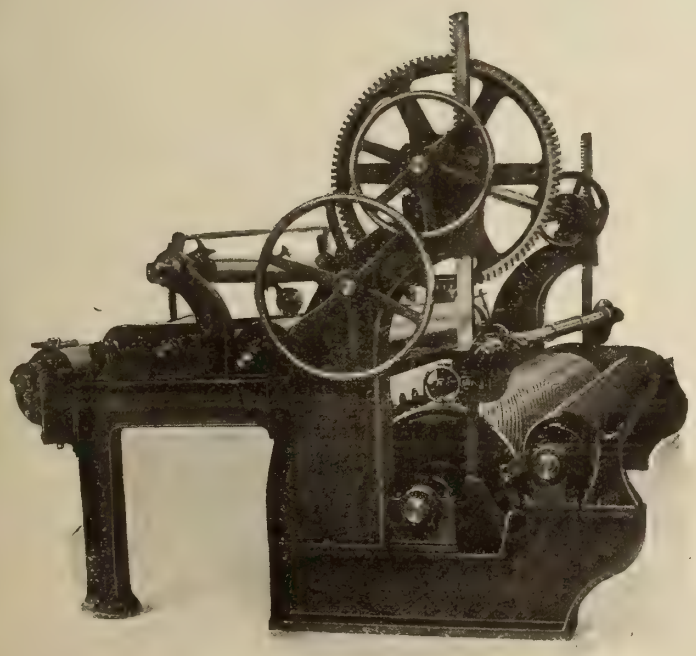


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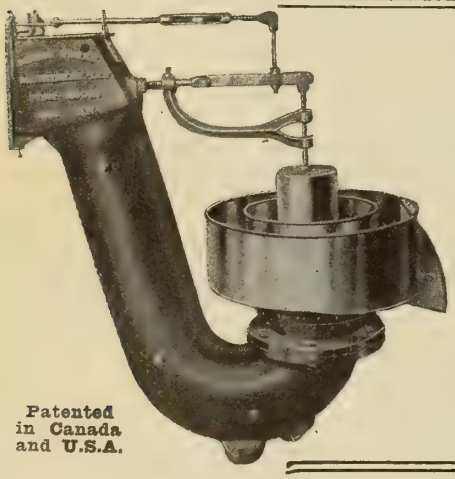
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-:- EDITORIAL -:-

NEWSPRINT NOT A NECESSITY OF LIFE.

One of the most important events in the history of the Canadian pulp and paper industry is the ruling of the Supreme Court that the Board of Commerce was without authority to classify newsprint paper as a necessity of life within the meaning of the Combines and Fair Prices Act. This decision is a clean victory for Price Bros. & Co. in their contention with the Board over orders and restrictions regarding distribution of and price for, newsprint paper. It completely upsets the basis on which the control of paper prices and distribution in Canada has rested since the other portions of the War Measure Act were repealed.

Apparently the immediate result to Price Bros. will be the payment to them of the differential of $10 or $12 a ton between Canadian and export prices on paper shipped recently to certain Montreal publishers and the restoration of the right to do business with whom they please. Other Eastern newsprint mills came to an understanding last winter in conference with Sir Henry Drayton and the publishers to supply a certain percentage of their tonnage at $80 per ton for roll news until July 1. After that date, the price in Canada was to be determined on the basis of the price of paper sold by the International Paper Co., Canadian Export Paper Co., and the Geo. Mead Paper Co. Whether the agreement will be considered binding in view of the Supreme Court's decision is a matter for speculation.

As to the future relations of publishers and manufacturers, there is a distinct inclination among the latter to see that publishers have paper for their actual needs, providing they are willing to do business directly and not through government boards whose action seems more political than politic. If the publishers want to give a square deal they will get the same. However, if they persist, either directly or indirectly, in getting legislation which makes them a group specially favored of the gods and legislators, and puts the paper makers in a class with crooks and violent persons needing restraint, we can't see much peace of mind for either party. They may have to make their own paper.

No one knows what prices will be for a very long period ahead, but it is surely ridiculous to attempt a restriction of legitimate business. There are natural laws which must rule in the end. A well-informed Englishman who is both a paper maker and a publisher, is confident that newsprint will go to a shilling a pound in England. So long as the present discrepancy between supply and demand continues, there will be a steady upward trend in prices which are constantly influenced also by increasing costs of material, labor, and the cost of doing business. Paper makers are not taking an unfair advantage of a most unusual situation, nor are they likely to do so.

Isn't it foolish—dam foolish, if you will—to dam one branch of the stream of present day prices when a score of other branches are running bank full, at flood height?

BLAMING THE INDUSTRY FOR A GOVERNMENT FAILURE.

The Pulp and Paper Magazine for March 25th had something to say regarding the inactivity of the Pulp and Paper division of the Forest Products Laboratories. This editorial evidently came to the attention of the Montreal Herald since that paper of March 30th contains the following editorial comment on the situation:

MONTREAL'S USELESS PULP AND PAPER LABORATORY

That the model pulp and paper plant at the Forest Products Laboratory in Montreal is like an expensive ship tied up to its wharf and abandoned by its owners is the gist of a statement made in the current number of the Pulp and Paper Magazine. This plant was provided a few years ago by the Dominion Government at large cost, with the idea of carrying out experiments making for the upbuilding of the pulp and paper industry, and for the more economic use of the products of our forests. It contains a splendid scientific equipment, including what is believed to be the finest model paper-making machine in the world. For a year or two youthful scientists fresh from college carried on experiments with the plant. the fact that a number of patents were taken out by private individuals, with the knowledge and consent of the Government. It seemed rather an anomaly that a public institution That some measure of success was achieved is indicated by should result in private patents, but the Government discussed the matter fully, and came to the conclusion that it had to be allowed to promote enthusiastic research. But it appears that even this inducement was not enough to keep up the enthusiasm, for the professors left, and the plant is now lying idle, because nobody competent to work it is left on the job.

The Pulp and Paper Magazine, which is the official organ of the Canadian Pulp and Paper Association, now complains that the present uselessness of the plant is the result of the Government being "so bound up with red tape." It is quite possible that the plant was established without any workable plan being decided upon for making it of real public benefit. But if the project has been killed, it has been killed not by the Government, but by the pulp and paper makers in whose behalf the Pulp and Paper Magazine speaks. Every man who has shown ability in this model plant has been lured away by private companies with offers of higher salary, and now that no one is left the Government is being accused of having murdered its child by throttling it with red tape. It seems to us that the charge is a somewhat ungrateful one. When the project was first put into being it was done after consultation with experts in the industry, and it had the unqualified blessing of the private companies. If the Government was wrongly advised, as it now seems to have been, then it should be commended, and not scolded, for declining to enter into a price competition with these same private interests for its own research workers.

It is possible that a mistake was made in devoting the plant

to research work instead of to instruction. The temptation of an industry badly in need of scientific men to lure away the Government experts proved too great, and will remain too great for years to come. And even if the plant is turned into a technical school, as is now proposed for the initiation of such McGill students as may desire it into the fundamentals of pulp and paper making, the temptation will still remain to rob the school of its instructors as they become proficient for the benefit of private institutions. Our contemporary winds up its article by saying:

"To our mind, since the government has admitted its inability to pay sufficient salaries to hold efficient men on the staff the industry should be permitted to acquire the pulp and paper department and put it to use. The Canadian people would then get some benefit from it, which has not been the case for some time and is not an immediate prospect in view of present conditions."

This is a sensible suggestion. The plant should be sold out to the Canadian Pulp and Paper Association, if that association is willing to buy it, and if not, then it should be scrapped, and what is now admittedly a useless expense would thus be done away with. If the Association were to buy it, it could maintain a research bureau of its own, and have a school in which it could train its own recruits. It would also have a collective interest in retaining whatever staff it might consider necessary. Any other scheme seems hopeless, since under present conditions the private interests will not allow it to succeed.

* * * *

The Herald's statement is given in full, not so much because it supports a part of our argument and suggestion but rather because there appears to be a tendency to misrepresent at least a part of the case. The productive activities of the laboratory continued for four years and at that time a number of projects had been planned which when completed would have furnished information that might well serve to guide the manufacture of paper products, which are now imported but which could be manufactured in Canada with considerable advantage to this country, as well as to encourage the improvement of processes already in operation.

The granting of patents as mentioned by the Herald, while not a proof of the success of research work, is certainly an indication that something has been accomplished. That such patents should be granted to individuals in government employ is a point of government policy rather than a reason for intimating a criticism of the industry.

The Herald criticises us for complaining of the red tape which keeps the plant idle and suggests that it may have been established without a workable plan. The person who thinks that such an organization could be launched full grown, after the manner of Minerva's birth, with no need for improvement, certainly has another chance to think. The laboratory was started on the best basis that could be devised with the combined knowledge and suggestion of those who had had experience with similar projects and with due consideration for the circumstances. The Pulp and Paper Association through its Technical Section has endeavoured in every way to encourage and assist the work of the laboratory. Certainly one would not expect the laboratory to benefit the people through the application of its work to the rubber industry or the mining of coal, yet even these industries have been benefited by the work of other divisions of the Forest Products Laboratories, and to some extent also by the Pulp and Paper Division.

Right here it should be thoroughly understood that other departments of the Forest Products Laboratories continue to do excellent work. But even in these cases it is a grave question as to how long they will be able to carry on without adequate financial support from Ottawa.

As evidence of the real interest which the industry takes, not only in the pulp and paper division but also in the general work of the laboratories, the public should know that Canadian pulp and paper mills offered to supplement government appropriation for the salary of the director so that an income of at least $5,000 a year could be guaranteed a suitable man. We understand that this offer was declined, with the reason or the excuse that the industry could not be permitted to have a voice in the actual direction of the work of the laboratories.

Our contemporary complains that the fault lies, not with the government for not paying adequate salaries but with the manufacturers for having such an appreciation of the services of technical men that they are glad to offer salaries commensurate with such services. This dissatisfaction with government salaries is by no means restricted to the staff of the Forest Products Laboratories nor is the criticism of the penuriousness of the government limited to the Pulp and Paper Magazine. Practically every department of research and engineering coming under the civil service control is being criticised from one end of Canada to the other by the daily press as well as the technical journals. The pulp and paper industry can well afford to assist the government in maintaining a capable staff in a well equipped central laboratory for the investigation of subjects of fundamental value The more private research departments of the mill have their hands full as a rule with the application of such fundamental research to their own particular problems and it is important that there be a central research bureau for carrying on such basic investigations.

It is gratifying to have the support of one of Montreal's daily papers in regard to the suggestion that equipment be used for instruction as well as research work. Such a training ground should be provided for researchers in every branch of Canadian industry. The demand for them will be urgent when other industries realize the need for them as the pulp and paper industry is beginning to do. It is this need and the realization of the need for research workers and the appreciation of their value to the industry which has set the price on their services. It can not be called competition with the government with such a discrepancy in the estimation of the value of such services as exists between the paper mill and the Civil Service Board. The latter is, of course, under restrictions which do not obtain in industry and there are certain considerations

of government service which partially compensate for the discrepancy in salaries. It is an open question, however, whether the government would not get an immensely greater return from the services of a man who was working for approximately what he was worth and knowing that if he did not make good someone else would take his place rather than to feel that, so long as he turned out an occasional piece of work and did nothing to offend his superiors, he would be allowed to retain his position.

There is plenty of fundamental work to be done in a central research establishment such as the Pulp and Paper Division of the Forest Products Laboratories and there is a big advantage in having such a division associated with other work and investigations on timber and various wood products. It would be far better, however, to transplant a portion of the organization than to have it wither and die as it now appears certain to do. To be quite frank it seems that there is considerable unconcern at Ottawa whether the pulp and paper division lives or not. On the other hand the industry has taken great pride in the establishment, the equipment and the achievement of this laboratory and sincerely regrets the prospect of having its activities cease. It is this solicitude for the reputation of the laboratories quite as much as for the mill benefits derived that the industry so much desires to see something doing at 700 University St., Montreal.

CHICAGO TRIBUNE GOES THE LIMIT.

The Chicago Tribune, probably the largest consumer of newsprint paper in the United States, has adopted a novel scheme for making its paper supply do its full duty. In the leading editorial on Monday, the Tribune said:—

"Don't buy the Tribune—borrow it. The Tribune may seem to be standing on its head, but it is forced to ask people not to buy it. It wants to keep every one of its readers and gain new ones, but it cannot sell them all the paper. The paper shortage makes it impossible to do so.

"If two families would use one Tribune we could keep the orders and they could have the Tribune. We want the readers; they evidently want the Tribune. Better days some day, but just now borrow and don't buy the Tribune."

A CANADIAN RETURNS.

Mr. John M. French, formerly editor of the Paper Trade Journal, is coming back to Canada after twenty years in the United States. Recently Mr. French has been manager of Filing, Inc., New York, a successful office magazine. As representative in Montreal of Charles Morningstar, Que, and the Columbia Naval Stores Co. he will be welcomed by many of his old friends in the pulp and paper industry. Mail may be addressed in care of the Pulp and Paper Magazine.

COBWEBS.

Why all this howl in the U. S. A. about a timber shortage? They are likely to have plenty of Wood this year, in a General way.

The Congress spends considerable time, every little while, drafting a new tariff bill, raising the price limit of duty free paper. For a long while it was two cents, then came the jump to five cents and now there is a bill before the House to let eight cent papers in free, because, it is said, there is no five cent paper available for import. The eight cent limit is not likely to hold very long. Why not leave off the limit and save time? The tariff will not affect newsprint mills for some time.

Why is Hon. H. H. Dewart barred from discussing in the Legislature, the relations between the Ontario government and the Great Lakes Pulp and Paper Co.?

Eight thousand acres of timber have already been burned in the district of Uniontown, Pa. Three new fires are said to be incendiary. It looks tough for Pennsy when conditions are more favorable for forest fires.

If Jack Dempsey is convicted on the charge of desertion, we would suggest that Veteran Carpentier be given a crack at him before other punishment is inflicted.

TO EDIT THE DIGESTER

The Digester, published by the Laurentide Co., is about to have a new editor. Beginning with April 1st, Mr. Warren D. Leary is to take charge of our local paper and keep us posted as to the doings of our little town and the mill.

Mr. Leary's apprenticeship in newspaper work was served on the Brooklyn Daily Eagle and on trade papers while he was still in a college. After he received his degree from Columbia in 1916 he went with the New York Herald as a reporter, to remain there in that capacity until May of the following year, when he went to the First Officers' Training Camp at Madison Barracks, N.Y. Among other duties during the war, and after the armistice was signed, he was editor for a short time of a soldier-student newspaper at the University of Grenoble, France.

Upon being discharked from the army in August of last year, he returned to the New York Herald and became assistant day city editor a short time before its amalgamation with the Sun. He then went to work with the New York Tribune as a general work reporter, where he remained until accepting this position in Grand Mere.

Exit Editor Deacon. Good luck to him.

A pretty good firm is Watch & Waite,
And another is Attit, Early & Layte;
And still another is Doo & Dairet;
And one of the best is Grinn & Barrett.

Martin's Papyrus.

Hall Caine Tells of Britain's Paper Troubles

At an informal luncheon given last week to Mr. G. R. Hall Caine by Mr. A. L. Dawe, Secretary of the Canadian Pulp and Paper Association, the guest of honor made some very interesting remarks on the pulp and paper situation in England during the war and in the period immediately following the armistice.

Mr. Dawe sat at the head of the table which was set in the vice-regal suite of the Ritz-Carlton Hotel. In introducing Mr. Hall Caine, Mr. Dawe remarked that but a brief statement will be necessary as everyone knows of his important work for Great Britain and the allies in connection with the distribution of paper supplies as deputy paper controller, during the war, and as distributor for the allies during the armistice period. As distributor during this time for all the paper and pulp supplies for the allied countries Mr. Hall Caine knows the world situation thoroughly. During the time of his service as an official of the government, by his actions and by the assistance he has given to Canada he has shown a very real conception of the spirit of the Empire.

Besides his late official capacity Mr. Hall Caine has an interest in a publishing house and is a manufacturer of paper containers, in fact the first to inaugurate this business in England and is a director of a number of the largest paper manufacturing concerns in England and through them comes directly in contact with the manufacture of pulp and paper in Canada.

Mr. Dawe then asked his guest to say something of his work and something of his connection with the paper mills of Great Britain.

After replying briefly to the introduction, Mr. Hall Caine said that when he met Mr. Dawe in England he was what Lloyd Harris called a 'bureaucrat'. He was a bit skeptical of the great things Mr. Dawe had told him regarding the Canadian industry and the relations among the mills but since coming to Canada he had not only found that Mr. Dawe had actually told him the truth but that far more could have been said. Mr. Hall Caine told the guests a number of interesting things, which may briefly be summed up in the following:

Englishmen do not have the degree of frankness that Canadians have. If there were less mystery and secrecy—and there is really no mystery about it all—there would be greater success for all. This lack of mutual co-operation among manufacturers in England is a serious handicap compared with the relations among mills in Canada. It would have been hard to believe how extensive this co-operation could be if one did not have an opportunity of coming over here and actually seeing at first hand.

Mr. Hall Caine continued: "Mr. Dawe has referred to my contact with manufacturers of many nations. While I may not know as much as has been credited to me I have certainly been in a position to meet the paper manufacturers in practically all countries and certainly had a chance to learn a great deal. I met the best men among the world's paper makers and have come in contact with many organizations. I say without flattery that I have not met an organization which has fulfilled its functions as well as the Canadian Pulp and Paper Association.

The difficulties in England during the war were very great, in fact much worse than anyone dared admit or even think. This was particularly true during the submarine campaign, when at one time there was only thirty days supply of paper and pulp in the country. The situation was then relieved by a small shipment from Scandinavia. Such shipments of paper, however, could not be depended upon because the shipping board continually requisitioned boats for ore, etc., which had been chartered for pulp or paper cargoes, because these other things were considered of more importance. It must be remembered that British mills require imported pulp for their fibre supply. Canada with her vast supplies of pulp and paper cannot possibly realize what a nation would be without paper, but England came very near being in that position. The chaos would have been unthinkable. England began at last to realize how very essential a thing paper is. The situation for many months



G. R. HALL CAINE.

with regard to paper supplies was quite like living on the edge of a volcano.

The Swedish situation was a particularly delicate one, especially as regards pulp and paper supplies, partly due to the shipping situation and partly to the attitude of Sweden toward the war. During this time the Swedes' plea was that they were the victims of circumstances and continually emphasized their friendship for England. Many of the paper and pulp men were doubtless honest in their expressions.

It was necessary that there should be a very definite basis for trade relations between England and Sweden and I had the 'unfortunate pleasure' of working on this agreement. It was the only possible one at the time. It was not directed in any sense at the pulp men in general but rather to curb the activities of a certain unruly group and this unfortunately entailed no doubt some inconvenience on the part of the

pulp and paper manufacturers. We had to consider Great Britain first. It was necessary to meet firmly the chilli challi attitude of the Swedish government, although this agreement was thought by some, including, I think, my friend, Mr. Storjahann, to be an intolerable injustice. I had the pleasure of knowing Mr. Storjahann quite well and found him an able advocate for the cause."

Dealing with the position in Sweden during the war Mr. Hall Caine said:

"British paper makers like others of their race are strongly inclined to believe that the other fellow is always square and honest and find it difficult at times to have their opinion changed. It was a shock then to these Britons to find that the people they had done business with for thirty or forty years, and counted as real friends, were not only on the side of the Allies but were even antagonistic to the allied cause. A wave passed over the British paper maker of feeling that they were in the hands of an unsympathetic people. It was a feeling of helplessness and they began to enquire of Canada. There had been a prejudice against Canadian pulp because early shipments had not always been of prime quality so that a good reputation had not been gained and also largely because Canadian pulp had never been used in most English mills. Enquiries brought out the fact that Canada could supply pulp and that recently the quality had much improved.

If Canada could then have supplied the demand the future would have been easy, as the British mills were eager to get out of the hands of the foreigners and to place business with their own people. The situation was similar in regard to paper after the armistice, when the market was opened to outside producers. The Englishman now wants to link up with sources of supply in the Empire. The British ministry tried to encourage this attitude by means of a form of colonial preference in practice for some months and there is no doubt in my mind but that this will be the British trade policy and that something in the nature of a preferential tariff will come sooner than many of us expect.

One important feature of business these days and an ever present problem is the relation between the employer and the employee. There are always some labor troubles in England, as there are elsewhere but the paper industry has been less affected than most lines of manufacture. For many years strikes have been practically unknown in our particular business. There has been the greatest radical change in Scandinavia, and England too has adopted an eight hour day and a shorter working week.

One of the real difficulties that England has found in the situation is the problem of "spare time". The men say that an eight hour day is all right but what shall we do with this extra time? They have a desire to leave the country districts and go to the cities or towns where there is more excitement. It is important to keep them in the country where most mills are situated, but in encouraging this idea the conception of patronage must be entirely eliminated because there is nothing that the British workmen hates more than such an attitude.

In considering this problem our company has undertaken a recreation experiment. At a certain mill where trouble was brewing we bought a beautiful old mansion house with some thirty acres of ground not far from the mill. There were about forty bedrooms and these were remodeled into suites of two or three rooms with bath which were made available at an easy rent. On the lower floor are club rooms and rooms for cards, billiards, dining and reading. In the grounds provision was made for tennis, lawn bowling, gardens, etc., and the whole affair turned over to the men to run it. They have elected a managing committee and the directors just look on. We feel responsible for keeping the men both happy and healthy and so far the experiment has exceeded our expectations. This may point out a means for quieting the spirit of unrest.

Welfare work is rather new in England in a general way. A number of well known trials have been made, such as at Sunlight and elsewhere but these seem to be more paternal than the average Englishman cares for.

You are doubtless interested in the present newsprint situation. The price is fixed each month. I think this is too short a period. For instance, I am just advised that the price for April is 4 ¾d. The manufacturers meet on the 15th of the month and set a price for the month following. The publishers are entirely satisfied with this arrangement since they feel that it is advisable to have uniform and definite figures. At these meetings of manufacturers there are frequent vigorous discussions before the price is arrived at and this is not fixed with regard to the highest cost mill. It is made as equitable as possible. We believe that supply and demand is the best controller. Free news, that is, not in contract, is 7d. All prices are quoted on goods as delivered.

The freight on pulp from the seaport to the mill runs about 20 to 23 shillings per ton and from Liverpool about 28 to 30 shillings, for paper mills in the vicinity of London. These shipments are made by rail as it is found that canals are not satisfactory for making shipments of pulp and paper. The barge men are likely to make themselves comfortable in some 'Pub' and stay there perhaps a day.

In regard to other papers the difference in price between news and other printings is not great enough as one would imagine, the latter being only about 7d. The higher class such as espartos are selling for about 9d.

Considerable quantities of pulp have been contracted for in Scandinavia and some of these contracts were made at £21 a ton for sulphite against £50 now asked, but the operation of the "force majeur clause" makes it somewhat uncertain as to whether these orders will actually be delivered. The paper mills in England are now only taking open orders. That means orders taken only on the understanding that the price is fixed by the mill at the time of making. Scandinavian freights are going up too but it has been pointed out to the Ministry of shipping that there is still too great a discrepancy in rates as applying to Scandinavia and Canada.

English papermakers are faced with considerable difficulty in the revival of export trade. During the war, of course, markets in France, Spain and elsewhere had to be neglected, but now these buyers are coming back to Britain and asking for a renewal of shipments. As there is sufficient domestic demand to keep mills all busy it is a rather awkward situation

and mills simply have to allocate their production as fairly as possible."

Those who were able to attend the luncheon were, besides Mr. G. R. Hall Caine and Mr. Dawe, Messrs. R. O. Johnson, Guy Tombs, W. E. Walker, John Mather, Edward Beck, John Young, S. J. B. Rolland, T. J. Stevenson, Capt. J. H. Acer, H. Crabtree, F. E. Walker, W. F. Robinson, J. H. McLernon, Roy Campbell, J. N. Stephenson, although a number of others who were invited were unable to attend.

RIORDON'S INCREASING CAPITAL

Montreal.—The Riordon Pulp & Paper Company's annual statement for the year ending December 31, 1919, shows considerable increase in gross earnings as compared with the previous year, the total being $1,810,126, as compared with $1,443,064 in 1918, an increase of $367,080, or a little over 25 per cent. The actual profits from the operations of the pulp mills of the Riordon Company itself showed a slight decrease from that of 1918, however, the figures being $1,099,251 for 1919 as compared with $1,225,596 in 1918. "Other income," however, showed an increase of over $430,000, rising from $52,537 in 1917 to $425,662 in 1918 and $859,540 in 1919. This increased income, it is understood, is due to the high rate of exchange on American funds in which the pulp is paid for and to the very large earnings of the Ticonderoga Pulp & Paper Company, of New York, a subsidiary of the Riordon Company, whose earnings have averaged for some time 100 per cent. on the comparatively small capitalization of the company, and which has been paying a generous dividend to the parent company.

The company's interest in the enterprise which it is developing under the name of the Kipawa Fibre Company, for manufacturing a very high grade of bleached sulphite pulp, is reflected in the balance sheet, where the amount allowed for investment has increased from $2,497,896 to $5,589,467, or over $3,000,000. In addition there stands an item of $1,959,456 as a loan to the Kipawa Company on development account. By the 1st of April it is expected that the new mills will be producing from 100 to 125 tons of sulphite pulp a day. The profits from the new enterprise are expected to run quite high, particularly owing to the high grade of product for which there is a keen demand in the United States.

The large investments of the Riordon Company in the Kipawa mill have called for a heavy expenditure of money as well as an increase of nearly $4,000,000 in the bond issues of the company from $2,033,500 to $5,909,400. The result, naturally, has been a decrease in the actual available working capital by a considerable amount.

It is not surprising, therefore, to learn that in order to provide for additional working capital the directors have decided to increase the common stock capitalization of the company from $4,500,000 to $6,000,000 by the issue of 15,000 sshares of new stock. A special general meeting of the shareholders of the company has been called to take place on April 15 next to act upon a bye-law that will be introduced. No announcement is made as to what price this stock will be issued to the shareholders at nor under what terms, but considering the fact that the new issue amounts to one-third of outstanding issue it would appear probable that it will be issued to the shareholders in a corresponding ratio of one to three shares held at the present time.

TRADING CANADA'S BIRTHRIGHT.

Correspondence.

Annapolis Royal, N. S.
March 31, 1920

Editor, Pulp and Paper Magazine:

All this talk of retaliatory measures on the part of the American Congress, because the Canadian people decline longer to be hewers of wood and traders of their birthright for a mess of pottage by shipping the life-blood of thir own paper mills across the border in the shape of raw material, is pure bunkum.

In the first place, Canada has ample coal deposits for the running of all her industries. It is simply a matter of transportation, and with a magnificent water route from Nova Scotia via the St. Lawrence River and Great Lakes, and with rail freight rates continually advancing while water freights will be declining, it will be cheaper to transport coal by water from Nova Scotia than by rail from Pennsylvania.

Secondly, there is one thing that Canada really has an inexhaustible supply of, it is water powers, and if these were developed as they should be and will be in the near future, and our railroads and industries electrified, we should require very little coal.

There is a vast difference between the United States selling us coal, for which they are glad to find a market so near at hand, and the shipping of wood from Canada; as coal cannot be manufactured any farther, and a cord of wood instead of bringing $20 to $25 in its raw state will return a hundred dollars or more when turned into paper.

There is of course, a serious shortage of newsprint paper in the United States, but this also applies in Canada as well, and she is shipping more than 80 per cent of all her paper to the United States, to the detriment of her own newspapers, some of which have had to suspend publication on this account.

In any event, Canada's mills might just as well be shut down for want of coal as for want of wood; but the fact must not be forgotten that she is supplying the newspapers of the United States with nearly half of their newsprint and the moment her mills are shut down for want of coal or any other reason not only will they not have sufficient paper to print their Congressional Record on, which is one of their complaints, but a large proportion of their newspapers will be forced to suspend publication, as no country outside of Canada can supply this amount of paper.

That the United States would be willing or prepared to engage in a trade war with its second best world's customer is, of course, inconceivable. Canada is nearer self-supporting than any other country on the globe, through her own and other British resources.

The American people are not a party to any of this wild talk, which is inspired by one or two of the larger paper companies who have suddenly awakened to realization that they only have a very small wood supply in their own country and who are simply using the American newspapers, and through them Congress, to try to help them out of a bad hole.

FRANK J. D. BARNJUM.

Vancouver, B. C.—The Lumber Commissioner for British Columbia announces that the approximate value of forest products of the province for the year 1919 is $70,000,000, including pulp and paper to the extent of $12,550,000.

Compressed Air in the Pulp and Paper Industry

By F. A. McLean, Canadian Ingersoll Rand Co., Ltd.

Part 3.—Pneumatic Tools.

There is always more or less repair or construction work going on around the paper mill in which pneumatic tools could be used to advantage, in speeding up the repair or construction gangs. In the case of mills operating their own repair shops, but not doing any foundry work, one or two pneumatic drills, a chipping hammer, a riveting hammer, and a pneumatic grinder of the portable or pedestal type, will be sufficient to take care of all ordinary requirements. When a small foundry is operated in connection with the repair shop, or where extensive construction work is contemplated, sand rammers, drift bolt drivers, wood borers, saws, etc., would be useful additions to the equipment and thoroughly in line with the best practice in other industries.

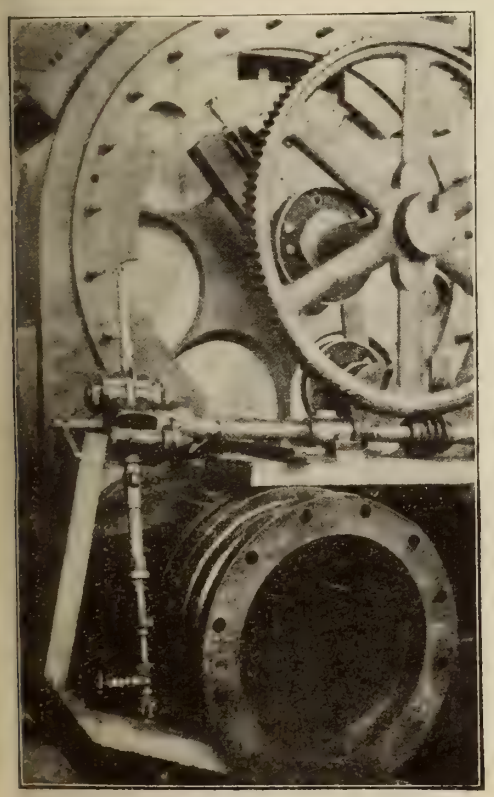
Pneumatic Drills.—Embodied in the construction of the pneumatic drills illustrated are many unique features which greatly increase their efficiency and lessen the cost of their maintenance. They are surprisingly simple in construction, contain very few parts (all of which are readily accessible) and may be obtained in several different sizes with drilling capacities from up to 5/16 and up to 5 inches, including a model especially designed for working in close quarters.

In the larger sizes these drills are driven by a four cylinder single acting, reciprocating piston type air motor, each pair of the pistons being attached to opposite throws of a double crank shaft, and each acting in balance, insuring continuous and smooth running without vibration. All pistons, connecting rods and valves are interchangeable on each range of motor making it impossible to put the drill together wrong if for any reason it is taken apart. The crankshaft runs in ball bearings and the connecting rods are fitted with roller bearings. A ball thrust bearing is arranged between the shell and feed spindle in such a way that the main frame is relieved of all strain. Valves are of the balanced rotating type, geared to the crank shaft, and rotate in bronze bushings providing large wearing surfaces and short straight ports, which insure rapid admission and exhaust and eliminate all danger of freezing. The cylinder is a steel casting so designed as to insure maximum strength with minimum weight.

The crankshaft and gears revolve in an enclosed dustproof chamber which is packed with grease, and as the four piston chambers communicate with this central chamber, a continuous supply of lubricant is fed to all of the working parts of the drill by the revolving crankshaft. Additional lubricant is injected into one of the crank caps by removing the plain or head handle of the machine, and squirting the grease into the chamber with a grease gun. These drills are made in both reversible and non-reversible types, with speeds to suit all conditions.

The smaller sizes of this line of drills are of a different design from those just described, the motive power being derived from a small revolving motor of the so-called valveless type.

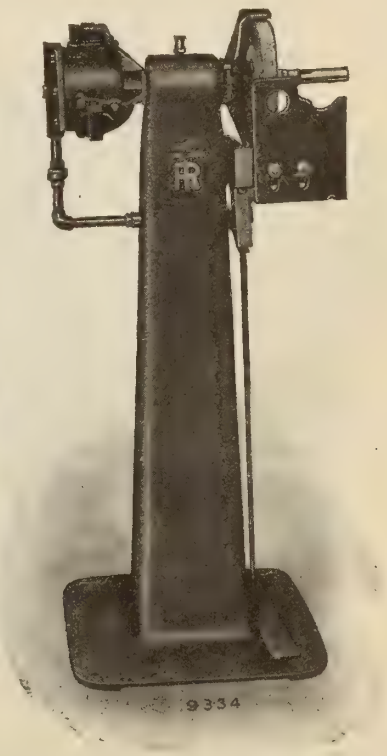
This motor consumes very little air and is controlled by the covering and uncovering of ports by the revolution of the balanced four cylinder engine around the crank pin. The thrust of the revolving motor while in operation insures perfect seating and prevents any



Little David Drill reboring an air compressor cylinder by means of a portable boring bar.



Little David Portable Grinder at work on a small casting.



Little David Pedstal Type Grinder. A General Utility Machine for the Repair Shop.

loss of air through leakage. The four cylinders are machined from one solid piece of steel, and the shell is an aluminum casting, making the machine very light and easy to hold. The revolving portions of the drill are fitted with ball bearings of the removable race type, and provision is made for lubrication through the handle. The larger drill of the two is known as the number 14 and is especially intended for wood boring; it is provided with a throttle control similar to that used on the larger drills. The smaller, or number 44, drill is furnished with a trigger control and is adjustable for speeds of 1500 to 3000 R.P.M. which adapt it for light, high speed drilling of metal.

Close Corner Drills.—The close corner drill is driven by a three cylinder air motor, and is controlled in a similar manner to the other types of pneumatic drills. The valve is driven by the crank shaft to which the motion of the pistons is transmitted by means of three rocking levers, connecting the pistons to the drill spindle. This class corner is very unique and is absolutely free from all jerky or unsteady motion, and for its size is claimed to be the most powerful, simple and efficient class corner drill made to date. This drill measures 1 5/16 inches from the centre of the spindle to the side of the casing and is suitable for use in many cramped places where the regular styles of pneumatic drills could not be used. At 90 pounds pressure the free speed is 150 R.P.M. and the drill will drive any size twist drill up to 3 inches or a tap up to 2 inches in diameter.

Advantages.—Some of the advantages of pneumatic drills are lightness, ease of handling by unskilled labor, simplicity, ruggedness, ease of repair and low maintenance cost, and for such work as drilling, reaming, tapping, grinding and reseating valves, cleaning boiler and condenser tubes, flue rolling, etc., they are without a peer. Pneumatic drills are widely used in various plants as air motors, and as such are suitable for operating mechanical agitators, digester gate valves, sluice gates, or in operating key seaters, or boring bars, wherever a quick repair is needed as shown in the accompanying illustration which shows a "Pneumatic" drill reboring an air compressor cylinder in a large Canadian plant.

Pneumatic Grinders.—The Pneumatic grinder is another air operated tool which will prove handy in many ways in the mill repair shop. It is made in two styles, the stationery or pedestal type, and the hand held or portable type. The former has been extensively used by mines for squaring rock drill shanks, etc., and the latter has been applied in many machine shops, foundries, shipyards, etc.

Both models of this grinder are driven by a simple three cylinder air motor of rugged design to stand the strains developed, and the abuse to which a machine of this class is generally subjected. The piston rods and crank shaft are of simple construction, and as the valve is a part of the crank shaft, all valve motions and their necessarilly complicated parts are done away with. By the removal of six cap screws the handle is removed and the whole interior opened for inspection. The steel cylinders are provided with pads on the corners and as they become worn the cylinders may be interchanged and the pads on opposite cylinders brought into use, which may be done very easily as the cylinders are separate from the case. The case of the grinder is made of aluminum and all working parts operated in an oil bath. An adjustable shield allows the exhaust to be deflected as desired.

The pedestal grinder will handle all ordinary machine shop grinding jobs such as castings, rods and bars, and may be used for sharpening lathe and planer tools. The portable type is especially suitable for work on castings and in the erection and repair of machinery, and will grind cast iron, steel, brass, bronze, etc. Wheels up to 8 inches in diameter and 2 inches face can be used on these machines, the grade and grain depending on the material to be ground. For miscellaneous work a grade similar to No. 24 Q Crystolon will be found suitable.

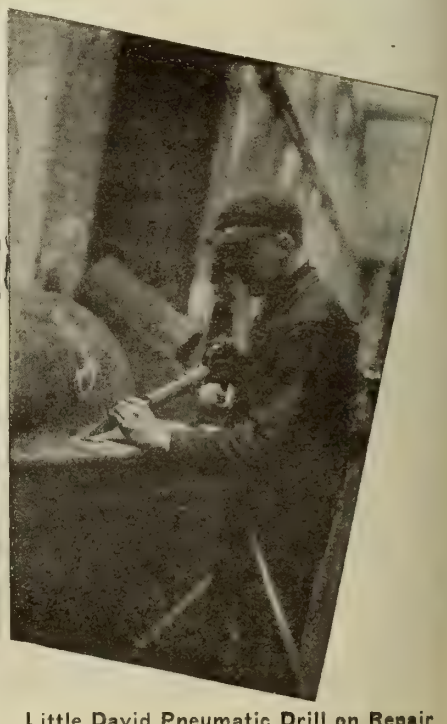
The portable grinder is sometimes fitted with a small circular saw in place of a grinding wheel thus adapt-



Little David Pneumatic Chipping Hammer at work on a casting.



A Crown Bench Type Sand Rammer in operation in a small foundry.



Little David Pneumatic Drill on Repair work.

ing it for use in cutting, flooring, joists, etc., in construction or repair work. Both grinders have a free speed of 3000 R.PM. with air at a pressure of 60 to 100 pounds per square inch.

Pneumatic Hammers.—While all pneumatic hammers are of the same general design, they vary in size and usually derive their name from the class of work which they are best adapted for; thus we find in the order of their size, Riveting Hammers, Rivet Busters, Chipping Hammers, Caulking Hammers, and Scaling Hammers.

All of these hammers can be applied to the work of riveting, chipping metal, caulking, scaling boiler or condenser tubes, removing paint or rust, and bursting rivets, with the applications of the properly shaped bits. It has been found by experience, however, that it is better to have a hammer of a certain weight, speed, and strength of blow, adapted to the class of work to be done.

Large rivets cannot be successfully driven by a small hammer light enough for chipping, caulking, or scaling work, and a large hammer would be out of place on light work.

Riveting Hammers.—Riveting hammers can be obtained in various sizes ranging in weight from 14 to 26 pounds with speeds of 960 to 1600 blows per minute and with capacities of up to 1¼ inch rivets, at 90 pounds pressure to the square inch.

The barrels and handles are drop forgings, and the valve is carried in a separate chamber parallel to the piston, thus eliminating the danger of the valve chamber being damaged by the piston.

Four styles of handles are optional on these hammers, the closed type with outside trigger control, the closed type with inside trigger control, and the open and inverted type handles. The throttle valve construction in all four handles is the same, consisting of a combination of the poppet and piston type which retains the best feature of each type, and makes the hammer very easy to control. This type of hammer is fitted with an exhaust deflector, and a safety device for retaining the rivet set, should the valve be accidentally opened when the hammer is not in contact with the rivet, is supplied when desired.

Chipping, Caulking and Scaling Hammers.—These are manufactured in several sizes, the largest being used for chipping, caulking, beading and heavy scaling, and having a valve mechanism similar to the riveting hammers. The smaller sizes are of the valveless type and are especially suitable for light chipping and scaling purposes, such as cutting oil grooves in babbit bearings, chipping small castings and scaling paint and rust from iron and steel.

One of the large railroads in the United States has had considerable success in using pneumatic chipping hammers for peeling the bark from ties. When this work was done by hand the most expert workman could turn out only from 50 to 100 peeled ties per day, while the output per man using pneumatic tools was found to be from 150 to 250 per day. While there is not much in the way of definite information available on the subject, this method might be applied to the barking of pulp wood logs with good results, as it would be possible to chip out hard knots which are not readily removed in other ways. A pneumatic grinder of the portable type fitted with a special cutter head might also be used for work of this nature and the results secured from the use of these devices would doubtless be well worth the trouble required to try them out. (Such a knot and rot cutter, driven by electric motor is in successful operation.—Editor.)

Mills carrying out extensive repairs or construction work, or making all, or part of their own castings, will find the pneumatic sand rammer a useful addition in their equipment. It is made in two sizes for bench and floor use, the former weighing 13 pounds and used for ramming small flasks such as are ordinarily handled on a bench, and the latter weighing about 22 pounds and intended for use on floor moulds and in general concrete and earth ramming. Various sized butts or peins are obtainable for different classes of work.

In the foundry sand rammers have cut the cost of hand ramming to a large degree and have been largely instrumental in increasing the quality of the castings. A cope measuring 12′ x 18″ x 4″ requires about five minutes to ram by hand, while a pneumatic rammer will do it in one minute, saving 80 per cent of the time.

To pein and ram a cope measuring 19′ x 90″ x 15″ required 3 hours by hand and with the application of the rammer this was cut to 1 hour and 30 minutes, a reduction of 81 per cent.

For ramming concrete and tamping earth around drain pipes, etc., the pneumatic rammer has demonstrated its value and economy. Lower labor cost, greater output per man and more uniform results as well as increased strength, are some of the advantages of this method.

(To be continued.)

EXPORTS OVER NINE MILLIONS A MONTH.

Canadian pulp and paper exports for the month of January reached a total value of $9,151,266, compared with $6,885,319 in January, 1919, a gain of $2,265,947. The details:

January.	1919.	1920.
Paper and Mfrs. of	$4,429,803	$5,519,718
Woodpulp, chemical	2,193,194	2,658,974
Do. mechanical	262,322	972,574
	$6,885,319	$9,151,266

The paper exports during the month included 1,152,508 cwt. of newsprint, valued at $4,471,799; paper boards, valued at $459,935; 32,761 cwts. of kraft wrapping, valued at $258,745, and roofing paper valued at $89,645.

Paper and woodpulp exports for the first ten months of the fiscal year reached a total value of $83,576,178, compared with $67,403,247 for the corresponding period in 1918, and $51,923,419 in 1919; a gain of $16,172,931 over 1919, and of $31,652,759 in 1918, as follows:

Ten mos. ending Jan.:	1918.	1919.	1920.
Paper & mnfrs. of	$30,295,563	$37,099,163	$49,717,824
Woodpulp chem.	15,963,707	26,268,144	26,509,626
Do. mechanical.	5,664,149	4,035,940	7,348,728
	$51,923,419	$67,403,247	$83,576,178

Exports of unmanufactured woodpulp amounted to 59,789 cords, valued at $615,101 in January 1920, compared with 97,915 cords, valued at $972,129 in January, 1919. Exports of pulpwood for the ten months period were as follows:

	Cords.	Value.
Ten mos. ending January 1918	907,131	$7,419,272
Ten mos. ending January 1919	1,303,370	12,567,357
Ten mos. ending January 1920	738,477	7,417,390

Chemicals Vital to Paper Industry

The editor was asked to contribute an article on the subject of Chemistry and the Paper Industry, to the Annual Chemical Number of the Journal of Commerce and Commercial Bulletin. The result was the following:

Like every other industry, the manufacture of pulp and paper could not proceed without the use of chemical products and in addition the employment of chemical processes. A brief summary of the situation may be of interest. Every pulp and paper mill uses chemicals, the former using few as compared with the latter.

Mills making ground wood or mechanical pulp use no chemicals in the manufacturing process. Sulphite pulp mills use more than an eighth of a ton of sulphur per ton of pulp and a little less lime or a little more limestone, the sulphur being burned and the gas bubbled through lime water or passed into a tower full of limestone over which water trickles. The result is the bisulphite of lime solution, or "acid," used for cooking the wood. A cement of litharge and glycerine is used in lining the digesters.

Soda pulp mills use large amounts of sodium carbonate (soda ash) and lime by the carload. This must be of high causticity and purity, while lime for the sulphite mill may have a high content of magnesia. In the sulphate pulp (kraft) mill the principal chemicals are lime and sodium sulphate (salt cake), which takes the place of the sodium carbonate of the soda mill. To some extent sodium bi-sulphate (nitre cake) has been used as a substitute for the salt cake. These sodium salts are recovered and the lime used in the soda mill may be recovered. The lime used in the sulphite mill is lost, while a portion of the sulphur finds its way back to the process.

Recovering Waste Products

The most interesting subjects for research in the pulp mill are connected with the recovery of waste products, though important improvements in manufacturing processes are constantly being made by the application of laboratory work to mill control and organization. The laboratory, of course, uses a great diversity of chemicals in small quantities. The chemical control of the process of cooking the pulp, etc., requires considerable amounts of pure acids, alkalies, iodine, sodium, thiosulphate (hypo), arsenic trioxide, etc., and the usual indicators.

The bulk chemicals used in the paper mill are more varied than in the pulp mill, and are required in smaller amounts per ton.

Paper is made resistant to penetration by water and ink by sizing. Rosin is the principal material used for this purpose, but it requires treatment with sodium carbonate to produce a workable emulsion and alum or aluminium sulphate to decompose the sodium resinate (rosin soap) which is mixed with the fibre, and so precipitate rosin or aluminium resinate on the fibres. The use of alum, which in the mill usually means aluminium sulphate, is also necessary for the precipitation of most dyestuffs, and their fixation on the fibre. Glue is used to produce a surface sizing and starch and sodium silicate are used to give finish, hardness and rattle to the paper.

The boiling of rags brings in sodium hydroxide, though most mills use lime and sodium carbonate. The bleaching of rags and wood pulp introduces several substances. If the mill makes its own bleach, common salt will be decomposed by an electric current and the chlorine gas which is formed passed into sodium hydroxide solution to form sodium hypochlorite or into lime water to form calcium hypochlorite, either of which is an excellent bleaching agent. Calcium hypochlorite is generally used. Most mills do not make it, but buy bleaching powder and dissolve this in water. Its action on the stock is sometimes hastened by adding a little acetic acid, sulphuric acid or alum.

Other Materials Employed

Clay (china clay, kaolin, aluminium silicate), which may perhaps be better described as a mineral than a chemical, makes up as much as 20 per cent or more of the raw material used in some papers to give body and finish. Other materials thus used are talc, agalite, chalk, and sometimes calcium sulphate. For making coated papers, the basis is usually clay, in sulphate (blanc fixe), or satin white aluminum oxide and calcium sulphate). Casein is the adhesive principally used, although glue, dextrine and gums also find use. Wax is sometimes added, but this substance is used in much larger quantities for making waxed papers. The manufacture of vegetable parchment requires sulphuric acid, while vulcanized fibre is made by the action on cellulose of zinc chloride and hydrochloric acid. Sodium silicate is used for making laminated products like wall boards and starch for pasting papers.

The war of course had its effect on paper makers. For a time they had to do without bleaching powder and many of the familiar colors. Users of paper adapted themselves to what the manufacturers could furnish and a number of emergency materials will doubtless remain. At any rate, the industry can now obtain from domestic sources practically everything in the chemical line required.

SOME SAFETY FIRST PRINCIPLES.

If you are a follower of "Safety First" principles, then here a few of the things you do—and some you don't:

1. You watch your step and keep your mind on just what you are doing.
2. You see to it that sufficient guards or protection are furnished for your machine or the tools with which you work. If they are not provided, then you raise a howl about it.
3. You do not confine your efforts to safeguards for your own protection—no, you have a heart and offer to help the other fellow fix up his safer.
4. You realize that life is too short at its longest and you can't afford to take any wild chances.
5. Sanitation also comes under "Safety First" work and you keep a watchful eye in search of some bad practices which might serve as a means to spread disease.

PROPOSE FREE TAX ON 8-CENT PAPER

Washington, March 31.—Print paper costing not more than 8 cents a pound would be admitted tax free under a bill, amending the Revenue Act, passed unanimously by the House yesterday, and sent to the Senate The present law fixed five cents as the limit, but members said none at that price was obtainable for import.

Representative Kitchen, Democrat, North Carolina, said the bill was an emergency measure, needed to save hundreds of small papers from ruin.

The Making of Rag Papers

By G. H. LAFONTAINE, Montreal.

(Concluded from Last Issue.)

2—Conversion of Half-Stuff into the Finished Product

Paper is usually described as a fabric of minute vegetable fibres which have been deposited in a sieve-like structure from their suspension in water and commingled and felted together in such a manner as to form a homogeneous sheet or web. Therefore the object of the second stage in the manufacture of paper will be to defibre completely the materials, felt the fibres obtained therefrom, remove the water from the sheet formed and finally give the paper the required finish and make it ready for shipping.

A—Defibring.

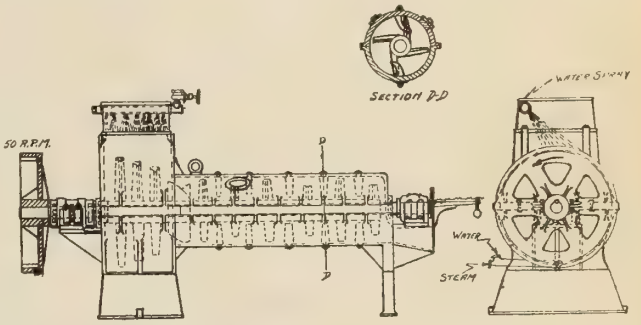
Under this head are included the beating and the breaking of the pulp and its dilution. It is in the first of these operations that the furnish of the paper is compounded. The beating process takes place in a trough similar to the washing engine, but in which the drum washer is omitted. The beater is first loaded up with water, while the knife drum is set to rotate; then the rags, wood pulp and paper waste, in the form of half-stuff, are fed in, the proportion of stock to water being about 1 to 20. The filler, the sizing, the mordant and the coloring matter are also added in turn in the beater. Clays of different grades are used as filler; clay gives its opacity to paper and increases its weight; it should be of such a chemical nature that it is not decomposed by the traces of free acids or chlorine compounds that may be found in the stock; it should not contain sand or other coarse particles that would affect the uniformity of the sheet and thus impair its value. The quantity of filler employed varies from 0 to 500 lbs., the various grades of clay being used alone or mixed in different proportions.

The object of sizing is to make paper tougher and harder, to give it its ringing properties and to render it more or less ink and waterproof; rosin, starch or animal glue are used for this purpose, either alone or together, in varying quantities, according to the specified characteristics of the sheet. Then, to precipitate the sizing substance in a finely divided state that will adhere to the individual fibres, a proportional quantity of mordant is added, usually a weak solution of alum; the weight of rosin goes from 1 to 4 per cent of the weight of the half-stuff and alum from 2 to 7 per cent.

When the beating process is nearly through, the coloring reagents are poured in; these are mostly coal-tar dyes. Such dyes are chosen as will exhaust completely or very nearly with an excess of alum. When an acid dye has to be added to a basic one, it is usual to pour in one dye and then, after it is thoroughly distributed, to add to the dye of the other class; this prevents the formation of insoluble compounds that would be precipitated by the direct addition of one dye to the other. The colors should be bright enough to blend with the shades of paper for which it is intended. When white paper is made, three primary colors are used: red, blue and yellow which, mixed in the proper proportions, give white; for example, the yellowish shade of all bleached stock is corrected by the addition of the two other colors.

The treatment of the materials in the beating engine lasts from 3 to 10 hours, depending on the quantity of rags employed and consequently on the grade of paper made. The beating process is the more important after the boiling operation, as upon it depends mostly the quality of the sheet. For it is in the beater that the cellulose of the fibres will acquire its power of hydration which is the essential co-efficient in the quality of a paper. The amount and kind of hydration cellulose will undergo will be affected by such factors as the manner of driving the roll, the density of the stock during the beating, the amount and effect of cutting of the fibres under the roll. Viscosity which is an apparent change, is only an outside indication of the various physico-chemical changes that the fibres undergo during their treatment in the beating engine and which lead to their hydration.

When the beating is completed, the stock valve is opened and the pulp flows down to a large circular vertical tank, called Jordan stock chest. The pulp is diluted with water in this chest and the heavy particles are prevented from falling to the bottom by agitators revolving inside; usually there are two such agitators per chest consisting of four horizontal paddles attached to a central shaft. The stock is then



"R. LAMMOYE PULPER

pumped by means of a suction pump to a machine that will complete the defibring and break the knots and coarse particles. This machine, technically known as the Jordan Cone Breaker, consists of a cone-shaped horizontal cylinder inside which knives are fitted parallel to its axis; a cone shaped drum provided with a set of similar knives revolves inside the cylinder. Both the cylinder and the drum are divided lengthwise into three sections in which the blades are differently arranged; in the first one at the small end of the cylinder, there is only one blade set between two wooden fillers; in the next one, there are two knives set side by side and, in the third section at the large end of the cone, three blades are fixed together between two fillers. This disposition of the knives affords a means of grading the breaking of the fibres, the stock entering at the small end and being discharged at the large one.

A second stock chest, the paper machine chest, receives the pulp as it comes out of the breaker. There again the stock is diluted. Then it is pumped to a large box of the same width as the paper-making machine at the head of which it is placed; this wooden box or head-box is designed for regulating the flow of the pulp on the screens and hence on the wire. As soon as the stock leaves the head-box, it is diluted to

the tune of 1 lb. of stuff to 150 lbs. of water. Before going on the paper-making machine, the pulp should be screened to eliminate the knots and other large lumps that would affect the uniformity of the sheet. Screens are therefore provided; they are placed under the head-box and consist of two long boxes disposed lengthwise along the flow of the stock; the bottoms of these are made of metal plates with small transversal slits, called screen plates; the screens are given an up and down or bumping shake. The diluted stuff gets through the slits while the lumps are retained in the boxes.

From the screens the pulp gets into the flow-box which is so designed as to furnish a constant quantity of stock to the paper-making machine; it is of the same width as the machine which it immediately precedes, it is divided by movable partitions into three sections. The pulp enters the bottom of the first section, flows over the partition into the second and then passes into the third section under the next partition; this arrangement prevents the heavier stuff from settling down at the bottom of the box, while the water and light particles in suspension would flow along on the wire of the machine.

B—Felting the Fibres.

The stock runs from the flow-box to the moving wire by means of an apron of thin rubber, which extends on the whole width of the box, one end being fixed to it, the other resting on the wire. The wire is an endless brass wire cloth with a mesh of 70 wires per inch; its width varies with that of the sheet made and its length depends on the thickness of the paper manufactured; it runs between the breast roll and the couch rolls, passing over the lower one and being supported on its way by a series of tubular rolls or table rolls; on coming back from the couch rolls to the breast roll, the wire goes under the machine, where it is guided and kept tight by several small rolls.

As soon as the pulp gets on the wire, it runs under the slice which is a brass bar adjustable in length and standing on its edge; it is also adjustable in height so that the thickness of stock flowing under may be varied. By regulating the flow from the flow-box so that the pulp rises above the lower edge of the slice, a pool is created that, with the shake of the machine, helps the felting of the fibres; this damming of the stock also causes an hydraulic head that increases the speed of flow of the pulp on the wire.

To prevent the stuff from running out at the edges of the wires heavy endless rubber bands of square cross-section are placed on each side of it; they are called deckle straps and are carried on wheels above the wire so that their bottom face rests on it and travels with it; they are adjustable so that the width of the sheet may be varied.

The felting and commingling of the fibres is done by shaking the wire sidewise, as otherwise the fibres would flow down with their axis pointing in the direction of the flow; this would give a sheet with no tearing strength across the width. The effect of the shake is to distribute some fibres at right angle to the others and form a web with a sieve-like structure; this sidewise motion is obtained by means of an eccentric connected to the frame on which the wire rests; there are about 175 shakes a minute.

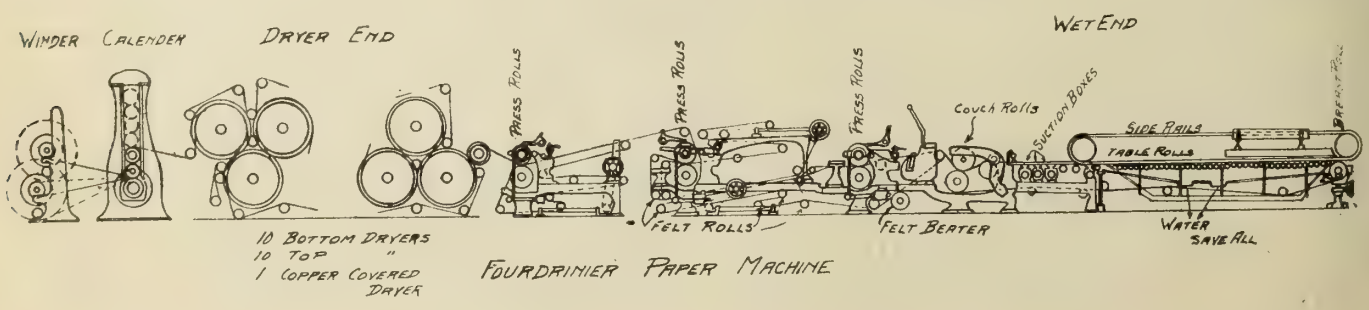
C—Removing the Water.

The removing of the water is done at both the wet and the dry ends of the paper-making machine. For as soon as the stock strikes the wire, the water begins to drain away; the drainage is increased by the capillary action of the table rolls on which the wire passes. More water is taken out from the sheet as it flows over the suction boxes; these are placed at the farther end of the wire just before the couch rolls; there are two or three of them on each machine. The tops of these boxes on which the wire rests are made of wood planks or copper plates, perforated with holes of about the diameter of a five-cent piece through which the water is sucked in. A considerable amount of fibres is carried away in the drainage; this should not be wasted; it is therefore caught with the draining water in large boxes, known as the "save-all," placed under the wire. This saved water is then used in diluting the pulp in the stock chests.

To give the upper face of the sheet the same appearance as the lower face which rests on the wire, a dandy roll is set between the suction boxes; this consists of a skeleton cylinder covered with a wire cloth and revolves on the surface of the wet sheet. It is on the dandy roll that the patterns for the water-marks are attached; being raised over the face of the cylinder, they exert a greater pressure on the web causing the pulp to be thinner at these points and thus leaving impressions, called water-marks.

At the end of the wire the pulp passes between two couch-rolls that squeeze out some of the water and press the fibres into a more compact sheet. The upper couch roll is made of a wood or iron cylinder covered with a felt. The couch rolls are sometimes replaced by a suction roll which is efficient on white paper, but gives a colored sheet with faces differently tinted.

Here the pulp leaves the wire which returns to the breast roll in the way described above, passing over the lower couch roll, while the sheet is taken up by an endless felt which carries it to the press rolls. These consist of heavy stone or iron rolls which in pressing the sheet remove a little water and make the web more compact; usually the paper machine is provided with two or more such presses to which an endless felt carries the sheet; passing the paper from one press to the other gives both side the same finish. When the sheet leaves the press rolls, it still contains 60 to 70 per cent of water which cannot be removed by draining or pressing; heat is therefore applied to dry up the paper. This treatment takes place in that part of the machine known as the dry end; the



dryers are large hollow cylinders from 3½ to 5 feet in diameter; they are heated internally by the exhaust steam from the engine driving the machine; syphon pipes carry away the condensed steam. The number of dryers depends on the thickness of the paper and the speed at which the machine is run. An endless felt guides the sheet over the cylinders, the paper lying between their hot surfaces and the felt; the evaporated water gets into the air and is fanned out through a hood over the dryers.

D—Finishing the Paper.

Once out of the dryers, the sheet contains practically no water, but it still has to be finished. According to the treatment it is then submitted to, it is said to be machine finished, super-calendered, water finished and sized. In the case of machine finished paper, the sheet coming out of the dryers is simply passed through the calender stacks, each of them comprising a number of highly polished chilled iron rolls, lying one over the other; the pressure between each roll is commanded by a system of levers and weights. The sheet is threaded from one cylinder to the other so that both sides are submitted to the rubbing effect, that together with the pressure applied, produces the required finish. Then the paper is wound in a roll on the winder stand, comprising two drums, one winding up the paper from the machine, while the other serves as a reeling-off drum furnishing the paper to the roll slitter. This slitter cuts the sheet lengthwise, thus making two or more small rolls out of the large one; these new rolls are wound up by means of a Moore and White 4-drum winder.

When a higher finish is required, the paper rolls are brought to the super-calender stacks; these work on the same principle as the machine calender and consist of alternate iron rolls and rolls of compressed paper or cotton. Steam is sometimes employed to moisten the sheet before it goes through the super-calenders; for this purpose a perforated steam pipe is placed near the top roll where the paper enters the stack; this moistening increases the degree of finish and the paper is said to be water finished.

For high-grade writing paper, the sheet is passed into a size tub and then air-dried after its coming out of the machine; such paper is not calendered at the machine, but after its sizing. The size bath into which the sheet is drawn is a weak solution of gelatine or animal glue at a temperature of about 115 degrees Fahrenheit. The paper is then passed in the air-dryer which comprises two long rows of 8-inch diameter rolls; the two rows run along at a distance of 3 feet from one another. A series of hot-air boxes heated by exhaust steam from the engines is placed over the top row and below the bottom row to give the heat required. At the end of the air-dry machine, the paper is calendered, slitted and rewinded in a similar way to that described above. Certain papers which have been through the sizing process are also super-calendered in order to obtain a still higher finish.

The few remaining operations will just make the paper fit for sale purposes. The first of these is the cutting into sheets a little larger than the specified size; this is done by the sheet-cutting machine which consists mainly of a rotating drum provided with a knife that comes in contact with a fixed knife at every revolution. A mechanical device for controlling the speed of the revolving drum affords a means of cutting sheets of different lengths. A compound machine, called the slitting-cutting machine, cuts the paper in both length and width; a lay-boy or mechanical appliance to catch and place the sheets as they come out is attached to these machines, thus saving female labor, this work usually being done by women and girls.

The sheets are then carried to the assorting tables where each sheet is examined for possible defects in it; the paper is classified into perfect, retree, and broken according to its condition; the perfect is supervised by the inspectors. After the sheets have been counted into reams, they are brought to the trimming machine where they are cut into their specified size. The paper is now ready for packing; it is either packed in boxes or frames or simply wrapped in bundles of one to four reams depending on the weight of the sheet. When packed in boxes and frames, the paper has to be wrapped up ream by ream by men called, from their work, the sealers. Paper is shipped in frames only when small quantities of one to three reams are required. When packed, the paper is brought to the stock room from which it is shipped to the buyer.

On the market, paper is known by its quality and by its base for different sizes; it is said to be a ledger, a bond, a book paper, etc., with a 16, 20, 24, 28 base—that is—the paper weighs 16, 20, 24, 28 lbs. per ream. As to the sizes there are no standards adopted yet and they vary with the whim of the customers. The size of a paper is expressed usually in terms of its length by its width. There is, however, a tendency to standardise the sizes like the quality and the base. This would simplify greatly the work in the mill.

According to a paper mill manager the best method to produce a good sheet of paper is summed up in the following formula:

"Take a small amount of fibres, add to it a large amount of power, an enormous amount of water, some machinery and a pinch of chemicals; mix all these ingredients with some brains and you have a good grade of paper—the more brains the better the paper."

FIRE IN LAURENTIDE PAPER MILL

Fire broke out in a wooden partition at the west end of the cutter room about one a.m., March 20th, and the ensuing blaze and water caused considerable damage to the construction work and to paper stored in the cutter room. The paper mill fire hose was turned on the blaze and this served to increase the smoke. When the Laurentide Fire Brigade arrived on the scene the members were heavily handicapped by this feature. But Jim Kirly, Cliffy Naylor and others equipped with gas masks, took one of the four-inch lines into the cutter room in the smoke and tackled the blaze.

The fire started in the corner of the cutter room away from the tower and about six feet below the roof. The partition for the width of the cutter room and about six feet high was practically destroyed. After the blaze, which the smoke made difficult to locate exactly, was located, it took only a few minutes to check it and put it out. The other lines from the outside aided in this work.

The water which was poured into the end of the room spread over the floor and damaged many of the rolls of paper ready for the cutter. Rolls which were on the paper tables or platforms in the machine rooms were also damaged by water leaking down on them.

Price Bros. Win In Supreme Court

Ottawa, April 6.—The appeal of Price Bros. and Company, Quebec, against an order of the Board of Commerce controlling price and disposition of newsprint paper manufactured by that firm, is allowed by the Supreme Court with costs.

The judgment is based on the decision of the judges that newsprint paper is not a necessity of life within the meaning of the Combines and Fair Prices Act.

The Supreme Court decides that orders in council under the War Measures Act are reviewable by the court when their validity is called in question.

The object of the order of the Board of Commerce of February 6th last was to compel Price Brothers to ship about fifteen per cent of its newsprint output to Canadian consumers instead of to the United States, where a higher price could be obtained. It was represented that the firm had been selling all its newsprint in the United States for sometime. Price Bros. ignored the board's order for some weeks but began shipping newsprint to Montreal firms, the Canadian price of $80 being paid directly to the company and the difference between this price and the United States price, $90 per ton and up, being deposited in a trust fund pending the decision of the Supreme Court.

The order of the Board of Commerce was based on the ruling that newsprint was a necessary of life, and as such was subject to the arbitrary control of the board. The court finds lacking any indication that the order-in-council under which the board claimed its right to rule that newsprint is a necessity of life was not preceded or accompanied by a decision of the governor-in-council that any present emergency justified the placing of newsprint in that category.

The order of the board instructed that by virtue of the powers vested in it any price exacted by a Canadian firm higher than $80 per ton, would be deemed to include an unfair profit on newsprint, and also forbade the accumulation or withholding from sale of that commodity in Canada. It then went on to specify quantities and dates for the shipment of newsprint by Price Brothers to certain firms in Montreal. The Supreme Court finds that the board's authority in so ordering "cannot be sustained as emanating from any authority by the War Measures Act, 1914."

Control is Ineffective.

The full effect of the decision in the Price Brothers case on the newsprint control as exercised by the Board of Commerce cannot be learned at present, but it is generally felt that the decision of the judges that the Board of Commerce lacks the power to regulate price and shipment of the products of Price Brothers' mills will tend to make the newsprint control ineffective. W. F. O'Connor, K.C., acting chairman of the board, today declined to discuss the matter.

The power vested in the Board of Commerce by the Combines and Fair Price Act to declare a necessity of life such commodities as they may deem advisable, is not held by the Supreme Court to extend to such articles as newsprint. It is not necessary to the physical life of the individual, the court rules, and the decision of the bench reflects its attitude during the hearing of the argument several weeks ago. Justices Duff and Brodeur then took the stand that under such an interpretation as the Board of Commerce had placed on the necessaries of life clause in the act, the board might as well declare motor cars, silk gowns and wigs necessaries of life.

The effect of the judgment will be that Price Bros. will be able to charge the current United States price for its newsprint supplies to Canadian firms, not only on future shipments, but also on those which it has made under the order.

Mr. Millen's Opinion.

"It is too early to tell what will happen, but prices will certainly go up. As I understand it, the control has been lifted, and there will be nothing to hinder us in making shipments to the United States," stated Mr. George H. Millen, president of the E. B. Eddy Company, this afternoon.

Mr. Millen further stated that with new demands being asked for by labor and the increasing cost of materials, with the price control removed, he thought the natural result would be to advance the price of paper.

The price of newsprint paper in rolls as set by the Board of Commerce early in the year, was $80 to Canadian newspapers. The price of sheet news was fixed at $92. The general prevailing contract price in the United States is over one hundred dollars per ton.

There is a great scarcity of newsprint in the United States, and many publishers are scrambling to get what is known as "spot" deliveries of paper, but the supply apparently cannot keep up with the demand.

"Why only this morning we received an offer of eleven and a half cents per pound for roll news on spot delivery, from an American newspaper," said Mr. Millen.

ENTER, PROVINCIAL PULP AND PAPER MILLS, LIMITED

Toronto, April 5.—A reorganization of the Provincial Pulp and Paper Mills Company is announced and a new company, Provincial Pulp and Paper Mills, Ltd., has automatically taken over the old one. The plan was place before shareholders at the special meeting called Saturday and at which 80 per cent of the voting stock was represented.

Through the reorganization, holders of common stock of the old company are given a bonus of fifty per cent of their holdings in the new company, or three of the new shares for each two shares of the old company held by them. The forecast is now made that the company will shortly enter the market for additional capital through the sale of stock but this matter has not yet been definitely decided.

Reorganization of the company involves the taking over of the Port Arthur Pulp and Paper Company, the Provincial organization holding a large proportion of this company's stock, so that shareholders will now receive directly what they have in the past received indirectly in dividends from the subsidiary company.

The preferred shares of the Provincial Paper Mills Co., will be transferred on the basis of share for share in the new organization. Provision is also made for an issue of 1,500 fully paid shares in Provincial Paper Mills, Limited, to Isaac H. Weldon, president, and a like number to S. F. Duncan, secretary, as trustees.

The last annual report stated that the common stock outstanding amounted to $2,481,300, and the preferred at $1,700,000. The company has paper mills at Thorold, Georgetown and Mille Roches.

The new company replaces the old one, the same officers and directors being named provisionally.

British Trade News

(*From Our London Correspondent.*)

London, March 20.—Mr. Albert E. Reed, President of Albert E. Reed & Co., Ltd., and of the Dominion Pulp Co., Ltd., who died recently at the age of 73 years has left an estate of the gross value of £399,319 12s 5d, with net personalty £387,567 18s 5d. The duties on the property due to the Government at this valuation will amount to nearly £100,000. I mentioned in my announcement of Mr. Reed's death that he was associated with Albert E. Reed & Co. (Newfoundand) Ltd. He was also a director of the London Paper Mills Co., Ltd., and his keen fondness for religious work is reflected in the large number of legacies he has devoted to missionary and church funds in his will. Neither has he overlooked some of his old faithful workers. To Frank Fergusson Edwards he has given £500 for his services.

Paper Makers' Association.

The British Paper Makers' Association Executive held their first meeting this week for the purpose of forming committees. These consist of the Export Committee, Shipping and Railway Transport Committee, Finance and Management Committee, and the Emergency Committee. Each body has its own sphere of work and report as time goes on concerning any new matter arising of interest to mill owners. The committees are really the listening posts of the trade.

Newsprint Situation.

This week eleven more newspapers have increased their prices owing to the extra cost of newsprint. Indeed, the present position of newsprint is now causing considerable discussion in all newspaper offices in London and the Provinces, and much regret is being expressed that the scarcity should be felt now when there is a great boom all over the country in advertising. However, the scarcity is not so great as what is being experienced in France, Canada and America, and, therefore, there is not much to complain about. All the same, newspapers are to cut out advertisements to meet the newsprint shortage, this being found more advantageous. One of the directors of the "Illustrated London News," which usually prints on a good printing and coated paper suitable for illustrations, says that their paper bill is up 220 per cent in price. The important daily and weekly newspapers shows no change in their size, but of course they are paying the extra cost of newsprint without much grumbling and are settling down once again. The "Sunday Pictorial," one of the leading Sunday illustrated papers, will shortly issue 500,000 eight per cent cumulative preference shares of £1 each at 20s. 6d., so as to raise funds for acquiring interest in pulp and mills. The object is to ensure cheap supplies and a good supply of newsprint in the future.

Paper Mills as Investments.

There is a wave of prosperity at present passing over the British paper mills, just the same as there is in the textile industry, and financiers are beginning to give their attention to paper mill securities. Since the war ended with Germany most of the British mills have gone in for improvements in machinery for increasing the output and small syndicates have sprung into existence. Efforts are now being made to increase paper supplies; because the present demand is fully 100 per cent below the supply, and consequently capital is being set aside—or being offered—to improve mill capacity. The shareholders of the Hartlepools Pulp and Paper Co., Ltd., have received an offer of £14 10s for their £5 shares. An offer like this shows the confidence that is placed in paper manufacture in England today. The mill has three machines, 74 in., 86 in., and 96 in. Other mills are for sale, or changing hands, and it is quite evident small syndicates are at work effecting deals up and down the country as they see sound investments in the mills, the shares of which are very healthy today in the market.

Row in the Camp.

There is a bitter discussion going on at present between the dealers, the merchants, the wholesale gentlemen and the manufacturers of papers and agents. The big merchants and papermakers are accused of trying to squeeze out the small man, because they have been keeping prices down and the battle is now raging among them. I have been expecting it for a long time to come, because one section has been underselling another. The question now arises: Who are the merchants and who are the dealers? The small man, who sold his paper from the railway store, has now this privilege withdrawn from him and the big merchant with plenty of warehouse floor space has the advantage over the small individual, because his storage enables him to try and sell to his own liking.



ALBERT E. REED.

Naturally, the man with plenty of floor space is more valuable to the man, as a merchant, and now the dealers contend that they are merchants. The problem is at present being solved by the paper manufacturers.

The French Crisis.

There has been considerable trouble during the past week over the supply of paper and the cost of newspapers in France. The Office Nationale de la Presse, a body which undertook the supply of paper at fixed rates, assured by the Government, is dissolved and every newspaper from now on will have to depend on its own resources. The result is that the cost of newspapers are up this week and with the present unsatisfactory state of the French newsprint market the outlook is not very rosy. Of course, paper manufacturers will gain, I believe, by the change. The Government hampered them before with their distribution scheme and kept prices down.

The Pulp Market.

This month we have received renewed supplies of chemical pulps from Canada. They are mostly small

lots of bleached and unbleached chemical (dry), but no groundwood has made its appearance yet. Germany is also sending small parcels and in the present state of the market every little lot helps.

Good quality bleached sulphite is still selling at £60 a ton and newsprint sulphite at £47 a ton. Easy bleaching is £57 to £58 a ton and groundwood, when it can be obtained, is going at £19 a ton.

Prices of all pulps show a hardening tendency, and they are beginning to impede the purchasing propensities of the consumers. Sellers want full market prices now and the buyers are in a quandary—they want the pulp badly, but they don't like the price. On the other hand, pulp is not entering the market in large quantities and dealings with the Scandinavians are not two days alike owing to the changing conditions and variation in prices.

Notelets.

Sulphur rolls are selling at £28 a ton and English flowers at £32, while rock is £25 a ton.

Size is becoming scarce and quotations are on a higher level.

Papermakers who cannot obtain supplies of esparto are now falling back on other raw materials.

The hand-made paper industry in England is in a very flourishing condition. Orders are plentiful and makers keep "jogging" along in their own quiet and inoffensive way—turning out and taking in plenty of pounds.

In February, Canada shipped 1,100 tons of millboard to the United Kingdom, and 100 tons of cardboard and pasteboard.

Kraft papers are being advanced another $52 a ton.

Now that British mills have advanced paper prices, employees are looking for higher wages. Conferences are already going on debating the subject.

TWO MORE MACHINES FOR WAYAGAMACK.

One company in Canada that is showing tangible evidence of faith in the desire for England to buy paper in Canada, the Wayagamack Pulp & Paper Co. of Three Rivers, Que., have just placed an order with Messrs. Bentley & Jackson, of Bury, England, for two additional machines. This makes six now on order. With the machines already in operation, Wayagamack will probably be the largest producer in the world of kraft wrapping paper. Their specialty is M.G. papers.

SANDE SAILED FOR GERMANY

It is stated that Detective Agencies and members of the Federal Police have succeeded in finding clues to the whereabouts of A Sande, who some time ago asked for tenders for the building of a mill at New Richmond, and after notifying each one of the tenders that his bid was accepted, suddenly disappeared. Although no official statement has been issued the alleged swindler is known to have left for Germany, having invested his money in marks through a Canadian broker.

It is stated that Sande has written to a friend of his in Toronto that the money had been useful to him, and that he was happy in the "Fatherland."

Mr. G. R. Hall-Caine, of London, left Montreal Tuesday for New York, but will return to Canada after a short stay in the States.

BITS OF NEWS FROM B.C.

Powell River Co. Building New Homes.

The Powell River Co., Ltd., of Vancouver and Powell River, British Columbia, have been for some years past and are now supplying British Columbia and Alberta papers with newsprint. Directly and indirectly this will cover between 25 and 40 publications. At the present time they are exerting every power to meet the demands for pulp and newsprint.

Following in line with their original policy, this company have now under construction thirty new homes for their employes. The company at the beginning eliminated the old-time shack and bunkhouse. The new houses being constructed will have electric light and water and will be connected with the sewer. Since the war many men have returned and they, with others of the younger men, have married, and these are real homes in every sense of the word. Although good earth has to be brought in to make gardens, this is done, and as a result every house has its garden. When the company cleared a tract of eighty acres for a townsite it looked like a big undertaking, but the results have well repair the labor and money spent. Today this ideal town has recreation facilities unexcelled by many large communities. There is a baseball and football field, new asphalt tennis courts, and now a bowling green is just being finished that is expected will be very popular. Powell Lake is an ideal place for motor-boating and camping. Nature also provides her own recreation, such as salmon fishing right at the doors. Salmon are caught by electric light at night in sufficient quantities to enable the housewives to preserve a supply for future needs.

Trout fishing and deer and goat hunting, when in season, may be had a short distance from town. With such sports to turn to when time permits, there cannot be anything but a cheerful, happy community.

Beaver Cove Lumber & Pulp Company.

At Beaver Cove, B.C., the plant is gradually shaping up into a real pulp producing plant. Working under handicaps of strikes and delayed arrivals of machinery at the beginning, this company is gradually getting things into shape to do big things.

Whalen's "Snowhite" Pulp Very Popular.

When the Japanese steamer "Mandasan Maru" sailed from the Port Alice plant of the Whalen Pulp and Paper Mills, Ltd., it carried the first direct shipment of pulp to the Orient ever sent from a pulp plant in British Columbia. The shipment consisted of 1,500 tons of the Whalen Company's new product, "Snowhite" pulp, which is bleached sulphite. This new product has become very popular during the past few months, both in the United States and Japan.

The new construction being carried on by this company is making very satisfactory progress, and it is expected will be completed by the first of June. When this is finished the increased capacity will bring the output of all the plants of the company up to approximately 72,000 tons yearly.

Australian Buyers in Canada.

To secure information at first hand, several Australian buyers have arrived in Vancouver to secure information regarding pulp and paper conditions. The demand is still steady for newsprint and pulp, and supplies are hard to get. For this reason the buyers are getting right in the ground to see for themselves the reason why.

Fine Program for T.A.P.P.I. Meeting

Details of the program arranged for the fifth annual meeting and banquet of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria and Hotel Astor, New York, on Tuesday, Wednesday and Thursday, April 13, 14 and 15, 1920, have been mailed to members.

All general and special meetings of the association will be held at the Waldorf-Astoria, Fifth Avenue and Thirty-Fourth Street, New York. The annual banquet will take place on Wednesday evening, April 14, at the Hotel Astor, Broadway and Forty-fifth Street.

The entire day of Tuesday, April 13, will be devoted to meetings of the Executive Committee, standing committees and special committees. Provision has been made to call committees together in the Myrtle Room and Room 151, on Tuesday morning at 9.30 o'clock. The Executive Committee will assemble at the rooms of the News Print Service Bureau, 18 East Forty-first Street, New York, at 9.30 a.m. on Tuesday. The Vocational Education Committee will hold their sessions at the Chemists' Club, 52 East Forty-first Street. Other rooms at the disposal of the officers and chairmen of committees for Tuesday afternoon are Rooms 106, 107 and 109 in the Waldorf-Astoria.

The detailed program thus far arranged for follows:—

ORDER OF MEETINGS.

Tuesday, April 13, 1920.

9.30 a.m.—Meetings of Standing Committees in Myrtle Room and Room 151, Waldorf-Astoria.

FIRST GENERAL SESSION.

Wednesday, April 14, 1920 (*Myrtle Room*).

9.30 a.m.—Call of meeting to order.
Address of welcome.
Response.
President's address.
Appointment of committee to consider recommendations contained in the President's address.
Offering of amendments to the Constitution.
Report of the Executive Committee.
Report of the Secretary-Treasurer.
Appointment of committee to audit books of the Secretary-Treasurer.
Appointment of committee to nominate officers to serve for the ensuing year.
Recess for action on amendments to the Constitution.

Reports of Committees.

An endeavor will be made to receive reports of standing committees during the forenoon and afternoon sittings on Wednesday, April 14. Chairman of committees will report in the following order:

Abstracts of Literature—Ross Campbell, Chairman.
Bibliography—Henry E. Surface, Chairman.
Groundwood—William A. Kelly, Chairman.
Heat, Light and Power—Edward P. Gleason, Chairman.
Paper Testing—Frederick C. Clark, Chairman.
Pulp and Paper Machinery — George R. Wyman, Chairman.
Soda Pulp—Martin L. Griffin, Chairman.
Standard Methods of Testing Materials—E. C. Tucker, Chairman.
Sulphate Pulp—Olai Bache-Wiig, Chairman.
Sulphite Pulp—Herbert G. Spear, Chairman.
Vocational Education — George E. Williamson, Chairman.

SECOND GENERAL SESSION.

Wednesday Afternoon—Myrtle Room.

2.00 p.m.—Reading and discussion of special papers:
Some Further Mill Trials on the Pulping of Second Cut Cotton Linters. By Otto Kress and Sidney D. Wells.
Testing Tearing Strength of Paper With the Elmendorf Tearing Tester. By Armin Elmendorf.
Fuel From Sulphite Waste Liquor. By George Barsky and Ralph H. McKee.
Grinding Woodpulp Efficiently. By A. F. Meyer.
Advantages of Liquid Sulphur Dioxide for Sulphite Pulp Manufacture. By Vance P. Edwardes.

Room 151.

3.30 p.m.—Symposium on Rag Selection and Cooking. E. C. Tucker Chairman:
1—Selection of rags and their standardization.
2—Cooking of rags:
(a) Reasons for cooking and objects accomplished.
(b) The cooking liquor.
(c) The rotary boiler and drive, with special reference to any recent improvement, power consumption, etc.
(d) The factors of time and pressure and how cooking is influenced by them.
(e) The washing of rags in the boiler and their handling from boiler to washer.

THE ANNUAL BANQUET.

Wednesday Evening, April 14, 1920.

Annual Banquet at Hotel Astor, Broadway and Forty-fifth Street, New York, in the East Ball Room. Reception at 7.00 p.m. Dinner at 7.30 p.m. Toastmaster: Judge Charles F. Moore.

Guests of Honor.

Hon. Joseph W. Fordney, Chairman of the Ways and Means Committee, House of Representatives, Washington, D.C.
Henry W. Stokes, President of the York Haven Paper Company, York Haven, Pa.
Prof. Charles Baskerville, College of the City of New York, New York, N.Y.
Howard S. Neiman, New York, N.Y.
George Carruthers, President of the Interlake Tissue Mills, Ltd., Toronto, Canada.
John E. Alexander, Nekoosa-Edwards Paper Company, Port Edwards, Wis.
John Stadler, Belgo-Canadian Pulp and Paper Company, Ltd., Shawinigan Falls, Canada.
Evan Davies, New York, N.Y.

THIRD GENERAL SESSION.

Thursday, April 15, 1920 (*Myrtle Room*).

9.30 a.m.—A short session will be held prior to recessing for attendance on the General Meeting of the American Paper and Pulp Association in the Astor Gallery.
Nomination and election of officers.

FOURTH GENERAL SESSION.

Thursday, April 15, 1920 (*Myrtle Room*).

2.00 p.m.—Reading and discussion of scientific papers:
Possibilities of Developing a More Efficient Method of Extracting the Soda Salts from Black Ash. By George M. Trostel.

Improved Equipment for the Sulphite Mills. By E. R. Barker.—This paper will describe a new type of limestone tower acid system; a new apparatus for automatic melted sulphur feed; an automatic alarm to show sublimed sulphur; a device for regulating the strength of acid in Jenssen towers, and a system for controlling automatically the strength of acid from milk of lime systems.

Methods of Cooking Control. By W. E. Byron Baker.

Limestone Analysis and Evaluation for Bisulphite Liquor Manufacture. By W. E. Byron Baker.

Sectional Individual Motor Drive for Paper Machines. By Stephen A. Staege.

The Application of Pragmatic Philosophy to the Paper Making Industry. By John W. Brassington.

Some New Methods of Waste Sulphite Liquor Recovery. By Walter H. Dickerson.

Room 151.

2.00 p.m.—Symposium on the extent to which the Jordan can replace the beating engine in the production of paper. The discussion will be led by W. L. Nixon, of the Chemical Paper Manufacturing Company, and Max Zimmerman, of the Charles Boldt Paper Mills, will contribute a special paper on the subject.

A symposium is planned for the discussion of black liquor recovery with special regard to the most durable method of lining the smelters used in the sulphate recovery process. The discussion will be led by G. F. Enderlein, of the Brompton Pulp and Paper Company, Ltd., East Angus, P.Q., and R. M. Radsch, of the Thilmany Pulp and Paper Company, Kaukauna, Wis.

If time permits an open forum will be held on the history of attempts which have been made to reduce waste stalks and fibres by the soda process, as a substitute for rags and wood in the paper industry.

BUILDING OF SAGUENAY TEMPORARILY SUSPENDED

It is reported from Quebec that the plans made by Price Brothers and Company, Limited for the construction of mills and a model town on the Saguenay River, four miles from Chicoutimi, have been temporarily suspended.

The estimated cost of the project is twenty-million dollars, but it is asserted that as the machinery for the mill which has been ordered in England, cannot be delivered before next year, the work on the construction of the town of Saguenay will be delayed until that time.

LUMBERJACKS JOIN O. B. U.

Pembroke, Ont., April 3.—Activities of the One Big Union among the lumber jacks in this district this winter culminated in a mass meeting Thursday evening, when Joe. Knight, organizer and Calgary Socialist, in addressing 500 woodsmen, outlined O. B. U. principles and stated the capitalistic class must go. After the address only twenty-five men joined up.

"Think safety and the doctor won't have to think of you," says the Safety League.

SPANISH RIVER REORGANIZED.

Toronto.—In local circles close to the Spanish River Pulp and Paper Co. reports are now current that the proposed reorganization plans will likely result in the formation of a new company to take over the entire undertakings of the present company.

The leading representatives of the company have been at work for months past, attending to the various points in connection with the proposed reorganization and have been in negotiation with the bondholders in London, England, in order to leave the way clear for the proposed plan in connection with the payment of all arrears of dividends on the preferred stock.

It is stated, says the Financial Times, that all arrangements have now been completed with the bondholders in London and that as a result developments have indicated that it would be more satisfactory if a new company were formed to take over the entire undertakings of the present company and make a re-arrangement of capital on a basis that would provide for all the arrears of preferred stock dividends and also equitable treatment for the holders of the common stock.

Negotiations in this direction have reached a very advanced stage, but there is always a possibility of certain modifications being made before a special meeting will be called to approve the special plans now being worked out. According to the present plans the holders of the common stock would be recompensed for waiting for dividends for the past year and are likely to receive three shares of stock in the new company for every two shares of old, this being on a basis of 1½ shares of new for every one of old. At the same time, an announcement regarding cash dividend on the common stock will also be made, and whereas earlier it was thought this would be at the rate of 6 per cent per annum, interests close to the company are now figuring that it will be possible to start at the rate of 7 per cent by the middle of the year.

As is well.known, the company could have been on a dividend basis for the past year, at least, had it not been made impossible, owing to the various legal delays in connection with the reorganization plans.

MAINE MAN BUYS N. B. TIMBER

St John, N. B., April 1.—It is reported that valuable timber tracks along the St. Croix River, owned by H. F. Eaton & Son of Calais, have been sold to E. B. Draper of Bangor.

The transfer is said to have included 262,000 acres of timber lands at the head waters, saw mills at Milltown, wharf property at Calais and five sailing vessels, and involves the sum of $4,000,000.

It is understood that Mr. Draper will also take over 98,000 acres of timber lands in the Aroostook region. Several valuable water rights are included in the transaction. It is believed it will mean a revival in the lumber industry along the St. Croix.

DON'T USE COBWEBS ON WOUNDS

Do not think that disinfectants and cleanliness are not necessary to heal up a wound. They are! Do not use any of these old methods as cobwebs on wounds to stop bleeding or any other superstitious methods to restore health.

Get to the doctor and he will tell you what to do, and the sooner you call him the easier for him to cure you.

Technical Section

REVIEW OF RECENT LITERATURE.

A-15. T.A.P.P.I. report on paper testing. Fred. C. Clark, chairman of the Committee on Paper Testing of the T.A.P.P.I. Paper, **25**, 693-9, 739-43, 777-80, 829-31, (1919), 877-9, (1920). A description of recent advances and new procedures in paper testing methods, including microscopical, physical, and chemical methods. The description of the microscopical methods gives details of manipulations, composition and method of preparation of various stains, classification of vegetable fibers used in papermaking, and precautions to be observed in determining the proportions of the various kinds of fibres. Under physical tests are described (with numerous plates) the various styles of paper balances (several styles of the quadrant type and the pea and beans type), the bursting-strength tester (Mullen tester, District of Columbia tester, Ashcroft tester), the thickness testers, methods of determining machine and cross directions, the Schopper folding machine and method of calibrating it devised at the U.S. Bur. of Stds., the Schopper tensile machine, the determination of absorption, opacity and translucency by the Martens photometer, tearing strength by the Thwing tearing tester, the degree of sizing by the Ink Flotation Test and the Alternative Method, the gloss or glare by the Ingersoll glarimeter, the retention of loading, and the identification of the nature of specks (rubber, rosin, wood, iron, oil, alum, coal, buttons, paper, foam spots, drag spots, knots). Formulas are given for calculating weight per standard ream (25x40. 500), wt. per ream (500) of trade sizes required, substance number, strength ratio, relative compactness, folding factor, tensile strength, breaking length, percentage of clay used and percentage of retention. Under T.A.P.P.I. report on paper testing, chemical tests are described the quantitative determination of ash, paraffin, N. starch and dextrins, and free acid, and tests for the reduction of the nature of the filler, rosin, glue, and free Cl.—A.P.-C.

A-15. R-2. Cellulose present day problems. Wallace P. Cohoe. Paper, 25, 609-12, (1919). A short historical sketch of the use of cellulose in its many forms, showing its importance to humanity in by-gone ages and at the present time and showing the increasing importance of the application of chemistry in the cellulose industries. The author then briefly discussed a few of the problems facing the cellulose industries at the present time:—prevention of the formation of oxycellulose in cotton fabrics, artificial retting of flax,* finding new raw materials for the paper industry, studies relative to viscose and artificial silk, of cellulose for papermaking by chemical instead of manufacture of satisfactory paper textiles, hydration by mechanical means, determination of the constitution of cellulose.

* An interesting description of the Rossi flax retting process, employed at the Bonnetable works, Département de la Sarthe, France, is given in the Weekly Bull. of the Dept. of Trade and Com., Ottawa. Vol. 20, June 23, 1919, pp. 1185-90. (Abstractor's Note).—A. P.-C.

A-18, E-0. Acid-proof composition. Eng. patent No. 112,966. Chance and Hunt, A. E. Holley, and H. W. Webb, England. Chimie & Industrie, **2**, 816, (July 1919). Neutral or basic lead carbonate is mixed with acid resisting siliceous materials, and No silicate solution is added, in the following proportions:—pulverized baked brick 2 parts, finely pulverized sandstone 8 parts, Pb carbonate 0.25 part, sand 7 parts, Na silicate (33 degrees Be) 3 parts.—A.P.-C.

A-0. Use of waste paper for filtration. S. L. Jodidi and H. G. Higgins. Chem. Engineer, **27**, 45-8, (1919). Chimie & Industrie, **2**, 1225, (Oct. 1919). Waste paper may be used for making filters for analytical work as follows:—(1) 3-5 g., cut in small pieces, are placed in a flask with 100-200 cc. of water, the flask is stoppered and agitated vigorously to pulp the paper, 200 cc. of water per g. of paper is added, and the whole agitated again for 1 min. This yields a pulp ready for use (untreated pulp). (2) The strips of paper are just covered with a 5 per cent solution of HCl or HNO_3 and allowed to stand for 36 hours. The paper is filtered, washed with hot, boiled, acid-free water, and reduced to a pulp as above. This yields HCl- or HNO_3-treated pulp. These pulps are used in Gooch crucible in the same manner as asbestos fibre. The authors give numerous figures as to the results obtained with various papers in the determination of Ca (vol. and grav.), P_2O_5 (vol.), Mg (grav.), Ag (grav.); they give the details of the manipulations for each determination; and they show that for the analyses in which no account is taken of the ash of the filters the untreated pulp is perfectly suitable. For accurate analyses it is much preferable to use the acid-treated pulp.—A.P.-C.

B-2. Reforestation in France. J. Micol de Portemont. Papier, **22**, 321-4, (Nov. 1919). Cf. Pulp and Paper, **17**, 1113, (1919). Notes on the properties, advantages, and disadvantages of alder, birch, beech, linden, eucalyptus, and the various coniferous trees, from a papermaking point of view, followed by an indorsation of the proposal of Abbé Lemire (of the French Chamber of Deputies) to transform the former battlefront from the North Sea to the Vosges into a forest.—A.P.-C.

B-2. Forest conservation by paper industry. Paper, **25**, 613-5 (1919). Report of the Committee on Forest Conservation of the Am. Pulp and Paper Ass., Frank L Moore, Chairman, presented Nov. 14, 1919. A discussion showing the urgency of the need for forest conservation, together with proposed remedial measures for the ensuring of the proper use of timberland which is better adapted to the growing of timber than to the ordinary forms of agriculture.—A.P.-C.

D-4. The Lefebvre groundwood process. U. S. A. patent No. 1,277,737, Sept. 3, 1918, Albert H. Lefebvre, Watertown, N. Y. Paper, **25**, 785-6, 798, 808, 810, (1919) The process consists essentially in delivering the tailings, after refining, into the stock which comes directly from the grinders. In this way all the fibrous portion of the wood is ultimately used. Previous to screening, the dirt and bark is removed by passing the stock through a scrubbing tank and a hydrostatic gravity separator.—A.P.-C.

UNITED STATES NOTES

AMERICAN PAPER AND WOODEN WARE EXPANDS

Another instance of a live wire company forging ahead has come to our attention this week. We are referring to the American Paper and Wooden Ware Company , of Cincinnati, O., who have just filed application papers with the Secretary of State to increase their Capital Stock to $250,000,000. This step has become necessary, due to the increased volume of business in the past few years.

Originally this Company was a partnership formed in 1905 by H. H. Vandeval and F. G. Menke, both of whom had served a practical apprenticeship with one of the pioneer paper companies of Cincinnati. Full of ambition and enthusiasm, they opened up an office and their efforts met with success.

An arrangement has been made to have all employees purchase stock, in this manner enabling them to participate in the earnings of the Company.

U. S. PAPER EXPORTS TOTAL $85,983.063.

Total paper exports from U. S. A. for the year 1919 reached a valuation of $86,983,063, against $54,170,134 in 1918 and $46,393,655 in 1917. Of the 1919 total newsprint accounted for $10,100,229, all other printing paper $16,160,777, wrapping, $6,664,462 and writing paper $13,188,165.

NEW MANAGER FOR CRAIG-BECKER.

Craig-Becker Company, Inc., of New York, who handle a large amount of Canadian pulp and paper, announce that R. F. Hammond has resigned as vice-president and manager. Gerhard Kjelstrup has been appointed manager of the company's offices, and H. J. Toole as travelling representative in place of W H. Donaldson, who is no longer connected with the company.

At the annual election held March 12, 1920, the following officers were elected: Alvah Miller, president; Tom T. Waller, vice-president; N. L. Miller, secretary and treasurer.

The board of directors is constituted as follows: Alvah Miller, Tom T. Waller, Arthur C. Hastings, F. E. R. Becker, Henry L. Mathers.

RICHMOND PAPER COMPANY TO REBUILD.

The Richmond Paper Company whose plant in Halifax, Conn., was destroyed by fire some time ago has begun excavation for a new factory. The new building will be two stories high, of brick construction, and in dimensions 65 x 300 feet. Wm. M. Orr is the manager of the company which is one of the oldest established in the Maritime provinces. It is expected the new plant and warehouse will be in operation early in the summer.

Organization of a $750,000 company known as the Hoskin-Morianville Paper Company, which will immediately begin construction of a new mill at Menominee, Mich., has been announced. Ground will be broken for the new structure at once and it is hoped to have one machine in operation by January 1, 1921.

PULP IMPORTERS ELECT PRESIDENT

S. Goldman of Perkins-Goodwin Company, was elected president of the Association American Wood Pulp Importers at a recent meeting.

L. W. Bowmall of the American Wood Pulp Corporation, was elected secretary, Henry Atterbury, Atterbury Brothers, Inc., treasurer, and L. Gottheil, of Castle, Gottheil & Overton, vice-president.

J. M. FRENCH COMES BACK TO CANADA.

John M. French is coming to Montreal to represent in Canada the house of Charles Morningstar, Inc., of New York and Kobe, Japan, and also the Columbia Naval Stores Company of Savannah, Ga. Mr. French enjoys a wide reputation in the commodity markets of New York, and for the last two years has been employed on the editorial staff of the Journal of Commerce as an authority on Southern and Far Eastern products. But he will be best known to Canadians as the former editor of the Paper Trade Journal, which position he resigned at the outbreak of the war to become active in the interests of the Remington Arms and Ammunition Company at Bridgeport, Conn. After 20 years sojourn in the States he now returns to the country of his birth, still a Canadian.

A close student of international affairs, Mr. French believes that the prospects of Canada as a great commercial nation are assured. "They could not be otherwise," he says, "in view of the world-wide demand for the products of the forest, the mine and the factory. The natural resources of the Dominion were never more urgently needed on all five continents. Canada during and since the war has been extensively advertised, and her manufacturers and merchants have earned a reputation for fair dealing which assures them a cordial entry into the markets of the world.

The shortage of paper in the United States has been so keen as to become a matter of government concern and is causing no little anxiety. All hopes of relief are turned upon Canada. Now is her golden opportunity, not only in the South but in the East and the West. The time is now ripe for the establishing of foreign markets. Later on the chance may fade with varying conditions and rising competition; let us get a grip on them now too strong for the other fellow to loosen.

The United States is in no better position than Europe to supply many commodities to the outside world, and paper is one of these. Domestic demand for nearly all staples is in excess of supply, but her industrial engineers are too shrewd to loosen their hold on export trade. A lesson may be learned from the policy of the United States Steel Corporation and the larger independent steel companies who have established two large selling agencies for foreign business exclusively and to whom they have pledged a minimum of 10 per cent of gross outturn, irrespective of what home requirements may be."

Matches have not yet displaced the tinder box in certain rural sections of Italy and Spain.—(Hull papers please copy.)

PULP AND PAPER NEWS

The announcement on Wednesday that the World Newspaper Company, publishers of the Toronto World (daily and Sunday) had made an assignment to G. T. Clarkson, assignee, caused a good deal of stir in Toronto newspaper circles. A winding-up order will likely be applied for. The announcement is made that the assignment is made with a view to reorganization and that publication of both papers will continue. Financial difficulties, due to the high cost of paper and wages, coupled with the illness of H. J. Maclean, the managing director, are given as reasons for the assignment. One of the city banks is said to be a large creditor and will have a large part in the reorganization plans. It was stated that several offers to purchase the property had been made recently, one coming from Montreal interests. The Toronto World was founded 41 years ago by W. F. Maclean, Archibald Blue and Albert Horton. Mr. Maclean, previous to starting the World, was City Editor of the Globe.

Some discussion took place in the Ontario Legislature over Mr. Dewart's motion disapproving the agreements entered into between the Government and J. J. Carrick, relative to the sale of the Pic River and Black Sturgeon River timber limits in the Thunder Bay district, subsequently assigned and now held by the Great Lakes Pulp and Paper Company. The motion urged that subject to compensation and repayment of all sums received by the Government under the agreements the title of the company should be cancelled and the limits re-advertised for sale, on the condition that development start immediately and that hydro power be used. The matter will again come up in the House.

The Western Rag & Metal Co., 442 King Street, E., Toronto, have sent out circulars calling for 1,000 tons of rags and 2,000 tons of paper and books to be collected from homes and business places. They quote these prices: mixed rags of all kinds from 2c per lb. up; tailor clips, from 3c a lb. up; cast-off clothes, from 1c per lb. to 3c; newspapers and books, bundled, 35c per 100 lbs. or loose 30c per 100 lbs.; old carpets 50c per 100 lbs.

The Provincial Paper Mills, Limited, and the Interlake Tissue Mills, Limited, who have had their general offices in the Bell Telephone Building, on Adelaide Street, Toronto, expect to be in their new offices on University Avenue in a month's time. The building is now being fitted up.

E. G. R. Clarke, formerly of the National Coated Paper Co., Ltd., of Valleyfield, and latterly of the Ault & Wiborg Company, Toronto, is about to take up his new duties as salesman for the National Gummed and Coated Paper Company of New Haven and Peterborough. Mr. Clarke spent some time overseas, and was with the Canadian Postal Corps in Siberia. His many friends in the paper trade will wish him success in his new position.

The first annual meeting of the Canadian National Safety League and the sixth annual meeting of the Ontario Safety League will be held on April 13th in the King Edward Hotel, Toronto, and will be continued through until the 15th. On the morning of the 15th inst. Mr. A. P. Costigane, secretary of the Ontario Pulp and Paper Makers' Safety Association, will read a paper "Accident Prevention In the Pulp and Paper Industry." On the 13th and 14th Mr. Costigane will be in attendance at a meeting of the Joint Executive Committee of the Vocational Educational Committee of the pulp and paper industry in New York, when plans will be made for the preparation of the educational courses.

The paper mill of the Provincial Paper Mills Company at Georgetown was flooded recently by the spring freshet on the Credit River. Water entered No. 1 machine room for the first time for a depth of 2 feet and No. 2 room had a depth of 4 feet. No. 2 machine was closed down for about ten days and No. 1 for about three days. The whole plant is now running smoothly.

The annual meeting of the Ontario Pulp and Paper makers' Safety Association will be held in Toronto on April 21st when the directors for the ensuing year will be appointed and the general business of the organization transacted. The annual report of the secretary of the Association will be presented at this meeting.

A. P. Costigane, secretary of the Ontario Pulp and Paper Makers' Safety Association, spent part of last week looking over the pulp and paper mills in Ottawa.

The United Paper Mills, Limited, which about a year ago opened a branch in Hamilton, has taken another flat in the Lowe Building in that city.

A break in the water wheel at the ground wood plant of the Foley-Reiger Pulp and Paper Company at Thorold resulted in the closing down of the plant for several days. A new wheel has been installed and operations resumed.

D. F. Robertson, of Campbellford, has been appointed to succeed N. G. Gzowski as general manager of the Canada Box Board Company.

The re-arrangement of prices on express Manila recently put into effect by the mills as a result of the representations made by the Canadian Paper Trade Association as a whole, and by individual members, provide that a jobber will be able to make the following spread: 5 per cent on ton lots; 7½ per cent on bundle or case lots and 15 per cent on less than bundle or case lots.

According to the "Canadian Paper Trade Association News," published by the Canadian Paper Trade Association, 73 King Street, W., Toronto, production is still lagging behind the consumers' demands. The paper says: "It has been stated that there are ninety paper machines now on order for various mills in Canada and the United States, of which twenty are to be used on high-grade papers. This total, of course, includes machines for use on newsprint, boards, wrappings, tissues, building papers, etc. Nevertheless, when these machines are in operation it should go a long

way towards enabling the mills to catch up with the markets."

The capital stock of the Ontario Paper Co., Thorold, Ont., has been increased to $3,500,000, by the creation of 34,900 shares of new stock of $100 each, of which 25,000 shares shall be preference shares.

Rideau Timber Products, Ltd., of Ottawa, has been granted a charter with a capital stock of $100,000, and headquarters in Ottawa, to carry on in all its branches a lumber, timber and pulpwood business, and to manufacture, sell and deal in timber, logs, lumber wood products, etc. Among the incorporators of the company are Chas. B. Dougherty and Robert Everard of Ottawa, and Guy M. French of Renfrew. It is understood that the new organization is a holding company to take over the B.C. timber limits of the Rideau Lumber Co., Ottawa.

A federal charter has been granted to the Wolf River Pulp & Paper Co. with a capital stock of $1,000,000 and headquarters in Montreal. The company is empowered to carry on the business of lumbering and the lumber trade in all its branches, to manufacture and deal in pulp, pulpwood, paper and all other products made of wood or pulp. Among the incorporators are John Wilson Cook, A. A. Magee, T. B. Heney and others.

THOROLD MILLS WANT TROLLEY CARS.

Efforts are being made by the Thorold Board of Trade and the paper and pulp manufacturers southwest of the village, to have the Niagara Falls, St. Catherines and Thorold electric railway extend their line to the Ontario Paper Company, the Beaver Wood Fibre Co. and the Pilkerton Glass Works. With the tremendous growth of these manufacturing plants during the past year and with the prospects of several other plants locating in this immediate vicinity, in the near future, there is a crying demand for better service. The two paper mills alone employ over 600 men and although each of these companies has built houses which are rented to their employees at a very low rate, a large percentage of the men live in the surrounding villages.

The Ontario Paper Company, makers of newsprint for the Chicago Tribune with a daily production of nearly 200 tons, receives its raw material by water through the old Welland Canal. It is equipped with twenty-three grinders driven by Swedish Motors and produces over 250,000 pounds of groundwood in twenty-four hours. The paper mill contains—164" and 2—202" Fourdinier machines trimming sheets 150" and 189" wide.

The Beaver Wood Fibre Co. known as the Thorold Division of the Beaver Board Companies will, on the completion of the New Welland Canal, receive its raw material and ship a large part of its finished product by water. This mill has 8—1500 lb. beaters and 3—Howard refining engines, 1—5-cylinder and1—7-cylinder, 112" Machines. The sheet is trimmed to 97". The pulp mill equipment consists of 15 grinders driven direct by electric motors, 8 wet machines and 6 deckers. This mill at the present time is averaging 180 tons daily of Fibre Board.

This locality is particularly adapted to the paper and pulp industry because of the plentiful supply of water available from the Canal, and of electric power from Niagara Falls and the North. Besides the two plants mentioned there are numerous other plants in this vicinity, including the following:

Riordon Pulp and Paper Co., manufacturers of bleached sulphite fibre with a production of over 60 tons daily.

The Foley-Rieger Pulp and Paper Co., manufacturers of bleached ground spruce and poplar—producing about 25 tons daily.

Interlake Tissue Mills, Ltd., has two 1000 ft. and 1—double roll 2500 lb. beating engines, and 1—116" Yankee tissue machine. This concern makes light weight wrappings, paper napkins and specialities. A Harper Fourdrinier will be installed this summer.

Lincoln Paper Mills, Ltd., is one of the largest paper and pulp mills in this locality. This sulphite mill has a daily production of nearly 100 tons and among the products of the paper mill are Manilas, fibres, jute, kraft, greaseproof, and glassine, also rope Manila and wrapping.

The Montrose Division of the Provincial Paper Mills Co. are manufacturers of bond, book, lithograph, writings and cover papers. This mill produces about 30 ton of finished product daily.

The Thorold Pulp Company are small manufacturers of groundwood pulp. The Peerless Pulp Company, Ltd., which burned in 1918 has never been rebuilt.

The Garden City Paper Mills and the Kinleith Paper Co., are also considered as being in the district of Niagara.

OFFICERS OF THE C. P. and P. A.

Following is a list of the Executive of the Canada Pulp and Paper Association for 1920:—

PRESIDENT:—George Chahoon, Jr. Laurentide Co., Ltd., Grand Mere, Que.

VICE-PRESIDENT:—F. Howard Wilson, J. C. Wilson Co., Montreal.

NEWS SECTION:—Chairman: Geo. McKee, Donnacona Paper Co., Donnocona, Que.

MECHANICAL SECTION:—Chairman: J. A. Bothwell Brompton Pulp and Paper Co., East Angus.

CHEMICAL PULP SECTION:—Chairman: T. J. Stevenson, Riordon Pulp and Paper Co., Montreal.

BOOK AND WRITING SECTION:—Chairman H. F. E. Kent, Kinleith Paper Mills, Toronto, Ont.

BOARD SECTION:—Chairman: John F. Taylor, E. B. Eddy Co., Hull, Que.

COATED SECTION:—Chairman: Geo. Pauline, Ritcihe & Ramsey, Ltd., Toronto.

FELT SECTION:—Chairman: W. R. McNeil, Bird & Son, Hamilton, Ont.

WRAPPING PAPER SECTION:—Chairman: F. J. Campbell, Canada Paper Co., Windsor Mills, Que.

TECHNICAL SECTION:—Chairman: L. H. Shipman, Spanish River Pulp & Paper Mills, Sault Ste. Marie, Ont.

Vice-Chairman: O. F. Bryant, Bennett, Ltd., Chamblay Canton, Que.

WOODLANDS SECTION:—Chairman: General J. B. White, Riordon Paper & Pulp Co., Montreal, Que.

MANAGER OF PUBLICITY:—Edward Beck.

SECRETARY-TREASURER:—A. L. Dawe.

An important French bank is said to be behind a scheme for the rehabilitation of the Russian pulp mills in the neighborhood of Odessa and the plan includes the purchasing of modern machinery as soon as conditions in Southern Russia improve sufficiently to permit the resumption of business.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, April. 13.—The fact that there are several distributors of paper mill products in Toronto who have refused to take an order in two weeks' time is a pretty fair index to the condition of the paper trade in respect to shortage at the present time. Not only are some of the mills refusing to book orders until they can get caught up, but some of them are in the market themselves for paper. There are no stocks to speak of in any of the warehouses and the shipments that come in are immediately rationed out in an endeavor to partially satisfy long waiting customers. During the week the Toronto warehouse of one of the big box board companies got hold of a job lot of board, slightly damaged and not cut exactly to the size ordered. In the old days, before the era of big demand set in, this job lot would have had to go begging for purchasers and the manufacturers would have had to sacrifice it, and get what they could for the lot. But not so now. This particular job lot went at standard prices and the buyer counted himself lucky to get it.

A similar situation exists in practically every line of paper and as an accompaniment to the big demand and consequent shortage, prices continue to go skyward. This week saw another rise in the price of wrapping papers. There has been a general advance in Manilas, fibres, white wrapping and gray rags representing 50c a hundred up on car lots; 65c a hundred on ton lots and a corresponding rise for small lots. This is a second advance within a little over a couple of weeks, and it is expected that paper bags will shortly go up in sympathy. Price lists in nearly all lines continue to be an unknown quantity, although the tissue mills say the market is getting a little more stable and they expect to issue a price list in about another week. Meanwhile orders for practically all lines are only being accepted subject to price prevailing at time of shipment.

The upward tendency of all lines of paper is readily accounted for when the high prices for pulp are considered. With sulphite $80 to $90 a ton and with these prices representing concessions to friends and old customers, it costs a lot of money to turn out the finished product these days. Spot lots are being sold as high as $120 a ton and mill screenings are bringing as high as $45 a ton. As high as $85.00 a ton is being paid for spot lots of ground wood and $150.00 is likely to be the figure bleached sulphite for May delivery. Ground wood that is selling at $80 a ton is a concession to customers and is hard to get at any price.

It appears to be a sellers' market all through, and the general feeling in manufacturing circles is one of optimism. There is a general feeling that prices in the paper trade have not yet reached their peak and that the demand will continue. It is reasonable to believe that the demand, as it exists at present, is sufficiently beyond the production to keep prices up. There is a disposition to take this view of the matter and the paper man cannot be found who will predict an early tumbling of prices.

The famine in ground wood continues to have its effect on the newsprint situation, which is still very acute. Many consumers are ready and willing to pay 11c a pound and some is being sold at that figure, despite ruling contract figures of 4c and 4½c. It is known that some consumers are paying as high as 6c on contract, but the general impression is that 5c will be the ruling contract figure within a few days. It is known that one of the Canadian mills was offered 10¼c for all its newsprint output, but the mill had to turn it down in order to continue its efforts to meet the contracts already in force.

Book papers, ledgers and other kindred lines, which have been steadily on the up-grade for several months past, underwent another advance this week when from 10 to 15 per cent was added to the prevailing prices and at that there are no price lists available, all the lists having been withdrawn several weeks ago. Stocks continue to be very low and hard to get and there does not appear to be any immediate prospect of a change in the situation. In the stationery and papeterie branches of the paper trade the manufacturers are extremely busy, but are hampered through inability to get adequate stock supplies.

This week saw an interesting development in the trade through the announcement that the Kipawa Company, Limited, a subsidiary of the Riordon Pulp and Paper Company, which has been manufacturing unbleached sulphite pulp since the latter part of December, began this week to turn out the bleached pro-

Scandinavian American Trading Co.

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duct and by May 1st expects to have their plant turning out over 100 tons a day. The directors recently paid a visit to the plant and expressed themselves as well satisfied with the progress made in the Riordon program of expansion, while the trade will welcome the material increase in production of the much-needed bleached pulp.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$75.00 to $80.00
Sulphite, news grade	$82.50 to $90.00
Sulphite, easy bleaching	$110.00 to $120.00
Sulphite bleached	$140.00 to $150.00
Sulphate	$110.00 to $115.00

Paper.

(These prices, for the most part, must be considered as nominal, the situation in many lines being quite abnormal.)

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) in less than carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload), No. 1	13c.
xBook papers (ton lots) No. 1	13½c
xBook papers (carload), No. 2	12c
xBook papers (ton lots), No. 2	12½c
Ledgers	17c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tinted bonds	28c
White wrappings	$6.50
Writings No. 2 (M.F.)	13½c
Coated book and litho, No. 1	$14.50
Coated book and litho, No. 2	$13.50
Coated book and litho, colored	$14.75
Grey Browns	$5.75
Writing No. 1 (S.C.)	15½c
Fibre	$9.00
Manila, No. 1	$9.00
Manila B.	$7.25
Tissues (unbleached sulphite)	$1.30
Tag Manila	$8.50
Unglazed kraft	$10.50
Glazed kraft	$10.50
Tissues, bleached	$1.45
Tissues, cap	$1.05
Tissues, Manila.	$1.00
Natural greaseproof	16c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	9½c.
Paper bags, Manila (discount)	30—35 per cent
Paper bags (kraft)	40—45 per cent
Confectionery bags, Manila	34—35 per cent
Straw board	$88.00
Chip board	$88.00
Vat lined chip board	$96.25
Filled wood board	$99.00
News board	$96.25
Manila lined folding board, chip back	$104.00
Pulp folding board	$113.00
Jute board, No. 3	$88.00
White patent coated board	$145.00
Grey folding board	$126.00

*Government fixed price to Canadian publishers.

xThese prices are for machine fininsh supercalander one-half cent higher.

NEW YORK MARKETS.

New York, April 3.—An excited demand continues to prevail for practically every grade of paper, and buyers are searching in all directions to locate supplies. That the majority of them fail to find paper available seems to be proved by the incessant inquiry for additional supplies. Manufacturers and dealers have reached that stage where they simply have given up the hope that they might attend to all the wants of buyers. The policy followed by the average mill and jobbing house is simply to serve their regular customers as well as prevailing conditions will permit, and let it go at that. Largely because of this situation, there is a total lack of profiteering in the paper trade. Indications are that with numerous consumers of the various grades of paper at present in critical want of supplies, much higher prices could be secured for paper than are now ruling. In other words, if manufacturers desired to obtain higher prices for their product than they are, the probabilities are they could easily succeed in doing so by shipping to concerns other than those they usually supply. The jobber of paper could doubtless secure better prices in certain quarters if he were willing to overlook the wants of regular customers to sell in other directions. It can be said, however, that those whose business it is to make and sell paper in the United States are pursuing a wise and stable policy, that of looking to the needs of their regular trade before disposing of supplies elsewhere.

Increasing firmness attends the newsprint market. Prices are mainly nominal, that is, as regards prices on spot shipments of roll news, for very little, if any, such paper is to be had. In a statement issued the other day, President Philip T. Dodge of the International Paper Company, said that the current demand for newsprint was running approximately a thousand tons per day above the present production. That is to say, if the mills of the country had the capacity to do so, they would today turn out an aggregate tonnage of a thousand tons daily and find a ready market for it When one stops to consider that demand is of such tremendous volume and that such a large part of it is going unfilled, it is easy to understand the anxiety shown by consumers in all parts of the country. It is definitely known that during the last big snow storm, which crippled railroads and badly tied up freight shipments for a few days, several of the largest daily newspapers in New York came within an ace of being obliged to discontinue publication. This gives an idea of how low publishers' stocks of paper are.

There have been rumors circulating in the trade this week of sales of spot lots of newsprint at 13 cents a pound. While efforts to get something definite in this connection were unavailing, it seems more than likely that such a figure has actually been paid for newspaper. Demand is of a character that price cuts very little figure in current business. When buyers find a parcel of paper available they quickly absorb it, irrespective of the prices named. Eleven cents has been commonly recognized as about the market basis for spot lots of newsprint for some time, so that it is quite probable that sales have been engineered at a couple of cents per pound above this level.

Fine papers are actively sought and are steadily moving upward in price. Mills as a general thing have their output sold for some months and are doing what they can to discourage further buying unless for definite needs. Wrapping papers are quotably strong and

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NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

are in pointed demand. Some apprehension has been expressed in this branch of the trade that possibly demand would ease off following the Easter holiday season. Even if such should be the case, there seems little or no likelihood of prices being affected because mills and dealers are booked far ahead in orders and are not looking for new business.

Quotations on boards have again advanced. The entrance of boxmakers into the market to cover their spring requirements has re-started the market on the up-swing, and if present conditions continue to obtain, it is hard to surmise where prices are likely to go. Plain chip board is now selling at $95 per ton at mills, while filled newsboard is quoted at $105 and solid news at $110 to $115. Regardless of price, it is a difficult matter to place orders for board . Mills are not in a position to accept business for delivery for some time ahead and there is practically no tonnage of any consequence available in the market.

GROUND WOOD.—Quotations on mechanical wood pulp are literally flying upward. Some of the figures reported obtained for spot lots of ground wood are almost unbelievable, in a sense, while, when taking all things into consideration, they appear quite probable. Reports have it that as high as $100 per ton has been paid for spruce pulp of prime quality for prompt delivery. If such is true, it means that ground wood has actually sold at better prices than prevail on sulphite, but it is believed that transactions at $100, if put through, have been of exceptional character. Between $80 and $85 per ton at grinding plants is the general range of quotations named, but those quoting such prices invariably have nothing to offer. At any rate, sales have been made at this basis and there is no doubt that much more business could be readily accomplished at such figures if there was the pulp available for trade purposes.

Demand is of an acute sort and consumers are anxiously seeking supplies in all quarters. Stocks are down to a very low point, and there seems little chance for relief until warmer weather enables manufacturers materially to increase their production.

CHEMICAL PULP.—Prices on chemical pulp are hopping upward with a rapidity and consistency that is surprising. New high records have been touched by nearly every grade of sulphite and other chemical pulps this week and the end of the advance is not yet in view. Demand is extremely keen, and sellers simply are unable to cope with it. Not in a long time have supplies been down to such a low level, both as regards domestic and Scandinavian pulps, and there are no indications that the situation will improve to any material degree for some time. Practically no foreign pulp is reaching these shores, except that coming in to contract buyers. What is more, mills in the Scandinavian countries are sold out, not for the next month or two, but for the balance of the year. Domestic manufacturers own little of their production for the next few months, having contracted with consumers to supply them. An actual shortage of chemical pulps exists, and as a result, prices are climbing to unheard-of heights. Unbleached sulphite of newsprint grade is quotable at around $90 per ton at mills and there have been reports heard of sales at $100. Domestic bleached sulphite is nominally quoted at a range of anywhere from 7 cents per pound upward at producing points. Actual sales have been made at 7.25 cents, and possibly at higher figures. Domestic kraft pulp is fetching 6 cents a pound, while foreign kraft is unobtainable for less than 6.25 cents ex-dock. Easy bleaching sulphites are scarce and quoted at around 6.25 cents for domestic and 7 to 7.50 cents for foreign.

RAGS.—The rag market is holding its own, and there have been few changes of note this week. Demand is not as active as it has been, but this is the time of the year when consumers hold off in buying as far as possible, owing to their expectations that increased collections during the spring will result in lower prices. There is a sufficient movement of goods to maintain values, however, excepting in one or two cases, and dealers continue to take a bullish view of the future. New cuttings are quotably steady, and it is the contention of packers that the high prices they are obliged to pay clothing cutters for rags will alone hold up quotations to consuming mills. White shirt cuttings of No. 1 quality are selling at around 19 cents per pound f.o.b. shipping points, while No. 1 washables are worth in the neighborhood of 10.50 cents and new blue overall cuttings between 13 and 13.50 cents. Old white rags are strong and are readily selling at a basis of from 12.50 cents a pound upward for No. 1 re-packed stock, depending on the grade and amount involved. Old blues are a little softer in price, with offerings of re-packed rags of this class noted at 4.75 to 5 cents. Roofing rags rule firm and are being freely absorbed by felt manufacturers at 3.50 to 3.60 cents a pound at shipping points for No. 1 packing.

PAPER STOCK.—High grades of old paper are quotably steady and are in good demand, whereas some of the low qualities, chiefly those used by board mills, have eased off a shade during the week. This is due to an increase in production of the low grades and to the failure of the better qualities to come forward in much larger volume. No. 1 hard white shavings are fetching 6 to 6.25 cents a pound f.o.b. points of shipment, and there have been sales at better prices in some instances, while No. 1 soft white shavings are selling at 5.25 to 5.50 cents. Old books and magazines are moving in consistent fashion at 3.25 cents, or slightly higher, at shipping points, and old No. 1 packing of kraft paper commands 3.50 cents. Present prices on flat folded newspapers range from 1.70 to 1.80 cents and on No. 1 mixed paper at from 1.40 to 1.50 cents.

OLD ROPE AND BAGGING.—The market for old Manila rope has advanced further, and prices now prevail on levels probably establishing new high records for rope values. Sales to mills have been recorded at 8.25 to 8.50 cents a pound at shipping points, and prices seem headed for still higher marks. Demand is active and there are few sizible tonnages of rope offered. Scrap bagging is in lax demand, and No. 1 packing is freely available at 3.25 cents per pound f.o.b. New York.

TO ERECT NEW CATALOGUE PAPER MILL IN WISCONSIN.

Announcement is made by C. B. Pride, president of the Tomahawk Pulp and Paper Company, of Tomahawk, Wis., of the organizations of the Pride Pulp and Paper Company, which will commence at once the construction of a new paper mill at Tomahawk for the manufacture of catalogue paper. The new plant will be equipped with one machine, 130 inches in width, of improved design.

The company is officered by the officers of the Tomahawk Pulp and Paper Company.



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LUCKY THE PUBLIC OWNS THE FORESTS.

The importance of all the growth of the pulp and paper industry in the maintenance and development of the economic structure of Canada can scarcely be over-emphasized. Obviously, it would be the poorest kind of public policy for the respective provincial governments to relax the existing embargoes upon the export of raw pulpwood cut from Crown lands. Such a course would inevitably mean reducing the supplies of raw material available for Canadian mills, as well as the more rapid depletion of our pulpwood forests, resulting in their comparative exhaustion within a measurable period of time. About 1,000,000 cords of pulpwood are now exported in a raw state, all cut from lands in private ownership. Practically all of this goes to the United States.

The phenomenal growth and development of the pulp and paper industry in Canada serves strongly to emphasize the urgent need for the perpetuation of our great pulpwood forests, in order that this great industry may be permanent instead of merely transitory, as has proved to be the case in the greater portion of the eastern United States. There fire protection has been wholly inadequate and logging methods have been destructive, seeking, for the most part, the greatest immediate profit, without any conscious attempt so to regulate methods of logging as to leave the cut-over area in a condition to produce another crop.

Fortunately, in Canada, the great bulk of the forests are in public ownership, and the public, as a whole, can afford to take thought for the distant future. The increasing employment of trained foresters by Government services as well as by pulp and paper companies, offers distinct encouragement for the future.—**Clyde Leavitt in "Conservation."**

STEAM TABLES— 1920 EDITION.

The Wheeler Condenser & Engineering Co., Carteret, N. J. announce the publication of the 1920 edition of their popular "Steam Tables for Condenser Work." This is the fifth edition. Every engineer who deals with the condensation or evaporation of steam should have one of these handy tables. The pressures below atmosphere have been especially calculated for this book by Prof. Marks.

The book gives the properties of saturated steam from 29.8 in. vacuum to atmospheric pressure in increments of tenths of an inch. The vacuum in inches of mercury is referred to a 30 in. barometer. This method is of course superior to the old method of giving absolute pressure in pounds per square inch, since it is customary to read vacuum in inches of mercury.

A complete table is also given of the properties of saturated steam above atmospheric pressure.

The book tells how to make measurements by means of the mercury column and barometer. It gives constants and tables for making corrections. It gives the corrections to be made for relative expansion of mercury and brass scale, etc. It is a very handy book and of a size that can be carried around in the vest pocket.

THE HORNET AS A PAPERMAKER.

That a hornet is both a maker of paper and an able builder we knew even before insect science was systematized. But the processes by which the paper is made and the elaborately planned nest is built were shrouded in mystery until they were studied by Charles Janet, a Frenchman, whose investigation of insect life has attracted much attention.

Janet found that a hornet's papermaking methods will bear comparison with those of our ordinary paper mills. The hornet seeks some rotting tree, removes a piece of wood and chews it until he produces a ball of pulp about a quarter of an inch in diameter. Laden with this, he flies to the nest. The search for a suitable piece of decayed wood and the chewing of it have consumed not more than six minutes, and perhaps only two.

Clinging to the comb with his middle and hind feet, the worker juggles the ball of pulp wih his fore feet, chewing it continuously to make it more plastic and adhesive. After sufficient chewing he disposes of the ball in repairing or in building additions. Selecting a suitable part of the nest, he attaches the ball and then drags it, leaving behind a narrow strip of paper.

As the ball of pulp is unreeled it is shaped by the insect's jaws, and by incessant tamping along the joint it is glued to the sheet of which it is to form a part. When the ribbon has reached a length that varies from half an inch to an inch and a half the hornet returns nearly, but not quite, to the point of beginning and deposits a second strip, soon after that a third and so on to completion.

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After a certain stage in this singular work of construction has been reached the queen of the hive emerges from her royal seclusion and performs a most astonishing operation. Carrying a ball of pulp of her own, she spins around one leg as a radius and deposits a circular ribbon of paper. Less agile than the workers, who complete their labors in two or three minutes, the queen requires at least five minutes for her spin.

Instead of building annexes to the hive, the hornet may use half the ball of pulp in cell building, although whole balls of very fine pulp are gathered for this special purpose. In principle, cell building is exactly like the process described, but the paper used is finer and the work is carried on with greater care. Like a good artisan, the worker retouches the moist cell after completion, smoothing down inequalities and finishing the walls with exquisite attention to detail.

Although the paper of which the cells and envelopes are fashioned is in itself perilously weak, the nest can sustain an astonishing weight of larvae and hornets, which speaks well for the engineering skill of the builder.—New York Sun.

PLAYING WITH MATCHES.

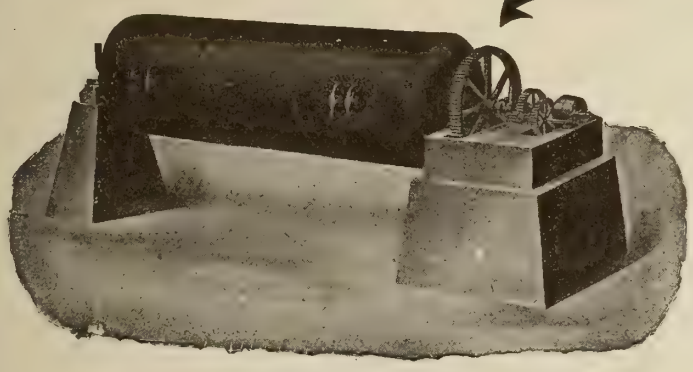
During a single month four children were burned to death, as a result of playing with matches. Regrets are of no avail. Children are fascinated by fire, and unless matches are kept where children cannot get at them, many more tragic deaths will occur. These were other people's children; yours may be next.

NEW FIELD FOR VALLEY IRON WORKS.

Valley Iron Works, of Appleton, Wis., which, during the war nearly doubled its plant, is putting up two additional buildings, one of which will double the size of their present foundry, and the other for a second erecting shop. This firm has entered the field of paper machinery builders. While for many years the Valley Works has manufactured beating engines and several other kinds of paper mill machinery, it never heretofore made paper machines, but has on hand at the present time orders for two 88-inch five-cylinder machines for the H. M. Johns-Manville Company. One of these machines is to go to this company's plant at Manville, R. I., and the other one is to go to the new mill to be built north of Waukegan, Illinois. As soon as these machines are built, the Valley Company will rebuild several of the present machines of the Johns-Manville Company.

AMERICANS LOOKING ROUND

American newspapers are now entering Europe in search of supplies, but, of course, British paper mills are quite unable to accept their orders. During the past week several big buyers have been in town negotiating and they have received a blank refusal on account of the domestic situation. British mills supply on the contract system and they have their own markets. The rate of currency would also be against them in present dealings. Up to the present I have not heard of any big order being accepted for America and I hardly think there will be.



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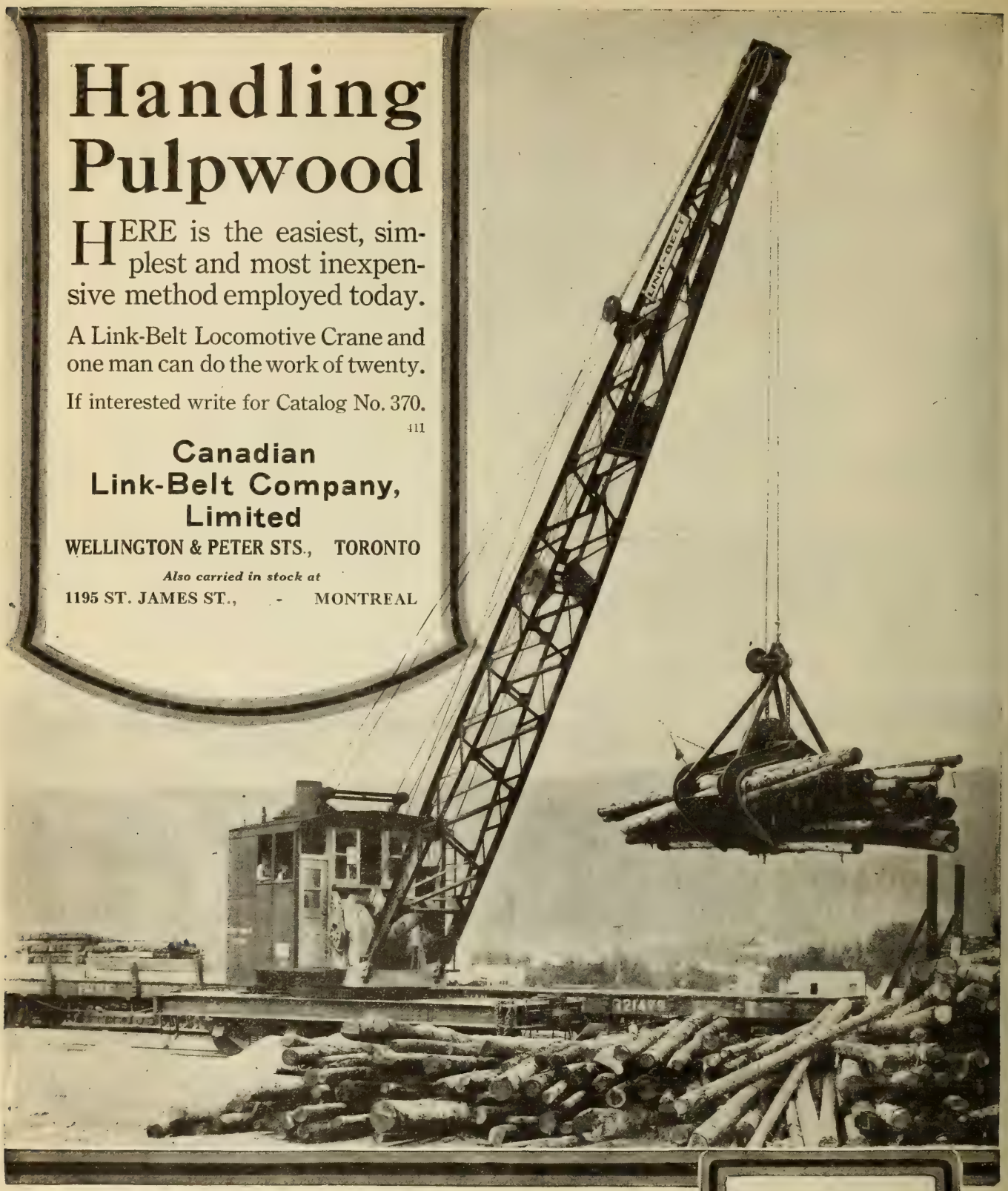
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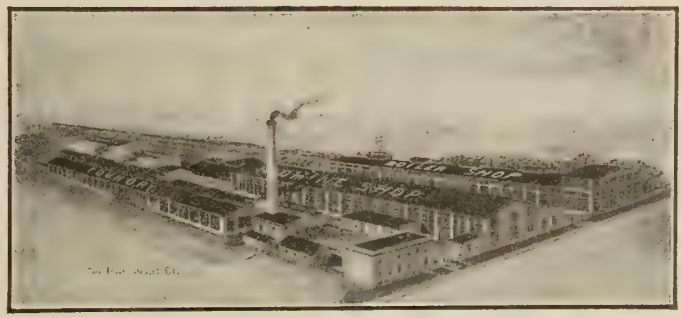
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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-:- EDITORIAL -:-

A MISTAKEN IDEA.

The Financial Post has recently published a rather remarkable communication from their New York representative. One of the statements is that newsprint prices in the United States are high because so much of the paper comes from Canada and the Canadian manufacturers are profiteering at the expense of the American newspaper publishers as they need not fear competition across the line. This is to our mind, either an absolute falsehood or an unintelligent misrepresentation. It wouldn't make the least difference at this time if all the present production of newsprint paper were produced nowhere but in the United States because the relation between supply and demand is such that prices are determined thereby. If anybody is profiteering it is the large publisher himself, who, in order to obtain more than a reasonable share of the advertising that is being distributed, goes into the open market and buys up all available supplies of newsprint, thus shutting out many small publishers who cannot pay the price.

A further interesting statement is that the Canadian manufacturer is protected by the fact that the Americans' supply of pulpwood is inadequate and that he cannot obtain sufficient because of the restrictions on pulpwood from Crown lands leased sometime ago by Americans. We do not believe that the virtual embargo has any organic connection with the case. It affects principally one consumer of pulpwood so one can hardly believe that the removal of restrictions on Crown land wood would very materially affect the manufacturing costs of mills who are now operating on raw material from other sources. Furthermore it is quite probable that the cost of wood from Crown lands will, in the not distant future, be increased to a figure approximating what it costs the individual to produce pulp wood. The American newsprint manufacturer in general has not considered himself dependent upon wood from Canadian Crown lands.

The American publisher has but recently shown any very great concern over the supply of pulp wood, his principal object having, for the most part, been to get newsprint at the lowest possible price and it is now seen that this policy has resulted in such keen competition among American manufacturers that they have been practically forced to overcut their forest lands in order to make ends meet.

The idea that wood and paper from Canada are the cause of high prices in the United States for newsprint is quite ridiculous in view of the fact that the standard of price is set by American producers in consideration of cost of production and in relation to the law of supply and demand. The Canadian mills have simply fallen into line and we doubt if our American friends can cite many instances of contracts having been made by Canadian manufacturers at prices exceeding those ruling in agreements between publishers and American mills.

The communication referred to contains a statement ascribed to an official of an American paper company, who intimates that Canadian manufacturers could be forced to agree to the removal of the embargo of pulp wood because the United States ships most of the coal and sulphur used by Canadian mills. It would really be very poor policy to bring about a forced agreement by any such means or even to attempt it. In the first place Canada has approximately 14 per cent of the world's coal deposits, although it would take some years to increase their capacity to meet all domestic needs, and Canada also is fortunate in possessing all the pyrite necessary for the operation of her sulphite mills, and furthermore if the American newspapers should be deprived of Canadian newsprint one can readily imagine the result when it is stated that more than a third of this commodity used in the United States comes from Canada.

We see no reason for stirring up trouble over this matter. The Provincial governments are quite satisfied that it is entirely proper for them to impose such restrictions as seem necessary in the administration of the forest lands with which nature has favored them. The American publishers are quite satisfied with the quantity of newsprint made in Canada from this wood and are not complaining very bitterly over the price, but rather lamenting the fact that there is not more paper to be had. Canadian manufacturers would be very glad indeed to see the American mills take such measures as would assure them a future supply of pulpwood in their own country as this would be the best possible insurance for the future life and prosperity of the mills on this side of the line.

PLAN TO PLANT YOUR OWN CHRISTMAS TREE.

The Delineator is essentially a woman's magazine but the December number contains an article by Walter Pritchard Eaton on practical forestry—domestic forestry if you like—which is worthy of extensive reading and application. There is no doubt but that the Christmas tree custom should be classed as one of

the enemies of the forest. No one knows how many thousands of evergreen trees are sacrificed for a custom that undoubtedly does bring a great deal of pleasure. The same amount of pleasure could be given without the cleaning out of areas where a new forest is just getting a nice start or chopping down large trees, only to cut off the top and leave the trunk to rot in the woods. The cutting of Christmas trees in some places, if properly done, would provide a needed thinning, but such work should be done intelligently. There are few places in Canada where people could not, either individually or as a community raise their own Christmas trees. Now is the time to plan and to order your trees from a provincial or private nursery.

The following is an extract from "The Gift Tree":

Did it ever occur to you, I wonder, that you can easily grow your own Christmas trees, and go out each year and cut one yourself—provided, of course, that you have a bit of land? Also you can, perhaps not so easily, grow your own Christmas green in a shady corner, and, it may be, thereby solving the problem of what to plant beneath the big tree where no grass will grow. I should like at this season to suggest the idea, not only in honor of Christmas and for the joy of home-grown Christmas trees, but for the protection of our fast-disappearing forests and the good of the generations to come. If you plant and grow your own tree, you both have that and you make a present of a forest tree thus spared to the children who come after you. On a piece of land 50 by 50 feet (it does not need to be rich land, and may better be land not fitted for gardening) you can plant one hundred trees spaced five feet apart each way in the rows. This will give them ample room to grow and develop symmetrically till some are large enough to thin out, making still more room for the broader-based specimens. If two-year-old seedlings are used, one hundred trees can probably be set out for five dollars, or even less if you yourself do the work, and you could well afford to put in two hundred, thus allowing for loss the first winter, and later thinning down to one hundred.

If you set out a mixed stand, using white pines, red cedars, red spruces, Norway spruces (an imported tree which is cheap and grows very rapidly), balsams (if your climate is cold enough), and Colorado blue spruces, you will begin to get good Christmas trees probably in six or seven years—you might even get a few a little sooner. The chances are that you will take out the Norway spruces first, and get them all removed before you use many of the others. They are excellent Christmas trees, but not worthy to be allowed to develop into mature trees when you have better varieties. From the time you begin cutting, for several years you will have plenty of Christmas trees each season, not only for your own use, but enough to give away as presents to your friends. By the time all your trees, even the Colorado blues, are too large for Christmas uses, you will have thinned the original hundred to twenty-five or thirty of the best specimens, to keep as permanent trees, to make a beautiful grove or windbreak for your dwelling, and the delight of your children's children; and then you can begin planting hemlocks under their shade for future Christmas trees.

But if you do not want to wait so long as six or seven years for results, you may, of course, begin with larger trees at the start. One hundred mixed evergreens, excluding the more expensive kinds, two feet high, will cost you from fifty to one hundred dollars according to your nursery. But you will get Christmas trees from two-foot Norway spruces or white pines in a very few years, and from red cedars, too. On a place of a few acres there is almost always some corner or strip of northern boundary where trees would be the best planting, or where a windbreak would be of great advantage. A strip one hundred feet long and only fifteen feet wide will grow you sixty trees spaced five feet, giving you thirty or forty Christmas trees and leaving you twenty or thirty fine evergreens to expand through the generations into a permanent windbreak and shelter for the birds. I can hardly think of a more delightful and enduring Christmas present to the children than such a plantation, especially if they take part in the planting, the care, and the joyous harvest of the trees. For every Christmas tree we use in our houses we ought, if we have the facilities, to plant another somewhere outside our houses, that the joy we have this day of good-will in our fragrant balsam or resinous pine may be, as well, the possession of the generations yet to come. Let us make our love of trees on Christmas Day extend the year through, so that we plant as well as cut, and when we set the tiny evergreen in the ground I am sure that we shall see the happy little faces of children still unborn, perhaps, shining in the glow of its candles.

WE GO TO COURT.

Last week the editor for the first time went to court—a law-court.

We listened with some interest to the evidence of witnesses called in the case of **Brown vs. Canada Paper Company, Limited.** It appears that Mr. Brown of the law firm Brown, Montgomery and Michael of Montreal, has his summer residence at Windsor Mills and objects to the occasional whiffs of odor that come from the Canada Paper Company, half a mile or more away. Mr. Brown hopes to have the court decide that this odor constitutes a sufficient nuisance to warrant the issuing of a permanent injunction against the use of the modified soda process as at present conducted in the manufacture of soda pulp, wherein sodium sulphate is employed as a partial source of alkali. We heard a good many questions asked and answered and incidentally learned a few things about the manufacture of

soda and sulphate pulp. As it may not be proper to express an opinion on the degree of sense in some of these questions and answers we shall keep our thoughts to ourself.

It does seem most strange, however, that a Canadian who knows the present situation in the paper industry, who knows that in Scandinavia one of the principal products is sulphate pulp and kraft wrapping paper and that Scandinavia is Canada's principal competitor in regard to these products, who knows or could easily find out that the sulphate process makes it possible to use wood otherwise most likely to be wasted for the production of these strong papers and who would not think of attempting to stop the operation of a railway because smoke occasionally entered his windows and soiled the linen, or to stop the street railway from operating its cars because the noise occasionally disturbed his slumbers, would attempt or even desire to prevent a Canadian manufacturer from producing a product which is an essential commodity.

OTHERS WISH THEY HAD.

Many pulp and paper manufacurers, when they read the text of the supreme court's decision in the Price Brothers case, will wish that they had taken similar measures in regard to what they all believed to be their proper rights. It is interesting to note how closely the opinions of the court parallel the ideas frequently expresed by men in the industry. While some, therefore, will regret that they did not take the same firm stand as Price Brothers in the matter, yet they must feel a good deal of satisfaction in the outcome of this case and will rejoice with their confreres in their success.

COBWEBS.

Congratulations to Mr. John R. Booth for having found the Elixir of Life; he is still going strong at 93.

The same to you, Col. Ray, 50 years with Price Brothers, longer with one firm than the average life of a man.

PAPER FAMINE IN RUSSIA

It is reported that there are present but thirteen small paper mills in operation in the whole of Russia. The total product is insignificant and the country is suffering from a paper famine. The natural resources of the country in raw materials are of course huge.

If Russia be opened to trade and by foreign capital, there will doubtless be an immense increase in the paper industry, and she will soon have immense supplies of paper-making materials to export.

There is believed to be a great opportunity for exporting paper-making machinery and other mill equipment to Russia as soon as the embargo is lifted, and no country is so well prepared to supply such machinery as the United States.

AN ANCIENT SPANISH INDUSTRY

The Paris "Temps" has brought out a Spanish supplement devoted to the commerce of Spain and the commercial relations of that country with France. The paper industry is described as one of the oldest in Spain. Jativa having been the first European town to engage in paper-making. Owing to the immense importance of paper, it has been necessary to amplify the ancient modes of production and bring into use other materials than those employed in olden times, materials more plentiful and cheaper. The result has been a decrease in the importance of the old manufacture of vellum, though this industry has maintained itself in Catalonia, owing to the traditional craftsmanship of the men employed in it.

The productive value of the industry, which covers the making of fine cardboard from rags, amounts to 7,000,000 pesetas a year, 20 per cent of which is exported abroad. The "Temps" gives an account of the paper industry of Spain, other than vellum, carried on for home uses as well as for exportation abroad. The manufacture of paper is almost entirely concentrated in the provinces of the north of Spain, especially at Tolosa.

SAFETY EDUCATION AND "ENGINEERING REVISION."

The report of plant safety committees on 1642 accidents of a large steel comapny, yield the following information as to how these accidents could have been prevented:

Number of Cases.

Nature or Cause	Six Weeks or Under	Over Six Weeks	Death or Major Mutilation	Total
Preventable by engineering revision	56	16	39	111
	56	16	39	111
Preventable by care of worker	973	100	10	1083
Trade Risk	381	48	19	448
Total	1410	164	68	1642

Percentage Distribution.

Nature or Cause	Six Weeks or Under	Over Six Weeks	Death or Major Mutilation	Total
Preventable by engineering revision	4	10	57	7
Preventable by care of worker	69	60	15	66
Trade Risk	27	30	28	27
Total	100	100	100	100

The striking feature of this table is the small percentage of minor accidents and the large percentage of deaths and other serious accidents, preventable by "engineering revision"—by which is meant machine guarding, plant arrangement, and physical conditions generally, as contrasted with personal caution.

Most authorities agree that this statement is generally true in all industries—in YOUR industry!

These figures are quoted from a special article by Lucien W. Chaney in the December 1918 issue of the Monthly Labor Review, U. S. Bureau of Labor Statistics, in which the further interesting details will be found. For copies address the Bureau Washington, D. C.

Supreme Court Decision in Price Brothers Case

A statement that the Supreme Court has upheld Price Brothers in their contention that the Board of Commerce had exceeded its authority was published in this magazine last week. The matter is of such importance to every reader of the Pulp and Paper magazine that the full text of the decision is quoted, without "editing."

The opinions of the justices are as follows:—

Price Brothers v. Board of Commerce

MR. JUSTICE IDLINGTON. — This appeal is launched pursuant to an order of my brother Anglin under and by virtue of section 41, s.s. 2 of the Board of Commerce Act, against an Order of said Board dated 6th February, 1920, which ordered and declared as follows:

"1. That any price on the sale of roll newsprint exceeding eighty dollars per ton car lots shall be deemed to include an unfair profit and the said company is hereby, and until further order of this Board, restrained and prohibited from the making or taking of unfair profits for or upon the holding or disposition of said necessary of life, to wit, newsprint, that is to say at any price which is to be deemed as aforesaid to include an unfair profit.

"2. That the said company be and it is hereby restrained and prohibited from accumulating and withholding from sale as aforesaid any quantity beyond amounts aforesaid of the said necessary of life, namely, newsprint."

And further specifically directed the appellant forthwith not later than the 10th February, 1920, to ship free on board cars one car standard newsprint as described consigned to the Montreal Star newspaper at Montreal, at the price of $80 a ton, and thereafter weekly as prescribed; and each of two other publishing companies in Montreal, quantities of paper as described at same price and on same terms.

The order recites as follows:—

"That Price Brothers and Company, Limited, hereinafter called the company, are under obligation to supply newsprint to Canadian publishers at the rate of eleven thousand two hundred and fifty tons per annum at prices heretofore lawfully fixed:

"And that the company is now supplying newsprint to Canadian publishers at the rate of approximately two thousand five hundred tons per annum, but has not delivered further supplies in Canada under its said obligation:

"And that newsprint is a necessary of life under the Combines and Fair Prices Act;

"And that the said company is accumulating and withholding from sale the said necessary of life beyond an amount thereof reasonably required for the ordinary purpose of the business of the said company;

"And the undersigned deeming it expedient in exercise of the powers and authority of the Board of Commerce under the Board of Commerce Act and under the Combines and Fair Prices Act and under and by virtue of the order of His Excellency the Governor-General-in-Council concerning paper control dated 29th January, 1920, and numbered P.C. 230, to order and declare as herein set forth."

The said Order-in-Council dated 29th January, 1920, is as follows:

"His Excellency the Governor-in-Council, on the recommendation of the Minister of Finance, is pleased to order and it is hereby ordered that until the publication of a Proclamation by the Governor-General-in-Council under the authority of the War Measures Act, 1914, declaring that war no longer exists the Board of Commerce of Canada shall—

"(a) have, exercise and perform all powers, jurisdiction, authority and duties which were heretofore or are exercisable by the Commissioner and Controller of Paper, provided that the Orders of said Board with respect to newsprint paper, sulphate and sulphite, shall be effective and have the force of law as and when made and shall not require confirmation by Order-in-Council, nor shall the exercise by said Board of any of said powers or the performance by said Board of any of said duties be subject to appeal except as by the Board of Commerce Act provided;

"(b) be appointed such Commissioner and Controller of Paper;

"(c) have jurisdiction, power and authority to direct, require and compel shipment by manufacturers of newsprint paper of such qauntities of newsprint paper as, in the opinion of the Board, are necessary and can be provided from any paper mill or persons, place or places in Canada;

(d) Shall have power and jurisdiction to order and direct that the breach or non-observance of any person or corporation of any Order or direction which the said Board may make or give under authority of this Order shall entail the same consequences and liability for the same penalties as are provided by Section 20, subsection (2) of the Combines and Fair Prices Act, including the cumulative responsibilities of co-directors and associate directors and officers of companies and corporations, and that all other provisions of law as to the jurisdiction of courts and otherwise as to procedure to enforce orders as set forth in the said 'Acts shall apply to all matters hereunder; and shall have all powers and authority to continue and carry on to completion all business and proceedings now pending in the office of the Commissioner and Controller of paper.'

"The War Measures Act of 1914 was assented to on the 22nd August, 1914, and the only war then in existence and to which it doubtless related, was that which shortly before that time had begun with Germany and Austria.

"Practically that ended with the Armistice of 11th November, 1918, but it must be held in law to have existed until the signing of the Treaty of Peace.

"That was declared by an Imperial Proclamation to have taken place on the 29th of June, 1919. The assent of Germany had been given the day before, and later that of Austria was given on the 10th day of September, 1919.

The 6th Section of the War Measures Act is that which enabled the Governor-in-Council to make from time to time such orders and regulations as he may by reason of the existence of real or apprehended war, invasion or insurrection, deem necessary or advisable for the security, defence, peace, order and welfare of Canada,' and that specifically assigns a number of subject matters as within the classes of subjects intended to be comprehended therein.

"True, the section provides for and anticipates a possibly wider range of subjects, but for the present

purpose I have not heard of any such having arisen.

"That which we have to deal with, if by any reasonable possibility at all within the operative ambit of the Act, I think must fall within subsection (c) which reads as follows:—

"(c) Trading, exportation, importation, production and manufacture."

It certainly is not covered by either "exportation" or importation. Nor can it fall within such trading as conceivably within range of what a war measure often has to deal with and forbid or enforce; if reason is at all applicable as I hold it must be to deal sensibly with the madness of war and all implied therein.

I have much difficulty in seeing how anything in subsection (b) can apply to the mere direction of selling newsprint paper by a manufacturer thereof to a person wishing to use it. Indeed, after much consideration, I cannot think how that purely business transaction of a very ordinary type can be said to have any relevancy to the matters herein specified of possibly vital importance in many ways conceivable in a state of war—

SS. "(f) appropriation, control, forfeiture, and disposition of property and of the use thereof," clearly extends only to the taking and using of private property in such a way as the authorities concerned may require to meet the exigencies of the case.

The entire item certainly does not cover anything comprehended in what we have to consider in way of regulating the private dealing between parties carrying on their respective businesses.

Indeed the argument of counsel referred only to the possibilities of mystery and secrecy which might arise and could not reasonably ever be disclosed, but in fact the time therefor has ceased and it is hard to conceive that it ever existed in relation to what is here in question. Nothing forbidding the disclosure in a free country would seem to have existed in that which is involved herein.

Then from the point of view of the War Measures Act we come to the Order-in-Council of 20th December, 1919, which I submit recognizes to the fullest extent the termination of the war, yet strangely excepts from the general operation all such orders and regulations as needed therefor and are to be repealed, the item of Pulp and Paper control—with eight other items.

I can conceive of problems in way of liquidation, as it were, of such items as "internment operations" and "trading with the enemy," requiring a reservation, but I am quite unable to conceive how the item of "Pulp and paper control" can fall therein or thereunder.

Each transaction relative thereto had been already liquidated by the delivery of paper and payment therefor.

In the last desperate resort, as it were, the justification for the order is rested upon the Combines and Fair Prices Act, and the powers of the Board of Commerce thereunder.

Section 16 of said Act reads as follows:—

"16. For the purposes of this Part of this Act, the expression 'necessary of life' means a staple and ordinary article of food (whether fresh, preserved, canned, or otherwise treated), clothing and fuel, including the products, materials and ingredients from or of which any thereof are in whole or in part manufactured, composed, derived or made, and such articles of description as the Board may from time to time by special regulation prescribe."

I am unable to understand how newsprint can under such a definition "necessaries of life" fall thereunder, or anything the Board of Commerce by any due observance of the *e jusdem generis* rule, which must be adhered to in the interpretation and construction thereof, may see fit to include within the definition can be held as falling thereunder.

I am therefore, of the opinion that the Order-in-Council now in should be allowed with costs.

* * * *

MR. JUSTICE DUFF.—A careful review of all the considerations presented on the argument has only confirmed my opinion that the fourth paragraph of the order impeached on the appeal cannot be sustained as emanating from any authority given by the War Measures Act, 1914.

In this connection the sole point requiring examination is that which arises out of Mr. Biggar's contention in his admirable argument that Orders-in-Council made by the Governor-General-in-Council professedly under the authority of section 6 of that Act are not judicially reviewable. I think such orders are reviewable in this sense that when in a proper proceeding the validity of them is called into question, it is the duty of a court of justice to consider and decide whether the conditions of jurisdiction are fulfilled, and if they are not being fulfilled, to pronounce the sentence of the law upon the illegal order.

One of the conditions of jurisdiction is in my judgment that the Governor-in-Council shall decide that the particular measure in question is necessary or advisable for reasons which have some relation to the perils actual or possible of real or apprehended war—(I leave the case of insurrection out of view as having no relevancy)—or as having some relation to the prosecution of the war or the objects of it.

The recitals of the order of the 20th December are, I think, in themselves sufficient to constrain any court to the conclusion that the order of the 29th January was not preceded or accompanied by any such decision.

As to the first and second paragraphs of the order of the Board of Commerce, I adhere without any doubt whatever to the opinion expressed in the course of the argument that necessaries of life within the meaning of the "Fair Prices Act" do not comprehend articles which are not necessary by reason of their being required for some purposes connected with the physical life of the individual.

* * * *

MR. JUSTICE BRODEUR.—This is an appeal by Price Brothers from an order of the Board of Commerce passed on the 6th of February, 1920 by which they were restrained from accumulating newsprint and were ordered to sell their goods to three Montreal publishers.

This order was made under the provisions of the War Measures Act of 1914 and under the Board of Commerce Act and the Combines and Fair Prices Act of 1914.

It is contended on the part of the appellants that the Board was without jurisdiction for making such an order and that it was beyond the powers of the Dominion Parliament to make or authorize it.

The Attorney-General upholds the legality and the validity of the order and claims that the power of the Federal Parliament to legislate for the defence of the country rendered valid legislation passed for the purpose of regulating the channels through which a particular commodity should move and the price at which

it could be sold. He would consider that the Federal Parliament could then pass legislation to secure to newspapers an adequate supply of paper and that such a legislation would be a measure of defence.

The War Measures Act of 1914 on which the order in question is based was very wide. But it never contemplated that the price at which newspapers would be supplied with their raw material should be fixed by the Government or by some other authority.

The Act contemplated some measures that would be rendered necessary for the defence of the country, as the censorship of the news, the arrest, detention and deportation of undesirable persons or of enemy subjects, the levy of an army, the control of the transport by land, air and water, the control of the food for war purposes and maintaining the forces. But it seems to me that it requires a great deal of imagination to include in those war measures the supply of newsprint to the press, and especially the exact price at which the newspapers should be supplied with paper.

It is certainly not what Parliament intended to authorize when they gave the Governor-in-Council the power to pass Orders-in-Council of the nature of defensive measures.

Besides, these powers could be exercised during the war. We have in the record proclamations stating formally that in the opinion of the Government the state of war has ceased to exist. The order which is attacked being posterior to the declarations made that the war is at an end, it was passed at a time when the power, if it ever legally existed, had ceased, had ceased to have force and effect.

It is contended by the Attorney-General that the Federal Parliament, in view of its power to regulate trade and commerce, could pass the legislation embodied in the acts in question.

The words "regulation of trade and commerce" may cover a very large field of possible legislation and there has been much discussion as to their limits. They were first considered in the Parsons case (7 A.C. p. 96) in 1881; and there it was stated that these words in their unlimited sense would include every regulation of trade ranging from commercial treaties with foreign governments down to minute rules for regulating particular trades, but a consideration of the context and of other parts shows that these words should not be used in their unlimited sense. The collocation of the regulation of Trade and Commerce with classes of subjects of national and general concern affords an indication that regulations relating to general trade and commerce were in the mind of the Fathers of Confederation when they gave the Federal Parliament the power to deal with it.

Views to the same effect have been expressed by the Privy Council in Bank of Toronto v. Lambe, 12 A.C. p. 575 and in Montreal v. Montreal Street Railway, 1912, A.C. p. 333.

The last case where this power of regulating trade and commerce has been considered by the Privy Council is the Insurance Reference, 1916, A.C. p. 588, and it was held there that "The regulation of trade and commerce does not extend to the regulation of a particular trade."

In the Combines and Fair Prices Act, there is an attempt to regulate the trade of those who are engaged in the trade of necessaries of life, as there was an attempt in the insurance legislation to regulate the trade of those engaged in the insurance business.

That power cannot, in view of the above decisions, be exercised, by the Federal Parliament.

On the whole, I have come to the conclusion that the Board of Commerce had no jurisdiction to pass the order of the 6th of February, 1920, and that the appeal should be allowed with costs.

* * * *

MR. JUSTICE MIGNAULT.—This is an appeal, by leave of a judge of this Court, on certain questions as to the jurisdiction of the Board of Commerce of Canada to make the order complained of by the appellant. The Attorney-General of Canada appeared to defend the order, and the questions of jurisdiction submitted were exhaustively argued.

The main provisions of this order are preceded by a kind of preamble stating that the appellant is under obligation to supply newsprint to Canadian publishers at the rate of 11,250 tons per annum at prices heretofore lawfully fixed, but is now supplying at the rate approximately of 2,500 tons per annum, and has not delivered further supplies in Canada; that newsprint is a necessary of life under the Combines and Fair Prices Act; that the appellant is accumulating and withholding the said necessary of life beyond an amount thereof reasonably required for the ordinary purposes of its business; and it is declared that the Board of Commerce deems it expedient, in the exercise of its powers and authority under the Board of Commerce Act and the Combines and Fair Prices Act, and under and by virtue of the Order-in-Council of the Governor-General-in-Council concerning paper control, dated 29th January, 1920, and numbered P.C. 230, to order and declare as follows:

"1. That any price on the sale of roll newsprint exceeding eighty dollars per ton car lots shall be deemed to include an unfair profit and the said company is hereby, and until the further order of this Board, restrained and prohibited from the making or taking of unfair profits for or upon the holding or disposition of said necessary of life, to wit, newsprint, that is to say at any price which is to be deemed as aforesaid to include an unfair profit.

"2. That the said company be and it is hereby restrained and prohibited from accumulating and withholding from sale as aforesaid any quantity beyond amounts aforesaid of the said necessary of life, namely, newsprint.

"3. The clauses above numbered 1 and 2 are to be deemed interim provisions and are to remain in force until the fifteenth day of March, 1920, with leave to the company to move to rescind them and to any other person concerned to renew and extend the said provisions.

"4. Under the special authority vested in the undersigned by virtue of said Order-in-Council and otherwise existing under the said Acts the undersigned direct that the said Price Brothers and Company Limited, do—

"(a) Forthwith and not later than the tenth day of February, 1920, ship free on board cars on the railway at or nearby a mill of the said company one car standard newsprint 32 lb. basis, 72 inch rolls, 33 inches diameter, pulp wood cores with metal ends consigned to the publishers of The Montreal Star newspaper at Montreal, Quebec freight charges collect, at the price of eighty dollars per ton, bill of lading to be attached to bill of exchange and that the said company do thereafter in each and every period of seven days computed from time to time from and including

the said tenth day of February make such shipments of the like commodity to the said consignee in the same manner and on the same terms in all respects so that the said publishers shall receive in all 93 tons of said newsprint in each and every consecutive period of seven days so computed until further order; the carload first herein mentioned is to be included in computing the first week's shipment of 93 tons .

"(b) Forthwith and not later than the tenth day of February, 1920, ship free on board cars on the railway at or nearby a mill of the said company one car standard newsprint 32 lbs. basis, consisting of 30 rolls, 16¾ inches and the balance of the said cars in rolls 33¼ inches all of said rolls to be from 30 to 32 inches in diameter, 3 inch iron cores consigned to The Herald Publishing Company, Limited, Montreal, Quebec, freight charges collect at the price of eighty dollars per ton, bill of lading to be attached to bill of exchange, and that the said company do thereafter in each and every period of ten days from and including said tenth day of February make such shipments of the like commodity to the said consignee in the same manner and on the same term so that the said The Herald Publishing Company, Ltd., shall receive one car load composed as aforesaid of said newsprint in each and every consecutive period of ten days computed from said tenth day of February until further order.

"(c) That the said company do forthwith ship from a mill as aforesaid consigned to Poirier, Bessette and Cie., 129-133 Rue Cadieux, Montreal, one car load standard newsprint 32 lb. basis, consisting of 29 inch rolls, diameter from 30 to 33 inches with paper cores from 3 to 4 inches, the price and terms and means of shipment and payment to be as aforesaid and each month hereafter on or before tenth day thereof, the said Price Bros. & Co., Ltd., shall make a like shipment to said consignee in the same manner and on the same terms."

The petition for leave to appeal submits seven questions which, in so far as they involve the jurisdiction of the Board, can be reduced to two:

1. Was the order in question authorized by the Dominion Parliament?

2. Had the Dominion Parliament power to authorize it?

If the answer to either question be in the negative the Board must be held to have acted without jurisdiction, and if a negative answer be given to the first question, it will be unnecessary to reply to the second.

Paragraphs 1 and 2 of the order involve the question whether newsprint is a necessary of life under the Combines and Fair Prices Act, 1919 (9 and 10 Geo. V. ch. 45). It is so declared in the order appealed from.

The definition of "necessary of life" is given by section 16 of the Statute in the following terms:

"For the purposes of this part of this Act, the expression 'necessary of life' means a staple and ordinary article of food (whether fresh, preserved, canned, or otherwise treated), clothing and fuel, including the products, materials and ingredients from or of which any thereof are in whole or in part manufactured, composed, derived or made, and such other articles of any description as the Board may from time to time by special regulation prescribe."

It is obvious from this definition that in the contemplation of Parliament necessaries of life are primarily articles necessary to sustain life, as distinguished from luuxries. Being necessaries of life, and the requirements of human life being of infinite variety, they cannot be confined to staple and ordinary articles of food, clothing and fuel, and as it was impossible to enumerate them, the Board was given the power from time to time to declare "such other articles of any description" as it might from time to time by special regulation prescribe, to be necessaries of life. It is argued that the *e jusdem generis* rule should be applied here and that the defining power of the Board should be restricted to articles of the same kind, staple and ordinary articles of food, clothing and fuel. But to so hold would defeat the will of Parliament, for, as I have said, the requirements of human life vary *ad infinitum*, and it would not be difficult to enumerate articles useful or necessary for the purposes of human life which are neither food, nor clothing, nor fuel, such as medicine for the sick, crutches for the lame and eye-glasses for persons with defective eyesight. I think the intention of Parliament to exclude the *e jusdem generis*, or *noscitur a sociis* rules is sufficiently shown here by the words "such other articles of any description" (see Larsen v. Sylvester, 1908, A.C. 295, where the House of Lords held that the *e jusdem generis* rule was excluded by the words "frosts, floods, strikes and any other unavoidable accidents or hindrances of what kind soever") and the general scheme of the Act is to entrust to the Board of Commerce the power of defining what articles, other than food, clothing and fuel are necessaries of life, any complete or exclusive enumeration being impossible. I would not therefore cut down the generality of the terms of section 16 by resorting to the rule, undoubtedly very useful in many cases, that general terms following special ones are to be restricted to the kind of things specially enumerated. Moreover, if the *e jusdem generis* or *noscitur a sociis* rules apply, the powers of definition confessed upon the Board are entirely meaningless, for the enumerated article alone could be considered necessaries of life.

This does not mean however that this power of definition must not be exercised reasonably, in other words that the articles which the Board declares to be necessaries of life should not have some relation to the requirements of human life, varied and difficult to define *a priori* though they may be. And I must say that I fail to discover any possible connection between the requirements of human life and newsprint paper. It even appears almost an abuse of language to call it a necessity of life.

Whatever place newspapers may occupy in modern society, and it is no doubt a very important one, and however indispensable newsprint may be, for educational and other like purposes, it certainly does not proximately or even remotely come within the class of things that can be used for the requirements of human life. I therefore am of opinion that the Board acted without jurisdiction in declaring it a necessity of life.

This conclusion shows that paragraphs 1 and 2 of the order complained of cannot be supported under the authority of The Board of Commerce Act or The Combines and Fair Prices Act, 1919, and these paragraphs therefore were not authorized by Parliament. This being so, it is unnecessary to determine in this case whether Parliament could validly pass these two Acts.

Paragraph 4 of the order is based on different considerations and the authority of the Board of Commerce to order the supply of newsprint to the consumers therein mentioned can only be supported un-

der the authority vested in the Board as Commissioner and Controller of Paper by virtue of the Order-in-Council of the 29th January, 1920, and the Orders-in-Council that preceded it.

It may be remarked that the office of Paper Controller was created at the height of the war by various Orders-in-Council adopted by the Governor-General in Council, whereby the powers of the Controller were defined and gradually, as occasion required, increased. The powers, jurisdiction and authority of the Paper Controller were recognized and confirmed by the Dominion statute, 9-10 Geo. V. ch. 63, assented to on July 7th, 1919, and were continued until the publication in the Canada Gazette of a proclamation by the Governor-in-Council declaring that the war which commenced on the 4th August, 1914, no longer exists.

The Orders-in-Council concerning the Paper Controller and paper control were made by the Governor-General-in-Council under the authority of the War Measures Act, 1914, and were recognized as having been so made by the statute of 1919 above mentioned. This is a direct confirmation by Parliament of the authority exercised by the Governor-General-in-Council under the War Measures Act, 1914, and in so far as the Orders-in-Council mentioned in the statute are concerned, certainly precludes any question whether in making them the Governor-General-in-Council acted within the authority conferred by The War Measures Act, 1914. It is to be noted that the statute of 1919 was passed several months after the armistice of the 11th November, 1918, had put an end to active military operations, and after the treaty of peace with Germany was signed, although before its ratification.

Inasmuch however as the Governor-General-in-Council made important orders after the passing of the statute of 1919 concerning paper control, among them that of the 29th January, 1920, on which paragraph 4 of the order in question is based, I will briefly examine whether the authority of the Governor-General-in-Council can be sustained under the War Measures Act, 1914.

Much stress is laid on the words of Section 6 of the Act empowering the Governor-in-Council to make from time to time such orders and regulations as he may, by reason of the existence of real or apprehended war, invasion or insurrection deem necessary or advisable for the security, defence, peace, order and welfare of Canada. And it is argued that these powers can be exercised only during the existence of real or apprehended war and that no such condition now exists.

It appears sufficient to answer that by sec. 3 of the Act, the provisions of section 6 are only in force during war, invasion, or insurrection, real or apprehended; that by section 4, the issue of a proclamation by His Majesty, or under the authority of the Governor-in-Council, is conclusive evidence that war, invasion or insurrection, real or apprehended, exists and has existed for any period therein stated, and of its continuance until, by the issue of a further proclamation it is declared that it no longer exists, that by section 5 it is declared that war has continuously existed since the 4th day of August, 1914, *and shall be deemed to exist* until the Governor-in-Council by proclamation published in the Canada Gazette declares that it no longer exists; and that no such proclamation has yet been published. This, I take it, precludes us from holding that war having ceased, the jurisdiction of the Governor-in-Council under The War Measures Act can no longer be exercised.

The appellant also relies on the Order-in-Council of the 20th December, 1919. This Order-in-Council recites that a report from the Minister of Justice has been laid before the Governor-General-in-Council, "directing attention to the present situation with regard to the Government orders and regulations which were sanctioned under the authority of The War Measures Act, 1914, and which still remain in operation."

The report refers to the terms by which authority is conferred upon the Governor-in-Council by section 6 of the War Measures Act, 1914, and to the report made by the legal committee appointed in England to consider and report upon the interpretation of the term "period of war," which report states that

"In our opinion the true construction of the section is that the regulations so issued can operate only during the continuance of the war. The purpose expressed is for securing the public safety and the defence of the realm, which we think mean the public safety so far as threatened by our enemies in the present war and the defence of the realm against those enemies. The powers are given by reason of the national emergency and vest the Executive with an authority so wide that we think it must have been intended only to exist during the existence of the emergency."

The Minister of Justice observes that the provisions of the Defence of the Realm (Con.) Act, 1914, of the United Kingdom and of the War Measures Act, 1914, of Canada, vary considerably, but so far as affects the question under consideration they were enacted for the same purpose, and the considerations upon which the opinion of the Committee proceeds are very pertinent to the question as to the operation of the Canadian Orders and Regulations. He adds:

"It must be realized that although no proclamation has yet been issued declaring that war no longer exists, actual war conditions have in fact long ago ceased to exist, and consequently existence of war cannot longer be urged as a reason in fact for maintaining these extraordinary regulations as necessary or advisable for the security, defence, peace, order and welfare of Canada.

"The Armistice which concluded hostilities became effective on the 11th November, 1918, the expeditionary force has since been withdrawn and demobilized and the country generally is devoting its energies to re-establishment in the ordinary avocations of peace.

"In these circumstances the Minister considers that the time has arrived when the emergency Government legislation should cease to operate."

The report of the Minister of Justice apparently recommended the repeal of the emergency Government legislation generally, but it evidently was not acted upon in this wide sense, as is shown by the enacting clause of the Order-in-Council which reads as follows:

"Therefore His Excellency the Governor-General-in-Council, on the recommendation of the Minister of Justice, is pleased to repeal all orders and regulations of the Governor-in-Council which depend for their sanction upon section 6 of the War Measures Act, 1914, and the same are hereby repealed as from the first day of January, 1920, *with the exception of the Orders and Regulations enumerated and included in the annexed schedule, which latter orders and regulations* shall continue in force until the last day of the next session of Parliament."

The schedule enumerates nine subjects as to which the Orders-in-Council and regulations of the Govern-

or-in-Council are to remain in force, among them, and the first in the list, pulp and paper control.

I think therefore that the appellant can found no argument on this Order-in-Council of the 20th December, 1919. It obviously must be taken as a whole, and the report of the Minister of Justice must be read either as being subject to the exceptions made by the Order-in-Council, or as not having been adopted as to these exceptions. In other words, as to the excepted orders and regulations, the considerations expressed by the Minister do not apply. Even if the Order-in-Council could be given the absolute and sweeping effect contended for, it cannot, insofar as paper control is concerned, prevail against the express provisons of the statute of 1919.

Nor can this Order-in-Council be held to be, as was somewhat timidly suggested, the peace proclamation referred to in Section 5 of the War Measures Act, 1914, and in the statute of 1919. It would be a singular process of reasoning, if I may say so with deference, to apply an Order-in-Council, with specific exceptions as if it had contained no such exceptions. This is not construing the Order-in-Council, it is striking out and disregarding some of its most material provisions.

The situation consequently is this: No peace proclamation as provided in the War Measures Act, 1914, and the statute of 1919 has been published and therefore, in so far as concerns paper control and the powers of the Paper Controller, the legal presumption of the existence of war, which I take to be *juris et de jure*, cannot be rebutted. That this legal presumption may be contrary to existing facts is a matter for the consideration of Parliament that enacted it, but not for a court of law which is bound by it. The anomaly of such a situation calls for action by Parliament or by the Governor-in-Council to bring it to an end, but no such action appears to me to be open to this Court.

I may add that a considerable number of Orders-in-Council are printed in the appeal book, notably one of the 3rd November, 1917, mentioned in the statute of 1919, and by which the Paper Controller was authorized to fix the price and distribution of newsprint paper. It cannot be said that any real departure from these Orders-in-Council is made by the Order-in-Council of the 29th January, 1920, but the same policy, as a measure adopted under the War Measures Act, 1914, has been continued, and the resistance of the appellant to this policy has led to the making of the order here in question.

The appellant cited two proclamations of His Majesty the King, published in the London Gazette of the 1st of July, 1919.

The first proclamation refers to the signing of the peace treaty with Germany, and orders that upon the exchange of the ratifications thereof, the said treaty of peace be inviolably observed.

The second proclamation states that whereas it has pleased Almighty God to bring to a close the late widespread and sanguinary war in which His Majesty was engaged with Germany and her allies, therefore His Majesty commands that a general thanksgiving to Almighty God for His manifold and great mercies be observed throughout His Majesty's Dominions on Sunday the sixth day of July then instant.

Surely these proclamations cannot do away with the necessity of the proclamation of peace required by the War Measures Act, 1914, and the statute of 1919. And it may further be added that by an order of His Majesty the King-in-Council, dated the 9th day of February, 1920, and published in an extra of the Canada Gazette of March 29th, 1920, the war is declared terminated on the 10th day of January, 1920, only as to Germany and not as to the other beligerents. This shows that the proclamations published in the London Gazette of July 1st, 1919, cannot be given the effect contended for the appellants.

It cannot be successfully contended that the War Measures Act, 1914, transcends the powers of parliament. It must therefore be given full effect and until it is repealed or until the peace proclamation is published, the authority of the Governor-in-Council to make these Orders-in-Council cannot be disputed. No question of encroachment on provincial powers of legislation under these circumstances can arise.

It has been argued that paper control has no connection with the purposes mentioned in the War Measures Act, 1914, as justifying the Governor-in-Council in making the orders and regulations therein authorized. It seems to me that unless I am ready to impute bad faith to the Crown, I should not take upon myself to determine whether its orders are necessary or advisable for the security, defence, peace, order and welfare of Canada. It is indeed conceivable that paper control may be very important in the national interest in the case of an emergency like war. I would, however, consider it sufficient to say in this case that no reason has been shown why this Court should undertake to revise and set aside the discretion exercised by the Governor-in-Council under the War Measures Act, 1914, in relation to the control of paper, which discretion received the approval of Parliament, as shown by the statute of 1919.

My opinion consequently is that paragraph 4 of the Order-in-Council complained of is of binding force. I would, however, for the reasons above stated, strike out paragraphs 1 and 2, allowing the appeal to that extent, with costs.

MR. JUSTICE ANGLIN.—Price Bros. & Co., Limited, appeal from an order of the Board of Commerce, dated on the 6th of February, 1920, by leave of a judge of this court granted under s. 41 (2) of the Board of Commerce Act 9 and 10 Geo. V., c. 37. The order purports to have been made by the board in the exercise of jurisdiction conferred on it by the Board of Commerce Act and the Combines and Fair Prices Act (9 and 10 Geo. V., c. 45) and also of jurisdiction formerly exercised by Mr. R. A. Pringle, K.C., as Paper Controller, which His Excellency the Governor-in-Council purported to vest, in a modified and extended form, in the Board of Commerce by Order-in-Council dated the 29th of January, 1920.

While several questions are formulated in the petition on which leave to appeal was obtained, they all seem to resolve themselves into one—the power of the board to make the impugned order. Three clauses of it—Nos. 1, 2 and 4—are specially challenged. Clause No. 1 prohibits the appellant from taking any price exceeding $80 per ton for newsprint, declaring that any price in excess of that sum "shall be deemed to include unfair profit." Clause No. 2 forbids the appellant accumulating and withholding from sale any quantity of newsprint beyond an amount reasonably required for the ordinary purposes of its business. These two clauses are upheld by counsel representing the Attorney-General of Canada on the ground that newsprint was rightly declared by the board to be "a necessary of life" within s. 16 of the Combines and

Fair Prices Act and that as such the board was empowered to deal with it as it did in those clauses.

The argument covered a wide field, the constitutionality of both statutes involved being challenged and various questions discussed as to the construction and sufficiency of the findings of fact in the order. In the view I take of the matter, however, it seems necessary only to consider on this branch of the case whether the finding or declaration that newsprint is a necessary of life within s. 16 of the Combines and Fair Prices Act can be upheld. If it cannot, the jurisdiction of the Board to make clauses 1 and 2 of its order cannot be maintained under that Act and the Board of Commerce Act. So far as they may be supported under any powers vested in the board as Paper Controller they may be more conveniently considered with clause 4, which, it is common ground, can be supported only under the latter powers.

Power of Parliament.

By clause 4 the appellant is required to furnish at certain times to named purchasers and at fixed prices defined quantities of newsprint. The appellant challenges the power of Parliament to confer jurisdiction to make such an order on the ground that it involves an undoubted invasion of the field of "property and civil rights" assigned by the B.N.A. Act to the legislative jurisdiction of the provinces; and it also maintains that the Orders-in-Council under which the board has acted were not authorized by the War Measures Act, 1914 (5 Geo. V., c. 2) under which they purport to have been made. I find it unnecessary to pass upon the alleged invasion of provincial rights and therefore refrain from any expression of opinion upon it. Citizens Ins. Co. v. Parsons, 7 A.C., 96, at p. 109.

By s. 5 of the War Measures Act, 1914, it is enacted that war (by which, I take it, is meant the "real war" during which, only, under s. 3, s. 6 is in force) declared to have existed since the 4th day of August, 1914, "shall be deemed to exist until the Governor-in-Council by proclamation published in The Canada Gazette declares that it no longer exists." It is common ground that such a proclamation has not yet been made or published. Therefore "real war" is still existing for the purposes of s. 3; and s. 6 is consequently still in force.

Now s. 6 empowers the Governor-in-Council to make such orders and regulations "as he may by reason of the existence of real or apprehended war, invasion or insurrection, deem necessary or advisable for the security, defence, peace, order and welfare of Canada"; and particularly in regard to "trading, exportation, importation, production and manufacture" and "appropriation, of property and of the use thereof."

Assuming the validity of this legislation both as being restricted to a field within s. 91 of the B.N.A. Act and as not involving a delegation of powers beyond the competence of Parliament, whether the Orders-in-Council on which the board must rely to justify the exercise of the powers which it asserts as Paper Controller are within its purview must still be considered.

In view of the provisions of the staute, 9 and 10 Geo. V., c. 63, I think the validity of the Orders-in-Council therein recited is probably not now open to question on the ground that they transcend the jurisdiction which the War Measures Act, 1914, purports to confer on the Governor-in-Council; and it may also perhaps be assumed that Parliament thereby recognized the office of "Commissioner and Controller of Paper" as one not personal to Mr. Pringle, but as an office which would continue, should he resign or be removed therefrom, and might thereupon be filled by appointment of the Governor-in-Council. But, having regard to the apparent purpose of that statute, to its title and recital and to the use in s. 1 of the past participle "begun" and the omission of any such future-perfect adjectival phrase as "which shall have been begun," I cannot think it was intended thereby to enlarge the scope of the jurisdiction intended to be conferred on the Governor-in-Council by the War Measures Act, 1914, or to enable the Paper Controller to exercise powers greater or more extended than under that act the Governor-in-Council is authorized to vest in him, or to extend his powers further than might be necessary to carry to completion and final disposition work begun by him within powers for conferring which the War Measures Act, 1914, rightly construed may be invoked as authority. In particular, I cannot regard the statute of 1919 (c. 63) as repealing or dispensing with the condition expressed in s. 6 of the War Measures Act that orders and regulations made thereunder must be such as the Governor-in-Council "may by reason of the existence of real or apprehended war, invasion or insurrection deem necessary or advisable for the security, defence, peace, or welfare of Canada."

If that act was designed to authorize the Paper Controller, whereby directly or through the medium of an Order-in-Council, to interfere with property and civil rights, as the board purports to do by the order appealed from, its constitutionality would certainly call for very grave consideration.

Board's Jurisdiction.

Passing over as not material several intervening Orders-in-Council—one of the 7th of July, 1919, one of the 1st of December, 1918, one of the 15th December, 1919, and two of the 5th of January, 1920, providing means for making orders of the Paper Controller effective; one of the 30th of December, 1919, approving orders of the Controller fixing prices on newsprint from the 1st of January to the 1st of July, 1920; two of the 22nd of January, 1920, accepting Mr. Pringle's resignation and appointing Mr. R. W. Breadner in his stead, and one of the 29th of January accepting Mr. Breadner's resignation, we come to the vitally important Order-in-Council—that of the 29th of January, 1920, appointing the Board of Commerce as Paper Controller with extended powers and jurisdiction. The approval of the Governor-in-Council, heretofore required before orders of the Paper Controller became effective, was thereby dispensed with, and the appeal to the Paper Controller became effective, was thereby dispensed with, and the appeal to the Paper Control Tribunal, established under Order-in-Council of the 16th of September, 1918, was abolished. In lieu thereof the orders and acts of the Board as Paper Controller were made subject to appeal only as provided by the Board of Commerce Act, under which the present appeal is brought. In addition to "all powers, jurisdiction, authorities and duties . . . heretofore exercisable by the Commissioner and Controller of Paper," the Board was expressly vested with "jurisdiction, power and authority to direct, require and compel shipment by manufacturers of newsprint paper of such quantities of newsprint paper, as, in the opinion of the Board, are necessary and can be provided from any paper mill or persons, place or places in Canada."

I shall assume that the terms of this Order-in-Council, if valid, are wide enough to clothe the Board with power to make its order of the 6th of February, now appealed from. To support that order, so far as it depends on the Board's jurisdiction as Paper Controller, it is essential that the Order-in-Council now under consideration should be maintained. In so far as it provides for the appointment of the Board as Paper Controller and purports to confer on it powers necessary to carry to completion matters begun by the Paper Controller before the 7th of July, 1919 (when c. 63 of the statutes of that year was assented to), its validity may be assumed. But the Board's order of the 6th of February is not restricted to such matters. On the contrary, it deals with distinctly new matters —matters not heretofore begun—the fixing of the price of newsprint and its accumulation by Price Bros. from the date of the order until the 15th of March and the supply of that commodity by Price Bros. in fixed quantities and at fixed prices to certain consumers for future periods. Can the validity of an Order-in-Council passed on the 20th of January, 1920, under the War Measures Act, 1914, conferring power to make such an order be maintained?

Impossible to Believe.

The common knowledge possessed by every man on the street, of which courts of justice cannot divest themselves, makes it impossible to believe that the Governor-in-Council on the 20th of January, 1920, deemed it "necessary or advisable for the security, defence, peace, order (or) welfare of Canada" "by reason of the existence of real or apprehended war, invasion or insurrection" to confer on the Paper Controller such powers as the Board has purported to exercise by its order now in appeal.

Advisability or necessity, however great, arising out of post-war conditions is not the same thing as, and should not be confounded with advisability or necessity "by reason of the existence of real or apprehended war." Real war had long since ceased, although, in a fictitious sense, the continued existence of it for some purposes is provided for by s-5 of the War Measures Act, 1914. That in passing the Order-in-Council of the 20th of January, 1920, the Governor-in-Council was actuated by any aprehension of war, invasion or insurrection is not suggested.

If further evidence were needed that the Governor-in-Council was apprised that emergency legislation by Orders-in-Council was no longer necessary or advisable by reason of the existence of war, it is furnished by his own Order-in-Council of the 20th of December, 1919, which recited that "so far as affects the question under consideration" (i.e., the duration of emergency leglislation by Orders-in-Council) the provisions of the Defence of the Realm Act (Con.) 1914, of the United Kingdom (5 and 6 Geo. V., c. 8) and of the War Measures Act, 1914, while varying considerably, "were enacted for the same purposes"—that a legal committee appointed in England by His Majesty's Government had reported that the legislative powers conferred on the Government by the former Act "can be exercised only during the war and that the orders and regulations made by the Government under the statute could not have any valid operation after the termination of the war," and also that "the powers are given by reason of the national emergency and vest the executive with an authority so wide that we think it must have been intended only to exist during the existence of the emergency."

The Order-in-Council of the 20th of December further recites that "It must be realized that, although no proclamation has yet been issued declaring that the war no longer exists, actual war conditions have in fact long ago ceased to exist, and consequently existence of war cannot longer be urged as a reason in fact for maintaining these extraordinary regulations as necessary or advisable for the security, defence, peace, order and welfare of Canada."

It is true that, while many Orders-in-Council passed under the War Measures Act, 1914, were repealed by the Order-in-Council containing these recitals, the Orders-in-Council respecting pulp and paper control were directed to remain in force as were those respecting some eight other subjects; but this may have been—probably was—because, as in the case of "internment operations," for instance, it was necessary to carry to completion and wind up work and undertakings begun during the war and still unfinished.

In view of the foregoing facts, however, in my opinion it cannot be suggested, without imputing bad faith to the Governor-in-Council, that in making the Order-in-Council of the 29th of January, 1920, he professed to do something which he "deemed necessary or advisable for the security, defence, peace, order and welfare of Canada by reason of the existence of real or apprehended war, invasion or insurrection."

It is noteworthy that, under the opening paragraph of that Order-in-Council, the powers which it purports to confer on the board are to be exercised not so long as the Governor-in-Council deems necessary for the security, etc. of Canada by reason of the existence of war, but "until the publication of a proclamation by the Governor-in-Council under the authority of the War Measures Act, 1914, declaring that the war no longer exists."

A very strong indication is thus afforded that the Governor-in-Council must have acted in January, 1920, under the erroneous impression—I say it with all respect—that until the actual publication of a peace proclamation in the Canada Gazette his legislative powers under s. 6 of the War Measures Act were absolute and unqualified and were not subject to the condition that their exercise must be deemed by him "necessary or advisable for the security, etc., of Canada by reason of the existence of real or apprehended war, invasion or insurrection." Confronted with alternatives of an imputation of bad faith or of finding that there has been an attempted exercise of power through overlooking, or under a mistaken view as to the effect of a condition requisite for its exercise imposed by the Act conferring it, I have no hesitation in choosing the latter.

I am, therefore, of the opinion that the order appealed from exceeds any powers which it was competent for the Governor-in-Council on the 20th of January, 1920, to confer on the Paper Controller, and cannot be supported under the Board's jurisdiction to discharge the duties of that office.

Not a Necessary of Life.

On the other branch of the case I am of the opinion that the Board erred in declaring newsprint to be a "necessary of life" under Sec. 16 of the Combines and Fair Prices Act, and that it therefore exceeded its jurisdiction as administrator of that Act in making the order appealed from. Sec. 16 is as follows:

"16. For the purposes of this part of this act, the expression 'Necessary of life' means a staple and ordinary article of food (whether fresh, preserved, can-

ned or otherwise treated) clothing and (sic) fuel, including the products, materials and ingredients from or of which any thereof are in whole or in part manufactured, composed, derived or made, and such other articles of any description as the Board may from time to time by special regulation prescribe."

The following three rules of construction are so well known that it seems almost pedantic to restate them; but their co-ordination and relations *inter se* are perhaps not always equally well understood.

Lord Wensleydale's golden rule, that the grammatical and ordinary sense of words is to be adhered to unless that would lead to some absurdity, repugnance or inconsistency so great as to convince the Court that the intention could not have been to use them in that ordinary signification, applies to general words, as to other words. *Generalia verba sunt generaliter intelligenda.* 3 Inst. c .21, p. 76; Attorney General v. Mercer 8 A.C. 767, 778.

On the other hand, general words must be restricted to the fitness of the subject matter (Bacon's Maxims No. 10), and to the actual apparent objects of the Act (River Wear Commissioners v. Addison, 1 Q.B.D., 546; 2 A.C., 743, 750-1, 757-8) following the intent of the Legislature to be "gathered from the necessity of the matter and according to that which is consonant to reason and good discretion." Stradling v. Morgan, Plowden, 199; Cox v. Hakes, 15 A.C., 506, 517-8.

Where general words are found, especially in a statute, following an enumeration of persons or things all susceptible of being regarded as specimens of a single genus or category, but not exhaustive thereof, their construction should be restricted to things of that class or category (Reg. v. Edmondson, 28 L. J. M. C. 213) unless it is reasonably clear from the context or the general scope and purview of the Act that Parliament intended that they should be given a broader signification.

Recent applications of the rule last stated, and usually known as the *e jusdem generis* rule, are to be found in the judgments in the House of Lords in Stott ((Baltic) Steamers, Ltd. v. Marten, 1916 A.C., 304, and the judgment of Sankey, J., in Attorney-General v. Brown, 36 T. L. R. 165.

At first blush the words "of any description" appended to the general words "other articles" would almost seem to have been inserted to indicate an intention to exclude the application to this section of the *e jusdem generis* rule, and to require that the general words "other articles" should here be given their ordinary general construction. Yet, although no authority has been cited where that rule has been applied notwithstanding the addition of the words "of any description" to such general words as "other articles," it has frequently been acted on where the equally comprehensive word "whatsoever" (see Stroud's Judicial Dictionary, 2 ed. p. 223) has been appended to similar general words, such as "other persons." Thus, in construing the phrase "no tradesman, artificer, workman, laborer, or other person whatsoever" of the Sunday Observance Act of 1677, it has been held that a farmer (Reg. v. Cleworth, 4 B. and S., 927) a barber (Palmer v. Snow, 1900, 1 Q.B. 725) and a coach proprietor (Sandiman v. Breach, 7 B. and C., 96) are not within its purview. In Fish v. Jesson, 2 Vern, 114, a devise of "all debts, accounts, reckonings, and demands whatsoever," made to a servant was held not to include a trunk belonging to the testator in his hands at the date of the will and at the death of the testator, which contained jewels, medals, etc. Again in Harrison v. Blackburn, 34 L.J.C.P., 109, the description in a Bill of Sale

"all the household goods, furniture, stock in trade, and other household effects . . . in and about the dwelling house and all other personal estate whatsoever"

of the assignor was held not to carry his term or interest in the house. In Ystradyfdwig and Pontypridd Main Sewerage Board v. Bensted, 1907 A.C., 264, at p. 268 Lord Halsbury referred to.

"A very familiar canon of construction that, where you have a general meaning wider than that which was intended by the legislature, when you find it associated with other words which show the category within which it is to come, it is cut down and overridden according to the general proposition which is familiarly described as the *e jusdem generis* principle."

In the present case far from indicating that an application of the restrictive rule would probably defeat the object of the statute, or that there is good reason for believing that the legislature intended the general words it has used, to bear a more extended meaning than if restricted to things similar in kind to those by the enumeration of which they are preceded, consideration of the character of the Act and of the context as a whole rather leads to the contrary view —that Parliament cannot have meant that the words "other articles" should bear their ordinary broad signification. In the first place, if they did, the enumtion of articles of food, clothing and fuel was quite unnecessary and the restriction to articles "staple and ordinary," the careful particularization of "the products, materials and ingredients from or of which any thereof are in whole or in part manufactured, composed, derived or made" and the specification, in the case of food, "whether fresh, preserved, canned or otherwise treated," serve no purpose. If the words "other articles of any description" mean "anything whatsoever," the section may be paraphrased thus: " 'Necessary of life' means any article of any description which the Board of Commerce may from time to time by special regulation declare to be such." Can it be that that is what Parliament intended? Re Stockport Ragged, Industrial and Reformatory Schools, 1898, 2 Ch. 687, 696.

Unheard-of Powers.

Moreover, if s. 17, taken with s. 22, should be regarded as an enactment in the nature of criminal law —as counsel representing the Attorney-General contended, and I incline to think rightly—the Board would thus be enabled by its mere declaration to render criminal the accumulation or withholding from sale, to the extent stated in s. 17, of "any article whatever," however little likely to be regarded as a necessary of life as that term is ordinarily understood. It is to me inconceivable that Parliament meant to confer such wide and unheard-of powers. I rather think that no one would be more surprised and shocked than the legislators themselves were they informed that they had done so. I am, therefore, satisfied that Parliament must have intended that the words "other articles of any description," in s. 16, notwithstanding their obvious and emphasized generality, should receive a much more restricted construction; and no other restriction that can be put upon them occurs to me which has so much to commend it, as being probably that which Parliament had in mind, as that em-

bodied in the well-known maxim, *noscunter a sociis.* Parliament was dealing with articles of food, clothing and fuel. It had these present to its mind. It must be taken to have been fully cognizant of the legal maxim just poted and of its embodiment in the *e jusdem generis* rule of construction so frequently acted on by the courts. What more natural than that it should have meant "other articles" to comprise only things which, like food, clothing and fuel, are requisite to maintain the physical health and vitality of the human body? Medicines have been suggested as falling within such a category; and there are, no doubt, some few other things essential to the life, health and sustenance of the body which are not strictly articles of food, clothing or fuel for which Parliament thought it well to provide. I cannot conceive of any genus or category that would include newsprint with articles of food, clothing and fuel. Nor, in my opinion, had there been no definition whatever of the term "necessary of life," would the Board have been justified in treating newsprint as such.

Even restricted as I think it should be, the discretion vested in the Board by its mere declaration to constitute criminal offences in regard to matters not specified by Parliament may seem open to some objection. But it is certainly much less objectionable than the unlimited and unqualified power for which counsel representing the Attorney-General contended.

I am for these reasons of the opinion that the order appealed from cannot be sustained either under the jurisdiction of the Board of Commerce as administrator of the Combines and Fair Prices Act, or under which it may lawfully exercise as Paper Controller.

The appeal should be allowed with costs.

EXPLANATION BY COMMERCE BOARD.

Ottawa.—The statement in which the Board of Commerce of Canada announces that it will not henceforth, under the authority vested in it by certain orders-in-council which have been declared without jurisdiction in the Supreme Court, clamor or exercise any control over newspaper in Canada, reads as follows: "The decision of the Supreme Court of Canada on the appeal of Price Brothers renders necessary a statement of the Board's intentions with respect to newsprint control.

"The effect of the decision is that certain Orders-in-Council recently made and purporting to constitute the Board of Commerce controller of newsprint paper and to vest in the Board certain powers additional to those exercised by the former newsprint controller were made without jurisdiction and that consequently the exercise by the Board of Commerce as controller of newsprint paper of any of the powers so purported to be conferred was inoperative in law.

"The court further held that the Board of Commerce as such has no jurisdiction over newsprint paper because that commodity cannot be considered a necessity of life within the meaning of that expression as used in the Combines and Fair Prices Act, 1919.

"The decision does not involve the general powers of the Board of Commerce except in so far as it, to some extent, limits the interpretation of the expression, "necessary of life." These powers will be pronounced upon by a subsequent decision of the court.

"The board will not, henceforth, unless it be subsequently invested, if that be legally possible, with competently granted power, claim or exercise any control whatever over newsprint paper."

BIG COMPANIES CONSERVE PULPWOOD.

By CLYDE LEAVITT.

Chief Forester, Commissioner of Conservation, Ottawa.

The depletion of the forests of New York and the New England states has resulted in heavily increased demands upon the forests of Eastern Canada, particularly in connection with the export to the United States of pulpwood, pulp and newsprint paper. In the Eastern states the forests are practically all privately-owned, and, for the most part, the methods of logging have been destructive. No adequate provision has been made for such restriction upon logging methods as will provide for leaving cut-over areas in a condition to produce a second crop. In Canada, on the other hand, the great bulk of the forest area is still in the ownership of the Crown, and is, therefore, subject to such restrictive regulations as may be imposed by Government authority to perpetuate the forest through wise use.

The destructive methods of logging so generally followed on privately-owned lands in the United States resulted in the shifting of the centre of lumber production from the New England states and New York to the Lake states, thence to the south. Now the Pacific Northwest is rapidly securing the ascendancy.

Looking to the Future.

All this means inevitably that the forests of Eastern Canada will be exploited to the limit of their capacity. If destructive methods are followed, coupled with inadequate fire protection, as in so much of the United States, our forests will rapidly become exhausted, and our great forest industries must gradually decline with obvious loss to all public and private interests.

If, on the other hand, our forests are managed on correct principles, with a view to their reproduction following cutting, a handsome increase in the development of forest industries may be confidently anticipated, on a permanent basis. Generally speaking, however, this basis of constructive regulation does not now exist, and fundamental information is largely lacking, upon which a correct policy of silviculture should be based.

The situation is particularly important as to the pulpwood forests of Eastern Canada. The permanence of our pulp and paper industry will necessarily be governed only by the capacity of the country to grow successive crops of timber of the pulpwood species upon our vast areas of non-agricultural lands.

Big Companies Acting.

Recognizing this situation, as it is now recognized by the pulp and paper industry itself, the Commission of Conservation has, during the past three years, been engaged upon a general investigation of the conditions governing the reproduction and rate of growth of the pulpwood species of Eastern Canada. During the past summer, three field parties have been maintained, under the immediate supervision of Dr. C. D. Howe. The practical value of this work to the pulp and paper companies is recognized by the Laurentide Company, Limited, and the Riordon Pulp and Paper Company, in Quebec; the Abitibi Power and Paper Company, in Ontario; and the Bathurst Lumber Company, in New Brunswick. All of these companies have contributed materially, in a financial way, toward co-operation with the Commission in the prosecution of investigative work upon their limits. Co-operation has also been maintained with the New Brunswick Forest Service in the conduct of investigative work in that province.

Material Handling in a Paper Mill

Labor Saving Equipment of the Dill and Collins Co.

By HENRY J. EDSALL, Link-Belt Co.)

This is the first section of a paper, reprinted from the Industrial Management that shows in a series of illustrations and the accompanying explanations, the entire equipment for handling raw materials, work-in-process and finished product of a pulp and paper mill. This installation presents the result of a complete study of the possibilities of using mechanical devices in place of common labor. It may be a surprise to some readers to discover how many kinds of materials are handled, and we trust will arouse some, at least, to the possibilities of mechanical equipment, properly designed and applied.

* * * *

In a mechanical age like the present, manufacturers are constantly perfecting various machines and processes with the object of improving their product, reducing the cost of manufacture, or both. Machines operating continuously, turning out their product rapidly and with little attendance, mean low cost of the product, providing the first cost of the installation is not too high in proportion to the output.

In addition to the machines and processes for actually manufacturing the product, there are, in most plants, various problems of unloading and transporting materials, in a more or less finished state, including the storing of these materials, the storing and shipping of the finished product and, as a rule, the unloading storing and handling of coal and the disposal of ashes at the power plant. It will be readily appreciated that improvements in these methods of handling materials frequently offer greater labor-saving possibilities than are obtainable by further perfecting of machines or processes in actual manufacturing. At the present time, when the cost of ordinary labor is so high, the saving in cost by reduction in the amount of labor is proportionately greater. The high cost of labor has, therefore, played an important part in influencing manufacturers to install equipment for reducing the number of men required in handling materials and articles of manufacture; thereby keeping down the cost of their product.

One of the most striking examples of this sort of improvement in methods is the pulp and paper mill of the Dill and Collins Company in Philadelphia. This company is progressive and is under the management of Mr. Grellet Collins, the president, and Mr. Howard W. Taylor, the vice-president. With the aid of Mr. Albert C. Wood, consulting engineer, the plant has been brought up to a high state of efficiency for turning out its product.

While conveyors, cranes and electric hoists have been employed for years for various operations about the plant, it was not until the spring of 1915 that the company decided to inaugurate a regular labor-saving campaign with the avowed purpose of using mechanical methods, wherever possible for handling materials in order to reduce common labor to a minimum, thereby reducing costs of handling, demurrage and, last but not least, worries and delays due to the undependable nature of the class of labor obtainable for work of this kind.

It will undoubtedly surprise most men who are not familiar with a modern pulp and paper mill, to find out what a number of things there are to be handled at various stages of the processes, and what extensive provision has to be made for the storage of various materials.

In the first place, there is the pulp wood, the principal basis of the paper, to be loaded at the shipping point and unloaded at the plant and either sent direct to the chipper or stored and then rehandled later on. After the wood has passed through the chipper, the chips have to be taken up to a screen, where the dust is taken out, and then up to a storage bin over the digesters. After the chips are made into pulp, the sheets of pulp have to be conveyed to the proper bleachers.



FIG. 1. LOCOMOTIVE CRANE UNLOADING PULP WOOD FROM BARGES.



FIG. 2. ELECTRIC LOCOMOTIVE AND TRAIN OF PULPWOOD WITH PILE OF PULPWOOD IN BACKGROUND.

The clay which is used as a filler for the paper must be unloaded from box cars, stored and then handled to the clay mixer.

In connection with the bleach plant, there is the handling of lime, salt and black ash, or sodium carbonate and charcoal.

There are also conveyors for handling the coated paper while it is drying, for coal and ashes at the power plant, and many cranes, and hoists for handling bales, barrels, cases, bags, piping, etc.

The pulpwood is mostly gum, poplar and pine and comes from the arms of Chesapeake Bay and the rivers of Maryland, Virginia and the Carolinas. This wood is cut into five-foot lengths, the bark taken off and it

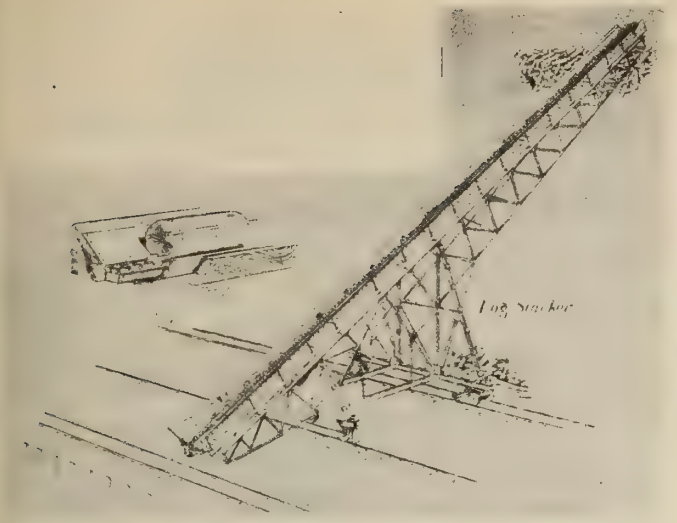


FIG. 3. LOG STACKER FOR PILING PULPWOOD IN OUTSIDE STORAGE PILE.

is then stored at various points along the waterways. Where the water is deep enough for barges, it is loaded direct from the shore to the barges, but where the water is too shallow for this, it is first loaded to lighters, which are towed to the point where the bark is moored and the wood is transferred. It is stored in the hold of the barge and also piled on deck. After the barge is loaded it is towed up through the Chesapeake, through the canal and up the Delaware river to Philadelphia and delivered to the Paper Company's wharf.

Pulpwood Handling.

The paper mill property is located on Tioga street and runs from near the Delaware River back almost to Richmond street, about 1390 feet. The maximum width of the property is about 716 feet.

After a barge is tied up at the wharf at the foot of Tioga street the wood is unloaded with the help of a locomotive crane, shown in Figure 1, the sticks being placed in slings, lifted ashore and deposited on narrow gage cars, shown in Figure 2. A small electric storage battery locomotive, which also receives power from an overhead trolley wire along certain sections of the tracks, takes the cars up through the yard to the pulp mill where the wood is unloaded and fed to the chipper or, if the wood is to be stored, the cars are placed opposite the foot end of a log stacker and the wood unloaded by hand and fed to this machine.

The log stacker is shown in Figures, 3 4 and 5. It has an inclined steel cantilever truss supported on trucks running on two forward rails and a single rear rail. The track gage from the center between the two forward rails to the center of the rear rail is 30 feet. The foot end of the truss extends 16 feet back to the rear rail, and the forward end of the truss extends 74 feet beyond the center between the forward rails. A single strand of combination chain travels up the truss in a V-shaped, steel lined, wooden trough and has pushers at intervals of four feet to push the logs up in the trough. The head end of this machine is 65 feet above the ground and when a log gets to the upper end it falls off into the pile. In this way a pile is formed which is 65 feet deep at the peak and with a length along the ground of 250 feet. This makes a pile that contains about 5600 cords of wood. When this wood is needed it is reloaded to the narrow gage cars, running on ground level tracks extending over the area covered by the pile, and taken to the chipper. The log stacker has a heavy concrete counterweight over the



FIG. 4. CENTRAL VIEW OF LOG STACKER.

rear rail to balance the forward end of the truss, and its conveyor is driven by a 20-hp. motor geared to the drive shaft. The conveyor chain travels at a speed of 130 feet per minute and the handling capacity is 20 cords per hour of 5-foot pulpwood sticks, varying from about 4 inches to 20 inches in diameter.

Chip Handling.

The chip handling equipment is shown in Figure 6 and consists of a gravity discharge elevator to receive the chips frim the chipper and take them up to the screen, a centrifugal discharge elevator to take them on up and a distributing flight conveyor over the chip storage bin.

The chipper is capable of making 25 cords of chips per hour, figuring 270 cubic feet per cord, which means a capacity of 6750 cubic feet per hour. To handle this amount of chips, good sized conveyors are required, and since it was desirable to keep the chipper near the ground level on account of the heavy foundations needed for this severe duty, it was decided that a gravity discharge elevator-conveyor type of machine would fit in best and not require such a deep pit as other types of elevators. The lower run of this machine extends horizontally under the chipper, so that little depth below the bottom of the chipper is required. The lower horizontal run of this machine is 14 ft. 3 inches and the upper horizontal run 7 ft. 6 inches centre to centre of sproket wheels. The vertical height is 43 feet 2 inches. The chains selected were 9-inch pitch steel bushed steel strap chain with 2-inch rollers at the joints and the buckets are 24 inches long



FIG. 5. LOADING PULP WOOD TO FOOT OF LOG STACKER FROM CARS HAULED BY ELECTRIC LOCOMOTIVE.

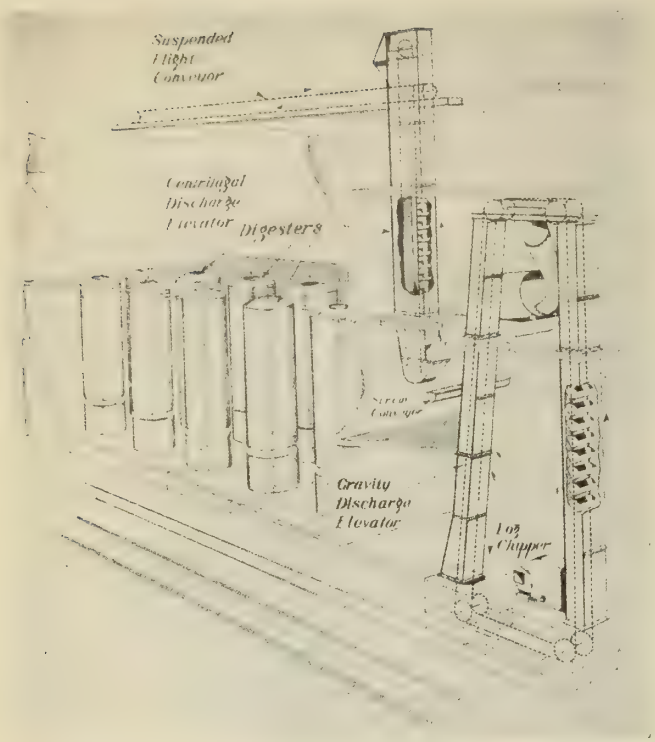


FIG. 6. GENERAL ARRANGEMENT OF CHIP HANDLING EQUIPMENT.

by 20 inches wide and spaced at intervals of 18 inches between the chains. The speed of travel is 126 feet per minute.

Since the lower horizontal run passes directly underneath the chipper, and as the chips are thrown down with considerable force by the chipper, guard plates had to be provided to deflect the chips into the steel trough, along which they are pushed by the buckets before they pick them up and start to elevate them. This type of machine is a new departure in chip handling and care had to be exercised to avoid trouble from chips getting into the chain links and being jammed against the sprocket wheels. To avoid this trouble the chains were confined between guide angles as shown in Figure 7, and the width of the link is almost as great as the space between the guides so that there is little opening left for the chips to get in between the links and the guides. The buckets travel up and down in steel casings, to which the chain guides are attached, and discharge the chips by turning and traveling across horizontally over a chute, into which the chips

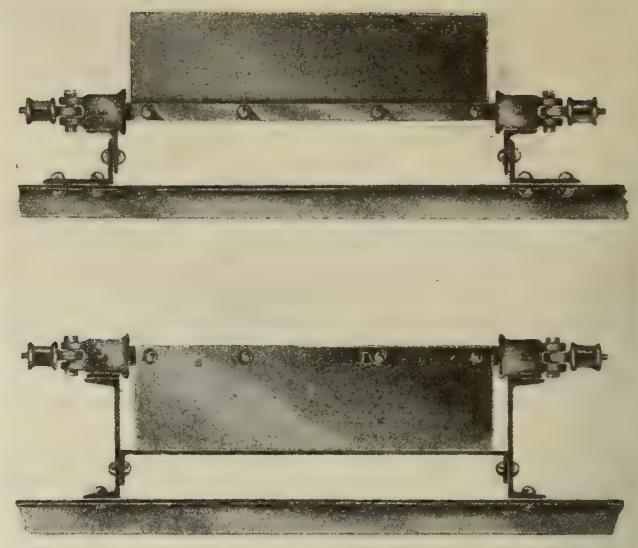


FIG. 8. CROSS-SECTION OF DOUBLE STAND FLIGHT CONVEYOR WHICH HANDLES CHIPS TO STORAGE BINS.

fall as the buckets pass. The chips are delivered by the chute to the rotary screen which takes out the dust.

For taking the chips from the screen to the distributing conveyor over the bin a centrifugal discharge belt and bucket elevator was adopted, as being the simplest machine for this service. The chips feed from the lower end of the screen by means of a chute direct to the foot of the elevator so that the foot did not have to be carried down any great distance, and, in any case, since it was on an upper floor, the depth necessary could be easily obtained by extending it into the room below. This elevator has a 22-inch rubber belt with 18 by 8-inch buckets attached to the belt at intervals of 14 inches. The speed is 350 feet per minute so as to give the same capacity as the gravity discharge machine. A single leg steel casing encases both the up and down runs. At the head of the machine the chips are delivered by means of a steel chute to the distributing flight conveyor.

The type of flight conveyor adopted is shown in Figures 8 and 9, and it will be noted that the two chains are well outside the trough so that the chips can be fed into the machine without any danger of their getting out on the chains and being jammed at the sproket wheels. Care has to be taken to avoid this trouble since the stubs ends, or last piece of the logs, and some of the long slivers which come from the logs would

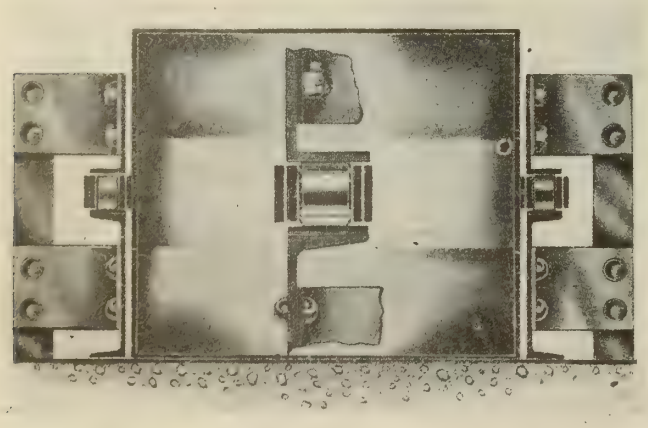


FIG. 7. CROSS-SECTION OF GRAVITY DISCHARGE CHIP ELEVATOR.

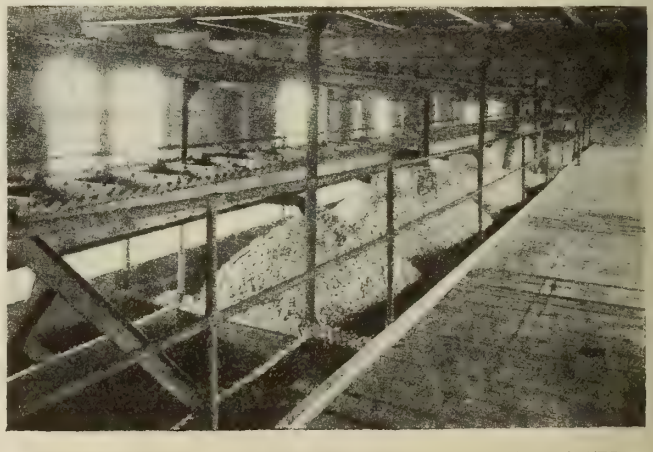


FIG. 9. GENERAL VIEW OF CHIP CONVEYOR OVER STORAGE BIN.

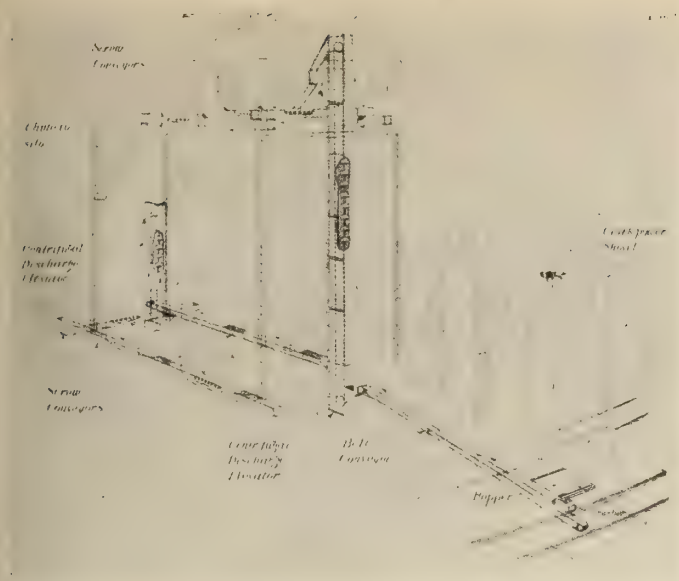


FIG. 10. GENERAL ARRANGEMENT OF CLAY BINS AND CONVEYORS.

cause serious trouble if they jammed between the chains and the wheels. The flights are 24 inches long by 7 inches deep, and are spaced at 18-inch intervals. They are attached to cast-iron shoes which slide along on angle steel tracks and keep the flights suspended slightly above the trough. The shoes are attached to the chains by means of swiveling attachments which allow the unequal stretch of the chains without overloading of one chain. Angle steel tracks are also provided for the shoes to slide on while traveling back on the return run. This conveyor is 76 feet 4 inches centres and travels at a speed of 123 feet per minute. The capacity is the same as the capacity of the elevator.

Clay Handling.

The white china clay which is used for a filler came formerly from England and was received in large casks, so it was not handled in bulk. This was an expensive way of shipping the clay so that, even before the war, more or less clay was being shipped in bulk, and of late practically all of it is produced in this country. In changing over to the bulk system it was necessary to provide facilities for unloading the cars, handling the clay, and also storing a considerable amount of it. Various types of storage bins were considered, but on account of the greater expense of over head bins and the comparatively small amount of clay to be handled each day, it was decided that a ground storage bin would be the most logical type. Circular wooden bins or silos were adopted on account of their being a standard design and economical in first cost. Their lasting qualities also seem to be very good. To arrange for different kinds of clay, five bins were built, these being 18 feet in diameter silos resting on concrete foundations, carried 4 feet 2 inches above the ground. Four of them were 20 feet high and the other one 17 feet high above the concrete foundations. Figures 10 and 11 show the general arrangement.

The conveyor equipment provides for elevating the clay and distributing it to different bins, and also provides for getting it out of the bins at minimum labor expense. The silos were placed in two rows and concrete tunnels built underneath each row with a conveyor just below the floor of each tunnel and large openings into each bin, so that the clay could easily be handled out of the bins to the reclaiming conveyors. The openings into the bins through the side walls of the tunnels are fitted with removable planks which can be taken out, down to any desired level when delivering the stored clay to the reclaiming conveyors. The tunnels are 7 feet wide by 6 feet 6 inches high, so that there is plenty of room for the attendants to work. The five bins have a capacity of 1,200 tons of china clay.

In handling the clay to the bins it is unloaded from the box cars and delivered to a feeding hopper underneath which is a small 2-roll crusher. This crusher serves to break up the large lumps and make the clay easier to handle. After passing through the crusher the clay goes to a rubber belt conveyor which conveys it underneath another railroad track and over to the foot of a chain and bucket elevator, which elevates it and delivers it to the distributing conveyors over the bins. These are 12-inch screw conveyors and, to avoid corrosion as far as possible, since this tends to discolor the clay, the screw conveyor flights and trough were made of ingot iron.

The elevator delivers to a cross conveyor made up with a right- and left-hand screw, one end of which delivers either direct to one silo or to a longitudinal conveyor extending over two other silos, and the other end delivers to another longitudinal conveyor over the two remaining bins. This machinery equipment has a capacity of ten tons per hour. Underneath the bins are two reclaiming conveyors, one in each longitudinal tunnel, one of these machines delivering direct to an elevator and the other to a cross screw conveyor which in turn delivers to the elevator. These reclaiming conveyors are located in trenches below the tunnel floors and have grating through which the clay is fed to them. The elevator is arranged to deliver to industrial cars or wheelbarrows or, later on perhaps, to a conveyor into the paper mill building so as to handle the clay direct to the mixer.

(To be Continued.)



FIG. 12. GENERAL ARRANGEMENT OF LIME HANDLING EQUIPMENT.

Technical Section

REVIEW OF RECENT LITERATURE.

E-1, 4. Sulphite liquor and its analysis. Bengt Thorbjornson. Papierfabrikant, **17,** 1265-67, 1285-88 (1919). A discussion of the chemical control of the sulphite process by a rational control of the liquor used in each digester charge. The condition of the chips as to moisture content and specific gravity play an important part in the control of the process and curves are drawn illustrating the variations in the quantity and strength of the liquor used respectively with the moisture content and the specific gravity of the chips.

The content of $CaSO_4$ in the liquor is greater in the summer than in the fall of the year, the proportion of the Ca combined as sulphate being 15.1 per cent in the former period as compared to 12.8 per cent in the latter. The proportion of combined to total sulphurous acid is likewise greater in the summer than it is in the autumn. Various tables of experimental data are presented illustrating the use of Winkler's method for the analysis of sulphite liquor.—J.S.

E-2; F-2. Waste liquors from cellulose manufacture or other similar waste liquors;. . Dry distillation of—with strong bases in the presence of steam. E. L. Rinman, Djursholm, Sweden. Eng. Pat. 120,724, 30.10.18 (Appl. 17, 718-18) Int. Conv. 8.11.17. Waste liquors from the manufacture of cellulose from wood, straw, or other materials by the soda process, waste liquors produced by boiling vegetable matters with caustic soda until the cellulose is dissolved, or waste liquors from sulphite pulp manufacture, after boiling with lime, are mixed with suitable proportions of caustic soda and lime, the mixture is concentrated by evaporation until it contains about 25 per cent of water and then subjected to destructive distillation preferably by means of hot gases in the presence of superheated steam. The temperature is maintained below 200 deg. C. until the water has been substantially driven off, then between 200 deg. and 300 deg. C. until ammonia, wax, and methyl alcohol have distilled over, and, lastly, between 300 deg. and 500 deg. C. during the formation of acetone and, later, of light oils and heavy oils. The proportions of bases to be added per 100 parts of organic matter range between 40 and 65 parts Na_2O and between 30 and 40 parts CaO—J. S.

E-2; F-2. Waste lyes from Soda—or sulphite-cellulose process; Dry distillation of. E. L. Rinman, Stockholm, Ger. Pat. 313,607, 1.9.15. The use of milk of lime instead of finely-powdered slaked or quicklime results in a 30 per cent increase in the yield of acetone. Waste lye from the soda-cellulose process, for example, is concentrated to 30 deg. B. (sp. gr. 1.26) and mixed with a quantity of milk of lime corresponding to 400 kilos of CaO per 1000 kilos. wood. This mixture is concentrated to 55 deg. B. (Sp. gr. 1.62) and then distilled with superheated steam, the temperature being slowly raised to 500 deg. C. The yield is about 40 kilos. of acetone and 50 kilos. of oil per 1000 kilos. of wood.—J.S.

E-2. Lignin substances insoluble in acids and suitable for sizing paper; Process for obtaining—from the lignin sulphonic acids of sulphite—cellulose waste lyes. Feldmuhle Papier and Zellstoffwerks A. G., Berlin, Ger. Pat. 307,663, 27.1.18. Addition to Ger. Pat. 307,087. The liquor containing the ligninsulphonic acids is poured into a hot concentrated caustic alkali solution and the mixture heated until the interaction is complete. The reaction is quicker, more certain and more convenient in operation in this way than if the alkali solution is added to the sulphite liquor. The lignin substance are separated from the resulting solution by treatment with acid, and are re-dissolved in alkali for use in paper-sizing.—J.S.

E-2; K-10. Paper and the like; Process for sizing —. Feldmuhle Papier und Zellstoffwerke. A. G., Berlin. Ger. Pat. 307,087, 30.11.17. Fibrous materials or finished products prepared from them are treated with solutions of the organic matter (lignin) from waste sulphite liquors rendered precipitable by treatment with alkalis, and the size is precipitated on the fibre by the addition of acids or suitable salts. The lignin size may be in admixture wth other known paper-sizing agents. By heating with alkalis the sulphonic group is almost completely eliminated from the lignin-sulphonic acid and a dark brown alkaline solution of lignic acid is obtained, which gives a voluminous precipitate with acids or salts. About 10-20 per cent of caustic soda, calculated on the dry substance of the sulphite waste liquor, is required. Alternatively, the alkaline liquor may be neutralised with acid, precipitated by alum or kieserite, and used for sizing in the proportion of 2 per cent.—J.S.

E-2. New uses for waste sulphite liquor. W. Philippsthal. Umschau, **23,** 718-9, (1919); Chem. Zeit., **43,** 292, (1919); J. Soc. Chem. Ind., **39,** 102A, (1920); Paper, **26,** 7, (1920). Sulphite pulp waste liquor is said to contain substances which act as a protection against rodents and it may be used as a dressing for textiles. In the manufacture of artificial stone from marble cement small additions of sulphite lye to the water increases the absorption by 30 per cent, and the finished stone possesses greater strength. A paste of China clay which has been rendered more fluid by addition of Na_2CO_3 solution, becomes stiffer again on the addition of traces of sulphite liquor. The liquor may also be used as a catalyst in the manufacture of rubber. Clayey soil is used for minor building purposes, but does not bind well with lime mortars. If milk of lime be mixed with sulphite liquor, and loam or clay stirred in, the slabs made of the resulting material can be built up like ordinary bricks with lime or cement mortars. A little sulphite liquor should be mixed with the mortar to obtain better binding. Existing structures may simply be coated with a mixture of milk of lime and sulphite liquor.—A.P.-C.

E-2; F-2. Sulphite and soda waste liquors; Removal of toxic substances from—after elimination of sulphurous acid and neutralization. E. Jacoby. Ger. Pat. 307,383, 25.11.16. The liquors are prepared for fermentation by treatment with small quantities of absorbent materials such as kaolin or humin, which absorb toxic substances. Sulphite waste liquors, after neutralization with lime, filtration, and addition of humin, may be treated with salts of the heavy metals to cause flocculation of the humin. The process is applicable also to liquors from soda-cellulose factories. —J.S.

E-4. The preparation of sulphite liquor.—sulphur vs. pyrites. Papeterie, **42**, 120-1, (Feb. 10, 1920). S is more efficient; easier to handle, and requires cheaper equipment. Its use is to be recommended if its cost is not greater than 3 times that of the pyrites.—A.P.-C.

F-4. Explosion recovery process for black liquor. Hugh K. Moore, Technical Supt., The Brown Co., Berlin, N.H. Chemical Engineer, Jan. 1920; Paper **25**, 1157-61; 1197-1201, 1241-6, (1920). In 1917 the author showed that theoretically it was possible to evaporate the 50 per cent liquor to dryness, ignite, and burn it without the addition of extraneous fuel; but this was not practical at the time because no method had been devised by which the liquor could be subdivided to that minuteness necessary for this operation. (See Met. and Chem. Eng., **17**, 117-25, (1917; Chem. Abstracts, **11**, 2732, (1917). The old system consisting of evaporator, incinerator, smelting furnace, and dissolving tanks was nevertheless superseded by one in which the 50 per cent liquor was evaporated, burned and smelted in one operation in a furnace, with the help of producer gas, crude oil and pulverised coal having proved unsatisfactory. The required subdivision of the particles can be obtained by exploding them, so that no extraneous fuel is required. The 50 per cent black liquor is heated to a high temperature under such as a pressure as to prevent any evaporation of the water, On delivering the liquor to the furnace the pressure is suddenly relieved and part of the moisture explodes into steam, thereby disrupting the liquor into such small particles that they are readily dried and ignited by the heat of the furnace, and in burning give out sufficient heat to maintain the temperature of the furnace at 1950- 2100 deg. F. This is not only a good process for the recovery of alkali but it also nets a substantial quantity of heat in available form to aid in reducing coal bills. The theory of the operation is discussed in detail and is explained by means of Stefan's law, which, in brief, is that the heat radiated from one black body to another is as the difference of the 4th powers of the absolute temperature.—A.P.-C.

F-5. Investigations of the treatment of wood chips with alkali spent liquor and acids formed during the steaming of wood. C. Franck. Papier-Fabrikant, **17**, 1019-1020 (1919). After the cooking of wood with alkalies there is always free alkali present in the black liquors. It has been shown by these investigations that practically ¼ of the fresh liquor ordinarily used can be saved by preliminary steeping of the chips in these liquors.—J.S.

H10. The bleaching of paper pulp and ozone. J. Simonneau. Papeterie, **42**, 23-4 (Jan. 10, 1920). A. Villon proposes bleaching with ozone by using an ozoniser with a capacity of 200 c. m. of ozone per hour. the bleaching being carried out in the same kind of apparatus as is used for bleaching with Cl gas. The action of the ozone may be prolonged wtihout danger of injuring the pulp and attacking the cellulose. The estimated cost is 40 per cent lower than for electrochemical bleaching and 70 per cent lower than the usual chloride of lime bleaching.—A.P.-C.

K-7. Paper pulp; Process and apparatus for treating—. G. C. Howard, Tacoma, Wash. U.S. Pat. 1,322,489, 18.11.19. Appl. 8.5.17. A dilute mixture of pulp and paper is caused to impinge upon the lower part of one side of a pair of rapidly rotating rolls disposed within a vat of semi-circular cross-section, whereby the pulp is drawn between the rolls and a homogenous mixture is discharged at the opposite side of the vat.—J.S.

K-7. Pulp baeters.—Regulating the pressure between the cylinder and bedplate. Fr. patent No. 498,216, Feb. 8, 1920. Neyret, Beylier & Cie, France. Papeterie, **42**, 115-6, (Feb. 10, 1920). The cylinder is supported in fixed bearings and its position always remains the same. The bedplate is movable, and the pressure with which it is pressed against the cylinder is obtained by means of a weight at the end of a lever, the pressure being adjusted by shifting the weight. A spring is placed so as to absorb the jerks and shocks due to large lumps of stock. The stock is brought between the cylinder and bedplate through a duct under the bedplate which may be provided a propeller to facilitate circulation.——A.P.-C.

K-7. Process for the hydration of paper pulp. Fr patent No. 119,442, Adolphe Courrier, Paris, France. Papeterie, **42**, 20-3, (Jan. 10, 1920). The principle of the process lies in obtaining the required hydration by the friction of the fibers against each other at a consistency of 30-40 per cent instead of by the use of the ordinary beater with roll bedplate. The inventor claims his process yields a higher grade pulp, as the fibres are not cut and torn as in the usual beaters. The process is applicable to all pulps used for paper and cardboard.—P.P.-C.

K-10; 23. Paper fabrics, and the like; Process for the sizing, waterproofing, dressing, etc., of—. W. Schmidt, Elberfeld, and E. Heuser, Darmstadt. Ger. Pat. 305,525, 12.7.17. The paper pulp or the fabric is treated with tar from lignite or bituminous coal either in a fine state of division or in the form of a tar soap from which the tar is precipitated on the fibres by the addition of acid, formaldehyde or the like. The adhesion of the tar to the fibre can be increased by the addition of resin, casein, or animal size. The tar can be resinified by the action of formaldehyde, etc., and the coloration of the paper pulp can be modified by bleaching agents.—J.S.

K-23; L-4. Millboard or the like; Process for impregnating articles of—to render the waterproof. Apparatus for impregnating articles of pulp—or strawboard. E. Slight and A. D. Lacy, London, England. Pats. 134,010 and 134,176, 21.10.18. (Appls. 17,165-18 12,880-19). The articles are first partialy impregnated with a solution of easein, to which formaldehyde may be added if desired, in order to stiffen them and economise the consumption of the waterproofing composition, subsequently applied in the form of a mixture of wax and resin. In some cases the casein may be combined in the same bath with the wax and resin. The articles after immersion in the bath are carried by a conveyor from one end to the other of a heated impregnating chamber, wherein the superfluous solution is collected and returned to the bath.—J.S.

K-0. Paper; Manufacture of hard-sized—. O. Ruff, Breslau. Ger. Pat. 313,142, 25.4.18. Paper prepared with the addition of vegetable mucilages or with substances capable of yielding mucilages, or paper made from pulp which has previously been treated with acids or acid salts (see Ger. Pats. 309,999, 311, 772 and 312,179; this J., 1919, 284a, 625a, 896a,) is subjected to a beating treatment. Example: About 10-30 per cent of powdered peat calculated on the dry substance is added to the pulp in the hollander and after the paper has been made it is heated at 120 deg. C. for about 2 hours—J.S.

L-5. Cellulose acetate. Edward C. Worden. J. Soc. Chem. Ind., 38, 370-4 T (1919).—S.S.

PULP AND PAPER NEWS

A charter has been granted Lithographed Products, Limited, with a capital stock of $25,000 and head office Toronto, for the purpose of engaging in the business of lithographing and the manufacture of paper boxes and cartons.

Robert Munn, one of the oldest printers in Toronto, was presented with a purse of money and a substantial pension by the Mail and Empire on the occasion of his retirement after forty years service with that paper.

Contracts have been let for the erection of a $75,000 addition to the plant of Barber-Ellis, manufacturing stationers, Brantford, Ont.

Employees in Toronto of book and job-printing houses are seeking a conference with the employers in an effort to raise the wage scale. So far the employers have refused the printers. The present agreement does not expire until 1921 and the printers say that when they signed the long agreemnet it was not thought that the cost of living would be anything like as high as it is today. It is contended that the men cannot keep their families on the present wages earned. In the book and job offices the men receive $32 a week or 66 cents an hour. The printers say that if a conference is not granted there will be a strike that will extend to the newspaper offices.

The late John Hewitt of Grimsby, the first President of the Miehle Printing Press Co., of Chicago, who died on October 18th, left an estate of nearly $1,300,000, which has been equally divided between Chicago and Ontario friends. The real estate is mostly located in North Grimsby township, Mamilton and Toronto.

A despatch from Ottawa states that it is intimated in prominent pulp, paper and lumber circles that the Ottawa district is shortly to have another large pulp and paper mill which is to be erected on the banks of the Gatineau River, near Chelsea, by the Royal Securities Limited, of Montreal, at an approximate cost of $1,000,000. It is further stated that the corporation will acquire the holdings of the Gilmour and Hughson Lumber Company in that district.

The Kennedy Car Liner & Bag Company, of Shelbyville, Indiana, has decided to establish a Canadian factory in Woodstock, Ont. The company manufacturers packing bags and car liners for lining the interiors of freight cars, the product being made from paper.

The United Paper Mills Company, which have been occupying premises in Bond Building on Adelaide Street, Toronto, will move to the Spadina Building where they will occupy the basement and half of the second floor. This will about double their floor capacity. They will take possession about May 1st.

Harry Wilson, of the Winnipeg Envelope Company, Winnipeg, was a business visitor in Toronto this week.

T. B. Little, of the T. B. Little Company, wholesale paper dealers, Montreal, called on the trade in Toronto this week.

The Regal Paper Company, Ltd., is the name of a new organization with a capital of $50,000, for the purpose of manufacturing and dealing in paper, cardboard and other products of paper and pulp. Boxes and containers will be manufactured. The head office will be in Toronto.

Canada Newspaper Service, Limited, has been granted incorporation with a capital stock of $200,000 to buy and sell all kinds of paper and to engage in the general business of publishing news-collecting and engraving. W. Nelson Wilkinson and A. E. Smith, of Toronto, are among the incorporators.

A. McKim, Limited, of Montreal and Toronto, have opened an office in Hamilton, Ont.

Alex. J. McRae, formerly of the Montreal branch of the Victoria Paper and Twine Company, Toronto, has joined the Toronto office staff.

F. C. Bagley, assistant manager of the Canada Export Arthur Co., Montreal, and Victor Softon of the Export Association of Canada, Montreal, were in Toronto this week.

The Drury Government have appointed R. T. Harding, of Toronto and J. M. McEvoy, of London, to act as counsel and assistant counsel respectively, before the Riddell-Latchford Commission, which is holding an enquiry concerning the accuracy of returns made by timber liscensees, the cutting of timber by unlicensed persons and other matters. It is expected that some prosecutions will be the outcome of the investigation.

Justice Ord in Toronto this week granted an order winding up the World Newspaper Company, Limited. The motion was made at Osgood Hall by J. H. Spence on behalf of John Long circulation manager of the paper. An application will be made shortly to have a permanent liquidator appointed.

Lieut.-Col T. Gibson, of the Spanish River Pulp and Paper Co., the Lake Superior Corporation, returned to Toronto this week after an extended visit to England in connection with bond affairs of the latter company. Questioned as to the continued advance of Spanish securities Col. Gibson said that he could not tell what action would be taken pending the meeting of the Board of Directors to take place in New York on Thursday next. "I saw our leading holders of securities in England and Scotland and they are very

well pleased with the condition of affairs," he said, and added that financial men in London did not like the recent restrictions against the import of Canadian securities back into this country, although he did not think such action would work any permanent injury, owing to the fact that it was only a temporary action.

A happy social gathering took place in the work rooms of Warwick Bros., & Rutter, wholesale manufacturing stationers, King Street, Toronto, on Friday night, when the employees of the firm acted as hosts and hostesses, their employers, including G, B. Warwick, A. F. Rutter, H. C. Woods and E. J. Hathaway, being the guests of honor. Supper was served at the close of the day's work and an interesting three hours of games and general recreation followed.

WHERE PULP WOOD IS PROFITLESS

The Dryden, Ont., Observer has this interesting item:—

The Waldorf Farmers' club held a special meeting on Wednesday night, at which many local subjects were discussed. The pulp wood industry was considered a very poor and profitless business, and many expressed the opinion that it would be better for the farmers if there was no wood to sell. Most of them have a long haul, and only by working long hours and working hard can they make ordinary wages.

U. S. PULPWOOD PROSPECTS

The Forest Service of the Department of Agriculture at Washington estimates that in less than twenty years 25 per cent of the pulp and paper mills in the United States, more especially those located in the Eastern United States, will have practically exhausted their supplies of spruce, hemlock and fir. The annual cutting of these woods in the New England States and in New York is about 3,200,000 cords. At this rate the supply will last seventeen years. In the lake states, cutting at the rate of about 3,000,000 cords a year the supply will last eighteen years. In the case of Maryland, Virginia and North Carolina, the available supplies of wood being smaller, the situation is more serious. At the rate of 1,470,000 cords a year the supply will be exhausted in these states in ten years.

It is only in the Western States that the supply is in no danger of exhaustion. But unfortunately for the future peace of mind of the American paper manufacturer, over ninety per cent of the American paper mills are located in the East, and it is really only the situation in this part of the country which is of interest so far as any consideration of the immediate future of the industry is concerned. Paper mills cannot be moved about the country and pulpwood cannot be transported long distances economically.

WANT PAPER SUBSIDY STOPPED

Madrid, March 11.—The Spanish newspaper proprietors are making determined efforts to have the paper subsidy suppressed by the government, and are demanding also that the import duties thereon be abolished, thns allowing natural competition. They are working on the project of the formation of a co-orporative society for paper manufacture to supply the entire press of Spain in order to combat the daily increasing price of newsprint.

The great commission, "Go preach the gospel to every creature," is also a great permission.

BANK NOTES BEING GROUND UP

Stockholm, April 6.—A new supply of material for newsprint has been found, according to a Helsingfors despatch, which says bank notes, issued by General Yudenich are being ground up into pulp at an Esthonian paper mill.

PAPER EMPLOYEES HELP MANAGE MILLS

Employees of the Kimberley-Clark chain of paper mills, including the factories at Neena, Menasha, Appleton, Kimberley and Niagara, Wis., have voted to a dopt the mill council plan of management. Subordinate councils, composed of ten, five representing employees and five the management, will be named, and these will operate in conjunction with the general head council. Matters pertaining to working conditions, health, housing, safety, wages, recreation and education will come under the jurisdiction of the councils.

The Kimberley Clark Company has increased its capitalization from $3,000,000 to $5,000,000. It will build a new mill at Niagara Falls, N. Y. It is reported that the new plant will house a 182-inch machine and that the product will be the same grade of book and catalogue papers as is produced in the Wisconsin mills. This will be the first time Wisconsin interests have seen fit to set down a mill in the East.

PULP BUYERS SENDING MAN TO SWEDEN.

New York, April 1.—An impending shortage in the supplies of chemical woodpulp, which threatens to bring about a continuous rise in the cost of newsprint paper at least until July 1, was discussed today at a meeting of the Association of American Woodpulp Importers at the Uptown Club. Reports were discussed to the effect that the Scandinavian countries, and principally Sweden, which have been shipping 125,000 tons of chemical woodpulp to this country each year, were now sold out. It finally was decided that representatives of the association should go to Scandinavia in the near future to investigate this alleged shortage.

In Scandinavian countries, about 700,000 tons of chemical woodpulp are manufactured each year and, exclusive of the exports to American, practically the bulk of it goes to Europeans. With the Scandinavian supplies now reported to be sold out, the Association of American Woodpulp Importers are agreed in the belief that there will be a continuous rise in the prices, which are now higher than they were during the war's price peak. Uubleached sulphite is selling for seven cents a pound, as compared with two cents a pound before the war, and six cents during that period of the war when prices were at their highest.

It was said that the Canadian supplies were sold out and the stocks of woodpulp in the United States likewise had been sold at prices which could not now be duplicated. The shortage has been caused by the vast increase in the sizes of periodicals which, in turn, has been brought about by the extensive use of advertising space. According to the secretary of the Association of American Woodpulp Importers, immense quantities of advertising are being paid for in an effort to escape the excess profits.

Another matter taken up at the meeting was the question of uniform contracts to be used in the trade between the Scandinavian manufactures and the American buyers. The association has been working on plans for such a contract for the last two years, but little progress was made during the war.

The Markets

CANADIAN TRADE CONDITIONS

Toronto.—April 10.—Prosperity still attends the paper trade and big orders are the order of the day, although it is another matter when it comes to filling them for the shortage in nearly all lines continues, and the inordinate demand keeps up. Groundwood pulp is still short in production and as high as $100 a ton has been offered for it. One firm at Three Rivers sent in an order to an Ontario mill this week for three carloads at any price the mill might see fit to fix, but were met with the reply that orders of this size are out of the question at the present time. Low water has affected the supply of pulp wood on the other side of the line and the consequent loss of production there has sent Canadian prices up, and however great may be the desire of the Canadian manufacturers to supply the home trade first there is naturally a yielding to temptation to accept twenty dollars a ton more for their product in the States than is generally paid on this side of the line, particularly when payment is made in New York funds. Hence a considerable quantity of wood pulp is finding its way to help meet the great shortage that prevails in the States, although, as stated, there are some paper mills in Canada, who are ready to pay any fair price that the pulp mills may fix for their product.

Sulphite is still very scarce and not a pound can be had over and above the amounts contracted for. It is stated that the production of the higher grades of paper is being seriously hampered owing to the prevailing scarcity of sulphite and the demand for the finished product is away beyond the available supply. Bleached sulphite is quoted at from 7 cents to 7½ cents and there is scarcely any easier bleaching to be had at 6 cents to 6½ cents. The sales manager for one of the big Canadian paper mills was in New York this week and saw groundwood pulp sold at $100 a ton although $90 is reckoned the prevailing price. Screenings are being quoted at from $50 to $60 a ton.

All these high prices for paper ingredients have had their corollary in the high prices for paper lines. It may appear to the laymen as if this phenomenal era of big prices and huge demands was making the pulp the paper men rich "beyond the dreams of avarice." There is no doubt that the trade is tremendously prosperous, but it is by reason of the big turn-over and the big business generally that is characterizing the trade. It is contended on behalf of the manufacturers that there is no other line of commerce that is more directly affected by all the elements that make manufacture expensive, than that of the pulp and paper manufactures. The ever increasing cost of labor and raw material, the shortage of wood and the difficulties in getting coal supplies and the like, have all made the manufacture of paper a very expensive operation and the measure of prosperity which now attends the trade, after some very lean years, cannot be gauged by the high prices being obtained for paper products, although the big turn-over and increased volume of business generally have resulted in satisfactory dividends for the paper companies.

Toronto paper men are divided as to the likelihood of another advance in newsprint as an effect of the Supreme Court's finding in favor of Price Brothers and thus denying the authority of the Board of Commerce to fix prices or place embargoes on shipments of Canadian paper. It is contended by some that general advantage will be taken of what appears to be the free opportunity of shipping to the United States and that with the high prices American consumers are willing to pay for the product, the paper manufacturers will collect a higher rate from the Canadian consumer. Others say, again, that no effort will be made to increase the price in Canada, and that the decision of the court touching the matter will have no appreciable effect on the newsprint situation.

There is a big demand for kraft paper and that commodity is now up to 11 cents per pound. New lists for toilet papers are now being prepared on the basis of a ten per cent increase and there has also been a slight advance in tissues, owing to the high cost of raw material and labor. The Howard Smith and Rolland Paper Companies have notified the jobbers the April price lists on their products will be the March lists, plus ten per cent which applies to all their lines such as bonds, ledgers and writing papers. Book papers also share in the general advance and orders for practically all lines are being taken subject to prices prevailing at time of shipment.

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 MURRAY HIL 8313 NEW YORK

We are always in the market and ready to pay good prices for **SULPHITES** Bleached and unbleached of Canadian manufacture Write and let us show you what we can do.

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

All coated blanks are practically out of the market at the present time, although plain blanks from the States are coming in freely and represent about the only paper product that isn't really hard to get, although the jobbers have to pay fancy prices for them. Index Bristols are exceedingly scarce and local stocks are very low in this line.

Tag Manila is now quoted at 11 cents as compared with from 7 cents to 9 cents a few days ago, but there can hardly be said to be a market in this commodity owing to its scarcity and difficulty in filling orders that date back several months.

This week saw the expected further rise in box board. Production in this line continues to lag a considerable distance behind the demand and expansion of the industry proceeds as in no other branch of the paper trade by reason of the demand for containers for many different articles used by the consuming public. Chip and straw board are now quoted at $101; white vat lined at $111; pulp board at $114; filled wood board, $114; news board, $111; coated news board, $164. These prices have been fixed as effective May 1st, but as there are no available stocks at the present time the new price list may be said to prevail at the present time.

The market for new rag cutting is not so strong at it has been during the past few weeks, the mills evidently being out of the market, possibly with the object of seeing if prices can be forced down. As supplies are very low, dealers say that the efforts of the mills in this connection are not likely to meet with success.

A rather unsettled condition also characterizes the waste paper stock market, the lower grades showing a tendency to a lowering of prices, although the higher grades are holding their high level. In view of the big business most of the mills have in hand it is not thought likely that the prices will recede to any marked degree and it is thought that the present big demand will keep up during the summer months.

Rag and Paper Stock Prices.

	F.O.B. Toronto.
No. 1 shirt cuttings	19½—20c
No. 1 unbleached cotton cuttings	17c
No. 1 fancy shirt cuttings	13½c
No. blue overall cuttings	13½c
Bleached shoe clip	15c
White cotton hosiery cuttings	17½
Light colored hosiery cuttings	13½
New light flannellette cuttings	13½
No. 2 white shirt cuttings	13
City thirds and blues (repacked), No. 1	5¼—5½
Flocks and satinettes	$4.00
Tailor rags	$4.00
Gunny bagging	3¾—4c
Manila rope	8c
No. 1 white envelope cuttings	$6.00 $5.25
No. 1 soft white shavings	$5.25 $5.00
White Blanks	$3.50 $3.25
Heavy Ledger Stock	$3.90 $3.75
No. 1 magazine	$3.27 $3.50
No. 1 book stock	$2.80 $2.50
No. 1 Manilas	$3.25
No. 1 print Manila	$2.00
Folded news	$1.70 $1.90
Over issue, news	$2.25
Kraft	$3.75
No. 1 clean mixed papers	$1.65 $1.60

British Trade News

(*From Our London Correspondent.*)

London, 31st March, 1920.—Mr. F. E. Becker, who sometime ago took over the Clondalkin paper mills in Co Dublin, Ireland, paid a St. Patrick's Day visit to his workers, accompanied by Mrs. Becker. They were given a great reception by the 300 employees and in return Mr. and Mrs. Becker gave a dance and entertainment which the mill hands thoroughly enjoyed. To show the respect in which Mr. Becker is held the employees took out the horses from the shafts of his carriage and in the centre of a torchlight procession they drew the carriage, in which were seated Mr. and Mrs. Becker and another director, Major Moore, and Mrs. Moore, to the mill and cheered till they were hoarse. The mill makes newsprint and boxboard paper, on two minutes, a 72-inch vat and a 100-inch Fourdrinier and the capacity today is 130 tons of newsprint per week and 120 tons of boxboard paper. Further extensions and developments are taking place. Since Mr. Becker became interested in the mill one can see the successful master-hand. Electricity plays a big part in the mill and modern methods are introduced to achieve success. The Irish newspapers get most of their newsprint from the Clondalkin mill and a very nice quality of paper it is.

Newsprint Dearer—Prices Up.

The British mills have again advanced the price of newsprint. It was announced today that the price for April would be 5¾d (about 12 cents) per lb. or £53 13s. 4d per ton. In pre-war days the price was 1¼d per lb. The increase ,of course, is due to the high cost of pulp and increased cost in production. Nearly all the newspapers are viewing the steadily increasing price with some alarm, and a manager of one of the Sunday papers told me the other day that in his office the increased cost of production would mean an expenditure of £400,000 a year extra. This is a very serious point, he added, because we have not the newsprint to get in this extra money by the means of advertising. The newspaper proprietors are meeting nearly every week in conference to consider the position. Like the mill-owner, they have to meet increased expenditure in the cost of production and it is now freely stated that some important newspapers in the country are being published at a financial loss. About 86 papers have now advanced their prices owing to the cost of newsprint and the "Sunday Times" says: "The price of raw paper today has advanced over 400 per cent. Wages in the mills and in all printing offices have advanced by something like 150 per cent. Transport has advanced by nearly 150 per cent. There is no indication at present that these increased charges on production can be reduced. The same conditions apply in America, Canada, and France. In France an attempt has been made to restrict the sizes of newspapers by law.'

Labor Paper Puzzle.

In London we have the "Daily Herald" a labor paper of some note. After refusing for several days to handle a cargo of newsprint for the Herald, in the steamer Endracht, on the ground that it was loaded in Holland by non-union labor—Dutch dockers being on strike—the London dockers yesterday began to get the cargo ashore. The trouble created some amusement. "We would not unload it if it was not for our own paper,' said a docker, "yet it does seem funny to me," he added, "that this vessel, loaded by black-



SOLE AGENTS in the United States, Canada, Mexico and Cuba for

Finnish Cellulose Association, Helsingfors, Finland

and

Finnish Wood Pulp Union, Helsingfors, Finland

comprising all and every Sulphite, Sulphate, Kraft and Ground Wood Pulp and Board Mill in independent Finland, whether ready or under erection, manufacturers of superior grades of Bleached and Unbleached Sulphites, Easy Bleaching Sulphates and Kraft Pulps, also dry and wet brown and white Mechanical Wood Pulp and Wood Pulp Boards, reknown the world over.

Total tonnage aggregating 600,000 tons yearly.

Get the most for vour money by getting next to our qualities and prices!

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CORRESPONDENCE SOLICITED.

leg labour, should have as its only cargo reels of paper for our own Labor newspaper.''

John Dickinson and Co., Ltd.

The report of this firm places on record an appreciation of Mr. Lewis Evans' work as a director and confirms the announcement that Mr. H. A. Varnet, the former paper controller, has been appointed a director in his place. The directors are creating a pension fund for their workers, and have allocated £50,000 towards it.

Death of Mr .Charles W. Cowan.

Mr. Chas. W. Cowan, President of the Valleyfield Paper Mill, Penicuik, Scotland, has passed away in his 85th year. He was one of the oldest and best known British papermakers, and his firm have done a great deal in advancing the interests of the industry. Mr. Cowan was a shrewd level-headed business man and the mill today will long stand as a monument to his industrial enterprise. Outside papermaking Mr. Cowan held several important posts of honor. Three sons and five daughters mourn his loss. Mr. Harold Cowan looks after the business in the firm's London office, the other two sons being stationed at Penicuik in the mill.

Death of Mr. Ryder.

Pulp men will regret to hear that Mr. Sam Ryder, the managing-director of Messrs. Andrews & Co., Ltd., big pulp importers in London, is dead. He was in Manchester nearly all his time, where he looked after the firm's interests. What he and Mr. L. P. Andrews did not know about pulp was not worth knowing. They built up a great business and among the British pulp men were highly respected. In these days we cannot afford the loss of good men in the pulp trade, as their business experience is always valuable in consultations.

New Labor Organizer.

Mr. W. Dyson, secretary of the Amalgamated Society of Paper Makers, has been appointed Labor Organizer to the Employers' Federation of Papermakers. Mr. Dyson for the last 10 years has been fighting the worker's cause and he did it in a clean and upright manner which won for him the respect of the millowners. He well deserves his new appointment, and with 35 years service as a practical papermaker the Employers' Federation should find him very useful.

The Pulp Situation.

The market is dull just at the moment, and prices are still on the increase. Some high figures have been paid for strong and easy bleaching sulphite to be delivered next year. Supplies of pulps are on the decrease, and inquiries for spot lots are numerous. Prices are about as follows:—

Bleached sulphite, per ton	£60	0	0
Easy bleaching, per ton	57	10	0
Newsprint, per ton	47	5	0
Groundwood (moist), per ton	19	0	0

Groundwood is very much in demand and, of course, supplies cannot be obtained.

FOREST PROTECTION WOULD FINALLY CHEAPEN PAPER

Hope for the restoration by the Senate of appropriations to continue forest investigation work, and to assist states in fire protection, was expressed recently by Charles Lathrop Pack, president of the American Forestry Association.

The news print situation should bring a showdown in this country as to the imperative need of a national forest policy,'' said Mr. Pack. ''The increase in the use of news print has been 200 per cent in twenty years, and the population has increased 70 per cent. That means a great reading public and a more widely reading public. Ten years ago the United States produced its entire supply of pulp wood, but now two-thirds of it is imported. This means transportation rates to be added to the purchase price.

''The use of pulp wood in the manufacture of news print paper has been developed only in the last fifty years. Of all the paper used in the United States, 22 per cent is used by the newspapers. Before the war news-print paper sold for about 2 cents a pound; now it sells in large quantities for 5 cents and in small quantities up to 10 cents a pound.''

A Buffalo inventor has patented a machine to wind narrow rolls of paper for the backs of barbers chairs from wider and cheaper rolls.

WE WILL PRODUCE FOR YOU

At not to exceed 65 H. P. per ton, a quality of Groundwood pulp that will enable you to manufacture Standard Newsprint with 12% Sulphite as the maximum.

Standard quality of pulp produced with much lower H. P. per ton. Minimum yield per cord prepared wood 2200 lbs.

Installations made without interruption of manufacture and at no cost except for burs used.

License fee 10% savings effected or 25c per cord prepared wood at licensees' option.

The signing of our License Agreement obligates you only to the payment of Royalty on wood actually ground by our process.

The continued use of our burs and process is entirely dependent on YOUR satisfaction and judgment.

HALL, WARD & WALKER, INC.

WOOD PULP ENGINEERS

700 Sherman Bldg., - - WATERTOWN, N.Y.

JAPS MIXED SAFETY SIGNALS; ACCIDENTS INCREASED.

Tokyo.—Tokyo has had her first safety first week—"No Accident Week," it was called—but obviously something went wrong with it. Reports of the metropolitan police show that the number of accidents during the week was greater than the corresponding week of last year. The Yamate, one of the leading Tokyo papers, subsequently conducted an investigation and thinks it knows how this came about.

The idea of the thing, says this paper, entirely miscarried with the bulk of the people, who took the safety first emblem—a green cross—to be a sacred talisman of the gods which would protect them from accidents, no matter what they did. The proper cites one instance of a man being restrained from jumping a car and replying that nobody need worry about him so long as he wore that badge.

One accident was caused by a motor car containing officials who were overseeing the safety first operations in various parts of the city. The officials drove into the forbidden, crowded part of Asakusa Park at considerable speed.

Speaking of the general paper situation, Mr. Dodge asserted that the demand is now running at approximately 1,000 tons a day in excess of the capacity of the mills. He pointed out that conditions had been aggravated by the neglect of many small newspaper publisher to contract ahead for their needs. The greater demand for newsprint, according to Mr. Dodge, has been caused in a large measure by the big increases in the amount of advertising now carried by the newspapers.

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Pulpwood or Saw Timber in Canada or elsewhere—Operation or Investment

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A "Lacey Cruise", covering timber estimates and general or special Report is accepted as the last word by Bankers and Buyers.

Timber Securities

Loans on Lumber and Pulp and Paper Operations underwritten through James D. Lacey Timber Company.

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Manufactured in Canada

Lifts the Load of Industry

You can not comprehend the satisfaction and meaning of **DEPENDABLE SERVICE** until you use "MEAD-MORRISON" steam and electric hoisting engines or other "MEAD-MORRISON" equipment.

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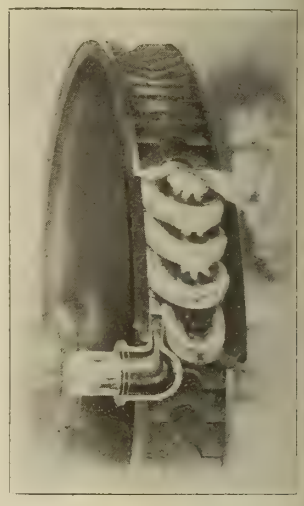


The Unique Principle of Operation

is the fundamental reason for the extreme simplicity, ruggedness and efficiency of the Terry Turbine. Simple because it requires but a single wheel. Rugged because the blade-like portions are milled out of solid metal not requiring the fastening in of hundreds of little pieces. Efficient because several complete 180° reversals of the steam are secured. In

THE TERRY TURBINE

the steam issues from an expanding nozzle at high velocity and enters the side of the wheel bucket in which its direction is completely reversed. As this first reversal absorbs but a portion of the available energy the steam is then caught by a reversing chamber and returned to the wheel again and again until all of the available energy is utilized. Write for Bulletin 2516 for complete information.



The Terry Steam Turbine Co.

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Hartford, Conn. - - U.S.A.

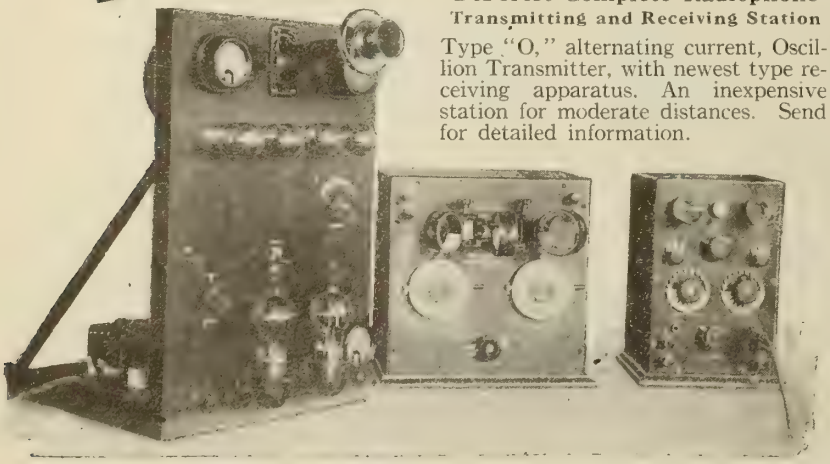
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Wireless Telephone now offers positive, neverfailing means of communication between distant points anywhere, at any time, over land or water, and without expensive wires. You can send your voice, instantaneously, where wires could never be placed. Invaluable in case of fire; for communicating with distant outposts, and for any purpose where urgent messages must be delivered quickly, positively, and correctly.

DeForest Radiophone Apparatus makes wireless telephony practical. Not an experiment; a successful, perfectly operating system now in use in many industries here and in Europe. No wireless telegraph experience necessary; no expensive operators required. Inexpensive apparatus that anyone can operate. You just talk on the telephone! Complete sending and receiving stations can be installed anywhere. Once "set," they never need more than intelligent care to keep them in constant operation.

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Type "O," alternating current, Oscillion Transmitter, with newest type receiving apparatus. An inexpensive station for moderate distances. Send for detailed information.



If you have a communication problem; if you want instant communication with outposts not now within reach, write for complete information at onec.

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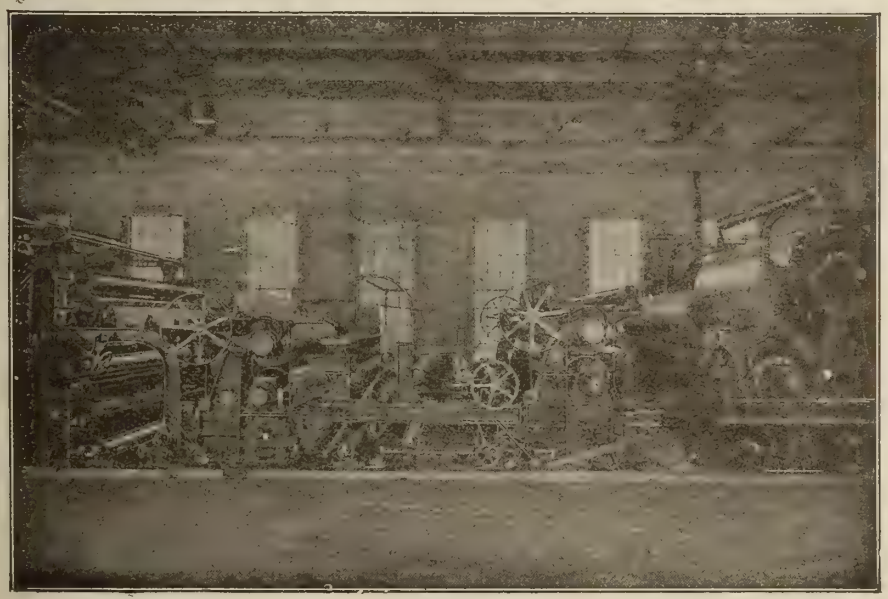
This photo illustrates our big Gleason Gear Planer at work on a Wooden Mortise Gear 72 inches in diameter for a prominent Canadian paper mill.

With this machine we can cut all sizes of iron, steel or wooden spusor bevel gears in sizes up to and including 84 inches in diameter.

We have all of the other machine tool equipment and facilities for handling this class of work quickly and economically and will be glad to send quotations on receipt of your drawings, sketches or specifications.

Canadian Ingersoll-Rand Company Limited

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Harper Fourdrinier Paper Machine

Send for our bulletins describing this machine

MANUFACTURED BY

The SANDY HILL IRON & BRASS WORKS,

HUDSON FALLS, N.Y.

Riveted or Welded

STEEL TANKS

FOR ANY PURPOSE

Quick Deliveries

We Design and Build

STORAGE TANKS
For Oil Refineries
Oil Distributing Stations
Pulp Mills
Distilleries
Liquor Tanks
Chemical Works
Cyanide Installations
PRESSURE TANKS
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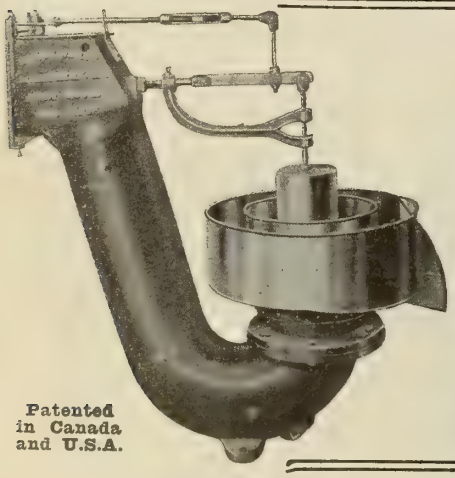
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VOL. XVIII. GARDEN CITY PRESS, Ste. Anne de Bellevue, Que. No. 17

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-:- EDITORIAL -:-

MUST A PAPER MILL BUY ONTARIO POWER?

The pulp and paper industry will watch with interest the outcome of a discussion in Ontario regarding the Great Lakes Pulp and Paper Co. It was proposed in the Legislature that the sale of the Pic River and Black Sturgeon limits be withdrawn and that the limits be re-advertised for sale on the express condition that Hydro power be used. The intimation was made that better prices could be obtained than those in the old agreement. Premier Drury said:

"We have no objection to a discussion being carried on if there is a motion for a cancellation of the contract on the grounds of non-fulfillment. But we have proceeded on the assumption that once an agreement is entered into it is inviolate."

The price paid for the limits was quite satisfactory, according to Mr. Bowman, Minister of Lands, Forests and Mines.

Two important points are raised in this connection. One is, whether a provincial government shall violate a contract, and the other is whether Ontario means to put an end to private development of water power.

In regard to the first, it is safe to say that Ontario would not break a contract, as the government would certainly be open to legal difficulties, though in the present case there are people who feel that the lessees of those limits have not kept their agreement. Unfortunately for the province, there appear to be several loop-holes in the contract.

The other matter may have a wide influence on the future development of the province, not only as regards the pulp and paper industry but any business requiring large power installations. It is quite conceivable that the province might derive a larger income from the use of its water powers by industries using them, but it looks as if there would be very few concerns to use the power if the government had to be relied on to furnish it. The Great Lakes Pulp and Paper Co. is a case very much in point. Selling limits with the proviso that only Hydro power be used is much like the American plan of hotel management. The mill that procures a pulpwood limit and is required to get its power from the government, may find itself, if the power has not actually been developed, like a man who gets a room in the American plan hotel referred to and finds the chef has struck and there's nothing to eat.

This is not saying the government of any of our provinces could not make proper provision for power for a mill using timber from crown lands, but in view of what has and has not been done, we believe the growth of the industry will be better encouraged by allowing the mills to develop the resources of wood and power under proper terms and restrictions.

AS THE SENATOR SEES IT.

One of the finest oratorical performances was a part of the program at the banquet of the American Paper and Pulp Association last Thursday night. Senator Lenroot from Wisconsin explained eloquently the attitude of many members of the United States Senate with regard to the action of that body on the Peace Treaty. As an American citizen we agreed with a number of things the Senator said but in spite of his excellent presentation of the case we were not entirely satisfied that the people of the United States feel that their liberties and the opportunity to pursue happiness are endangered by the terms of the Treaty. We rather feel that these blessings are more endangered by the lack of such a Treaty.

The Senator insinuated that in the framing of the Treaty certain of the allies set out to get every possible advantage which left Uncle Sam to hold the "bag." Since our three years under the Union Jack and with some opportunities to become acquainted with the British it is hard indeed to believe that there was any more selfish motive behind the entrance of other countries in the war than actuated our own countrymen. The homes and industries of the United States were threatened just as surely although not so immediately as those in England and elsewhere by the almost victorious German.

A more generous—and probably accurate—view of the situation was taken by the Rev. Nehemiah Boynton. The perpetual chaplain of the American Paper and Pulp Association had spent some time in France and, gray-haired though he is, served in uniform with the boys. Dr. Boynton pointed out the necessity for actually seeing conditions on the other side in order to form a reliable conclusion and he emphasized the obligation resting on the American people to stay with the allies in the terms of peace as they did in the conduct of the war.

It is not however, on this phase of the Senator's speech that we wish to dwell, but rather on the remarks made with regard to the pulpwood situation. The Senator appears to be laboring under two misapprehensions. In the first place his remarks seem to indicate the opinion that the Dominion Government has juridiction over the regulations under which pulpwood is cut on crown lands. It is strange that one who should be as closely in touch with newspapers as the Senator apparently is should fail to understand

that it is the Provincial Government which controls the administration of lands not actually owned by an individual or corporation. These lands owned by the province are called crown lands although the crown has nothing directly to do with them. They are administered by the Provincial Government and the government which leases the lands from year to year may, in renewing a lease, impose such conditions as are proper and right. If restrictions are imposed which are not right, the lessee is privileged to complain to the courts. These matters are well known and it appears that no action has yet been brought against a Provincial Government in complaint of conditions under which pulpwood limits have been leased.

During the past year or two, and especially during the last year, complaints have been widely circulated in the press of the United States and these have been also rather widely quoted on this side of the line. The purpose has ostensibly been to procure an amelioration of the restrictions on the cutting of pulpwood so that the price of paper may be less to the publishers of the United States. To our mind the obvious reason does not coincide with this but we need not go into that phase of the matter.

It is with respect to this price situation that the Senator is a second time deluded. The Underwood resolution which has crystalized the opinion of many publishers and some papermakers on the pulpwood situation has expressed the idea which has just been referred to and which is quite fallacious. The paper mills of the United States are being supplied with wood. They have been in continuous operation, except for transportation and other troubles not connected with the pulpwood supply. They obtain a large percentage of their pulpwood from Canada.

The paper supply would not cost any less if wood could be shipped to the United States from crown lands.

The cost of manufacture under similar conditions does not vary greatly in the two countries and there are advantages in the matter of water power and wood supplies which distinctly favor the establishment of mills in Canada, and with Congress always ready to change the tariff so that newsprint paper is admitted to the United States free of duty, the publisher need have no fear of his paper costing him more because of its Canadian origin.

The Senator's threat that the United States owns the oil and coal fields from which a large part of the Dominion gets its supply would of course, if carried out, make matters distinctly inconvenient for many Canadians for a time. Two things however, should be remembered. First, the oil supplies of the world come nearer being controlled by the British than by the Americans in spite of the larger quantities produced by the United States. The other point is that the newspaper publishers would never permit such measures on the part of Congress as would threaten their supplies of newsprint paper and the source of supply is more and more concentrated in Canada.

It is about time that agitation on pulpwood embargoes be finished. It is an absolute necessity that the Canadian forests be conserved and while there is no desire nor inclination to squabble over the matter there is a firm determination north of the 49th parallel to stand pat on the program as laid out some ten years ago. If any new developments take place indications point to the possibility of keeping at home even wood cut on other lands in Canada as well as that from crown lands. Thus it seems to behoove our American friends to make the best of the situation as it and to get busy and raise some wood of their own, which, if they do promptly they will get the benefit of before present establishments disintegrate.

COBWEBS.

The place to get trimmed—financially and sartorially—is Cornwall. There a hair cut costs 50 cents.

We had a fine time at the banquet of the T.A.P.P.I. last week, but don't know what we had to eat. It was all in French. The speeches were excellent, largely because they were short.

In vain did we search the columns of two New York papers last Friday for an account of the meeting and banquet of the American Paper and Pulp Association the day before. Perhaps they are not interested in paper.

Dr. Baskerville made a hit at the banquet of the Technical Association of the Pulp and Paper Industry when he suggested that T.A.P.P.I. means: This Association protects the Paper Industry. He wisely avoided mentioning the "Interests."

The New York correspondent of the Financial Post, referred to last week, in stating that newsprint prices will be exhorbitant when Canada controls the supply because Canadians are not amenable to the laws of the U. S., forgets that most of the paper makers who signed the agreement with the Federal Trade Commission were Canadian firms.

THE AMERICAN CONVENTION.

Because of lack of space in this issue to give a review of the conventions of pulp and paper men in New York last week, we have decided to make an account of this very interesting affair the feature of the next issue of the Pulp and Paper Magazine.

BACK NUMBERS WANTED

A subscriber of the Pulp and Paper Magazine is very anxious to get a few of the back numbers in order to complete his files. The Pulp and Paper Magazine will be glad to pay 25 cents for any of the following:

Index for Vol. 10, year 1912, No. 12, and Index for Vol. IX, 1913, No. 3 and No. 23 for Vol. 12, 1914.

College Men As Paper Makers

By JOHN W. BRASSINGTON

"Are young college men good material to make into paper makers?" This is a question often asked and rarely answered satisfactorily because it is not in the first instance a fair and proper question to ask. There is no inherent reason that a college man should not make a good paper maker, as good a paper maker as any other kind of man, a policeman, for instance or a United States Senator, providing the latter was caught young enough. There are of course, certain handicaps common to college men, policemen and Senators that tend to make them somewhat conceited, more inclined to boss the job than do it. I know because I used to be a college man myself, though I have not yet been either a policeman or a Senator. It is a drawback to a paper maker in the beginning to be a college man; there is no doubt about that; a drawback soon overcome by a chosen few, never recovered from by a larger number. There are all grades of drawbacks between these two extreme limits each with its example to be copied or avoided.

If a college man can once get over the mental disease that makes him think he is a better man than his neighbor who has not been to collge, that makes him too lazy or fastidious to do hard work and properly learn a trade or a business, that makes him ignorant of the fact that there is something he can learn from every human being be he ever so humble and poverty stricken, then and then only is he fit to mingle with other men who are not college men and learn a trade like paper making.

As the years go by he will find that the mental training he got at college will give him an advantage over those who have had no college training. This training will be, so to speak, a handicap in his favor in the race of life, but this handicap will not be allowed him at the start, nor can he judge how much it will amount to as a handicap. At the end of the race, the handicaps can be credited, against actual time consumed and efforts made, so that the winners will then judge whether they have put forth a sufficient effort to win the prize, or whether they have lagged so far behind their fellows that their handicap has been so far from sufficient to cancel their lack of energy that no prize is theirs. In spite of such a handicap in the race of life,, how many college men fail, how many even of those who succeed have only done so by reason of further handicaps given them by friends and money.

A college man can become a paper maker just like any other man if he works hard enough at the trade to master it. Yet there is something infinitely more heroic in the figure of the man who wins to the top without handicaps or favors given by college or relationship. Of course, no college man can expect to escape from the fact that he has been, so to speak, unfairly favored by circumstances in life's race. Really fine men from the colleges recognize this and are duly humble and grateful to fate.

Will a college man make a good paper maker? Not always! Indeed rarely! but when he does he is an exceptionally good one. Such a one, however, has never even thought that the fact that he was a college man gave him an excuse to shirk any duty or work, however hard or distasteful. These chosen ones never hang back, they are the first "over the top" at the unaccustomed and disagreeable job. Their comparatively pampered existence, prior to learning paper making, may be a physical drawback at the first, but earnest hard work will always repay with the hard earned interest of physical health and strength.

There are college men who start to learn paper-making, who expect that the fact they have been to college will not only excuse them from the more disagreeable tasks but will also, without great effort on their part, qualify them to be placed in authority over their fellow workmen before they are able actually to excell them in efficiency of workmanship. Such men show in their every day attitude a degenerate pride of caste, poorly disguised by an attempt at good-fellowship, which at its best is palpably an offer of the base alloy of patronizing condescension in place of the precious metal of brotherly love and comradeship.

There is no class of men who are more willing to recognize genuine merit, more willing to pay due homage to real ability, more quick to appreciate a real manly man than the paper makers. There is no class of men who can as surely detect spurious ability, who can so quickly assay the false coin of condescension, who are more ready to resent an unjust discrimination in promotion, than these same paper makers.

If a college man enters a paper mill with the intention of learning to become a paper maker he should start in the raw material end and work his way through all the processes like any apprentice. His college training is not of any use at the beginning, it is rather a drawback at the first. The amount of actual damage a young collegian can do to the morale and to the actual physical output of a mill by coming in late to work, driving his own automobile, and by loafing through a shiftless eight hours is almost beyond calculation. It would pay such a mill to bribe him with a large salary to stay at home. The boy who works next to him has gotten up early, has had a hasty and maybe meagre breakfast, has walked possibly a mile or so to work, he carries a cold lunch, and depends on his personal exertions for even these so called privileges. Such a boy is liable to be fired if caught loafing by his boss and yet of such boys have come the master paper makers of the trade.

When such a college man as described in the above paragraph, has loafed through a year or so of such ill spent training, he may be made Mill Superintendent, but he becomes superintendent only in name. The quality of the mill output always deteriorates and the quantity of product per day certainly will not increase. He can never command the unswerving loyalty of the men under him, because they can see through all his pretenses. They know he is not a paper maker. He is a spurious coin, not because he is a college man, but because he lacks character, and character is not necessarily given by college life.

It is character, not a college education, that differentiates a man from his fellows, that places his

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Note:—This subject is open for discussion. Personally we believe Mr. Brassington is right in fundamentals, but a bit emphatic in expression in places.—Editor.

manhood in the forefront against the background of the baseness of the lack of character in others. The quality of loyalty in service is the hall mark of character. It is true that some men achieve a certain degree of financial success by devious and comparatively crooked methods, but no man yet obtained an unearned promotion in a paper mill and received the loyal support of the other employees. This is a true statement whether he be college bred or not.

The question "Are young college men good material to make into paper makers?" is not an answerable question. Paper making demands industry and brains from its followers. College life does not necessarily give these qualities to college students. A college man, as in the case of a policeman or of a Senator, must have character enough to develop his latent qualities of industry and intelligence to a sufficient degree to master the art before he can become a good paper maker or a good anything else. College men still furnish recruits for the tramps fraternity and the "sandwich board" brigades in the big cities, from those among their number who lack character and fixity of purpose.

In the words of the Greeks, there are souls of clay and souls of fire, or as Kipling puts it, there are sons of Martha and sons of Mary, and this is as true of the colleges as of the world outside the colleges. The soul of clay when it emerges from college, or from any other place that may endow a special privilege, uplifts its eyes to Heaven, and ejaculates, "Lord! I thank Thee, that I am not as other men are!" The soul of mud or very inferior clay will not even be this genuine, but will keep its well hidden sense of superiority to itself and try to fool those around it with a pretence of brotherly democracy. Neither college life nor any other kind of life ca nfit such types as these to be worth while as papermakers, or anything else.

The soul of fire, the earnest, truth-loving, industrious man becomes a stronger personality as he overcomes difficulty after difficulty. The greater the obstacles he encounters in life, the greater his victories. A special assistance like a college training is used by such a one as an incentive to self-improvement. Such men are the leaders of the human race. You can find them every where. I believe there are more of such men alive today than ever before in history, unassuming except when a question of principle is involved, too honest in purpose to shirk any duty, however unpleasant. A college training to such a one is a gift from the gods, to be used to the uttermost with a feeling of humble gratitude, with a resolve to use the benefits accruing from it, so the recipient may be of use and service to those who have not been similarly favored. Such men as these make good paper makers, or make good wherever they function. They are men who have determined they will learn to do something useful and do it well. Whatever may be in store for the future, or whatever may happen in the present, they at least will deserve the food they eat by earning it honorably.

Men of this type realise that life is short. They measure and map out its possibilities. They know that they can take place and rank as they wish, if they pay the price in honest endeavor, unflinchingly and constantly every day. They realize they must fit themselves for the place they desire, please note this carefully, "fit themselves for the place they desire." They use their opportunities at college to "fit themselves for the place they desire," they do not expect college to fit them for such a place by mere fact of being there.

Such men are earnest men, men of purpose. They are sane enough to know that a knowledge of the calculus, or a grounding in chemistry, or a knowledge of mechanics is not a proof that they can excel in paper making, without learning the trade. Men of this type when they come out of college are willing to learn from the practical paper maker, to sit at his feet and learn paper wisdom. They do not brand every statement made by the paper maker, that does not tally with their own book learning, as nonsense, and due to the practical man's prejudice, they are, on the contrary, keenly interested and anxious to prove if possible, that the paper maker is right, and not wrong in his judgment. Such men write the books that replace the ones they studied in their youth.

After all colleges are the banks of the brains and experience of the race, and though false cheques may go through occasionally, they always come back dishonored from the clearing house of time, if there is no balance of truth to support the writing of the author.

"Can a college man become a good paper maker" is a question that is not asked by a keen thinker. Peper making is hard work, often dirty, laborious work, the trade of paper making is not learned except by actually working at all the tasks of the trade for a period of years. College men are trained for brain work, not for physical labor. There is no logical connection between college life and real paper making, yet, if a college man really works at, and learns the trade, he must become a better paper maker than if he had not been to college.

Can a young man who is fond of hard work become a good paper maker after he has taken a college course? This is a clear-cut question, to which we can answer, "Yes! if you give him plenty of time he will become a very excellent paper maker, a better one than if he had not been to college." He will find it infinitely more difficult to learn the trade of paper making after a college course, if he thinks his college course makes him a better man than his fellow workers, than if he had never been to college. His mill mates would resent such a mental attitude and detect its existence, however hard he might try to hide it, and as a result, he would lack the willing help and information they would give him if he were simply human and not college bred. Of course, thousands of college men are intensely and grandly human, but then some have allowed their humanity to be suppurated and destroyed by the poison of conceit.

Human nature is human nature, and if a man has learned his trade by years of hard work and expects to give his own boy or his neighbor's boy the blessed privilege of treading the same road through hard work to earned success, he naturally resents the dapper young gentleman who expects to learn paper making without seriously detracting from the beauty of his manicured finger nails. Then again the young apprentice in the mill who is earnestly trying to fit himself by hard work for the position of superintendent of the mill, because of his hardly acquired knowledge of paper making, when he will be, say, forty years of age, he somehow fails to recognize the justice of the claims of a rival from college who expects the same position at thirty because he knows a smattering of

Latin, has an imperfect knowledge of higher mathematics, and also considers any real experience in the making of paper a purely secondary matter.

The profundity of human knowledge, as evidenced by the intellectual capacity of the average college graduate is not overly imposing in any case. There is a story of a great man, studying botany, who found the word chlorophyll defined the substance that makes the leaves green; anxious to find out what chlorophyll might be, he looked the word up in the dictionary and found it to be the name of the green liquid in the veins of the leaves. A large proportion of human knowledge is like this; it is parrot knowledge. Take from the average college man the names of things, and he has often no knowledge left.

Now the practical paper maker knows a great many facts, but often lacks words or names to describe them. He naturally cannot understand or appreciate the point of view of a young man who knows a great many words or names and lacks the power to prove their meaning by facts, who often shows indeed a woeful ignorance about facts. Such a paper maker argues, "Why listen to a discussion on cellulose from a fellow who can't mend a belt or throw a clutch in properly, or tell one shade of color from another? Why listen to a lecture on actinic rays from a chap who does not know how to correct a color fault in the paper? Who cares to know the advantage of free rosin in a size told by one who cannot tell whether the paper is properly sized or not by sight and touch?"

It is an open question whether it may be an inherent right of man, that rewards in the way of promotion, should belong exclusively to those who have earned them by hard honest effort. If so, then the ruling should obtain in any manufacturing establishment, that quality and quantity of service in the art involved, should be an essential requisite for promotion in that art, irrespective of previous rank and advantages.

Can three or four years of college training take the place of say ten years of practical training in paper making? Why ask this question? Why not demand an answer to a query as to whether a silk hat or a silk shirt would most become a bare legged man. This is just as easy to answer, just as logical, but gives a much greater latitude for humor, and the answer might make more entertaining reading.

SAFETY DEVICES—USE THEM.

Sometime ago, a man in the Grinder room in using the emery wheel to grind his pick neglected to secure a pair of safety goggles, and was laid off for a while due to a steel splinter lodging in his eye.

Some weeks ago two men were working in the same Department, breaking up an old grindstone. An assistant to the superintendent told them to wear goggles, but the men thought otherwise and did not see the why of this good advice.

About 15 minutes later both wore safety goggles, but they nearly paid dearly for their attempt to disregard safety rules. A piece of the grindstone hit one of the men near the eye without, however, cutting the skin.

That was the second and more eloquent warning they received.

"Danger or safety, the choice is yours," says the Safety League.

AN ORDER AND A SALE.

By B .A. Franklin in Strathmore's **Scrits.**

You **take** an order. You **make** a sale. So you see in the very choice of the verb the English language characterizes the difference between an order and a sale.

In the matter of the order the salesman is passive —the customer is active. The salesman simply takes what is given.

But in the case of the sale the salesman is active —he gets busy—he persuades—he shows values and uses—he makes—he produces.

But, having produced, he finds that there follows the emotion of enjoyment—which is what makes work agreeable.

And, having enjoyed the making of the sale, the salesman is vastly encouraged to further making of sales.

And that's what makes a good salesman.

No salesman hesitates to take an order ordinarily.

But a good salesman wouldn't take an order for something he knew was to be put ignorantly to a wrong or uneconomic use, without a protest.

A good salesman frequently turns an order into a sale because he knows what he has to sell and to what best uses the different articles may be put.

Therein lies the secret of making sales—the understanding of your goods, plus the understanding of the customer's needs, and the proper combination.

Once the customer understands the combination, the salesman will make the sale to him and the orders are his for the taking.

The sale of high grade papers has to be **made.**

But the profit and the joy therefrom, and the value to the final user, make it well worth while.

SCANDINAVIAN PRICES OF NEWSPRINT

From Scandinavian sources the news came some weeks ago that their newsprint quotations would jump to £78 per ton. They were then selling at £40 odd a ton. Scandinavian quotations, however, for June and the two following months have now been ascertained. They are taking full advantage of the world shortage and quoting 14 cents per pound for June delivery and 15 to 15½ cents per pound for August. These are prices in London. The Scandinavian mills are full up with orders for some months ahead, and for the delivery of these orders in England increased freight charges will have to be paid, the tonnage rate having been advanced considerably. The insurance rate, however, remains unchanged. With these advanced charges against Scandinavian mills and the domestic troubles in the labor world, which are not settled yet and which are impending production, their prices of newsprint and other paper within the next two months should be studied with interest. The paper mill owner today in Britain and Europe is in a difficult position. He does not know what the morrow has in store for him. No sooner is a rail-road strike settled, than the mill workers kick up rough for more wages and between the two the paper man is paying heavily for pulp and trying to get a bit extra for his finished product.

UNFAIR EXCHANGE

The present financial situation gives the lie to the old adage that Exchange is no robbery.—London Opinion.

A. P. & P. A Endorse Underwood Resolution

New York, April 15.—A hint that retaliatory measures might be demanded by United States pulp and paper interests against Canada for restrictions on exportation of pulpwood was contained in an address delivered by George W. Sisson, Jr., president of the American Paper and Pulp Association, delivered at the annual convention of the association here to-day.

Deploring intimations from Canada that export of pulpwood from private lands might be curtailed, Mr. Sisson said:

"Canadian industry must have coal. Common fairness indicates that access to raw materials needed should not be denied on either hand."

Mr. Sisson said that prodigal methods in United States forests and paper mills have brought the industry and the consuming public in this country face to face with an alarming paper shortage, which can be remedied only by adoption of a comprehensive policy of forest protection.

In the course of his survey of the situation, Mr. Sisson said the demand for production of paper was greater than ever before, but that owing to the "lowering efficiency of labor" the recovery would probably be "slow and painful."

In placing the blame for this state of affairs President Sissons paid his respects to Governmental interference as follows:

"To trace the causes of this lowered efficiency would point us, in a large measure, to the disastrous effect of Governmental control of or interference with industry. I directed your attention a year ago to the astounding spectacle of federalized control of industry which we had witnessed during the war period, and which we have found those in charge so very loath to give up. It is well in this time of reconstruction and readjustment, to again remind ourselves of certain fundamentals which cannot be ignored without danger or, indeed actual disaster to not only industry, but to our Government itself."

Trade from Canada.

With reference to the interference with the natural flow of trade from Canada, Mr. Sisson said:

"A factor having direct and most important bearing on the future raw material supply for American pulp and paper mills is the attitude of Canada in prohibiting the export of pulp wood from leased Crown lands even where these leases were purchased years ago in good faith by American manufacturers.

"Common fairness indicates that access to raw materials needed should not be denied on either side, and a restrictive policy in excess of what is fairly necessary for national requirements is not in accord with the co-operative spirit which must hereafter rule in internal relations."

Critical Situation.

A letter to the association from E. T. Meredith, secretary of the Department of Agriculture, said the pulp and paper situation "is the most critical in the history of the United States."

"Our demands for newsprint increased very uniformly from 569,000 tons in 1899, to 1,760,000 tons in 1919," Mr. Meredith said.

"The most disturbing phase of the matter is that ten years ago, when the development of our industry stopped, the United States was practically self-supporting in newsprint production. Today we are dependent upon other countries for the equivalent of two-thirds of the pulpwood, pulp or newsprint which goes into American newspapers. Our newsprint industry is concentrated largely in New England, New York and the Lake states. I am told that 60 per cent of the pulp and paper concerns in New York have no stumpage of their own, and that less than five have enough timberland for future continuous operation."

The letter said a fundamental question in connection with the industry was the permanent supply of raw materials through the protection of forestry in both the east and west.

Forest Protection.

Legislation for a national forest policy in order to promote reforestation, which is regarded as essential for the paper industry, was recommended by the committee on forest conservation.

General recommendations for a national forest policy, to be co-ordinated with state legislation, include: permanent annual appropriation of $1,000,000 to be applied only where the states co-operate; annual appropriation of $500,000 for forest surgery and land classification; permanent annual appropriation of $1,000,000 to acquire land suitable for timber growing; and permanent annual appropriation of $1,000,000 for forest planting operations in national forests.

Other recommendations include adding to federal forest holdings until their total is 200,000,000 acres: a permanent appropriation for forest research and investigation, and extension of the Farm Loan Act to include loans for not more than 50 years for the employment of measures designed to promote timber growing.

State legislation was urged for the establishment of conservation commissions and for the classification of lands so that water supply, forest life and mountains suitable for parks would be protected and the rest of the forest land be made available for timber.

The committee also favored systems of state taxation that would promote private ownership of forest land and state assistance in private reforesting operations.

INTERESTING PULPWOOD CASE.

Last week for the first time in years there was business here for the County Judge in the Division Court. A case which attracted quite an audience and which may have a far-reaching affect on the pulpwood industry in this section was on for trial.

James Howard of Grattan sold to H. Kutschke & Son, through their agent, Adolphe Miller, two cars of peeled poplar pulpwood at, as he alleged, $12 per cord. Kutschke & Son claimed some seven cords of the wood as per measurement at its destination—the Mountain Lumber Co. in New York State—where the measurement was actually to be made and such measurement to be final, was too small—under 3½ inches at the small end, and Kutschke claimed Howard had been paid all he was entitled to. Howard's measurement—36 cords in the two cars—was accepted by the Judge as correct, and there was no proof of small wood, so that clinched the case for Howard. On the strength of all the evidence His Honor decided that Kutschke & Son were at fault and judgment was given against them for the full amount of the claim, $100, dismissed the claim against Miller and adjudged Kutschkee & Son liable for all costs.

Accident Prevention in the Pulp and Paper Industry*

By A. P. COSTIGANE, Secretary and Engineer Ontario Pulp and Paper Makers' Association.

I have been asked to read a paper on Accident Prevention in the pulp and paper industry. This is rather a large order as accident prevention has so many angles that to cover the whole ground would not be possible in the time at my disposal. Furthermore, my first hand knowledge refers only to the pulp and paper mills in Ontario and I think it would be desirable under the circumstances to confine my remarks to what is being done in these mills.

We have heard a lot about accident prevention during the last few years, and I hope we will hear a lot more very soon. What has led to this interest? Some people think it is an outgrowth of the European war, but this is hardly correct. Long before the war started an uneasy feeling arose in industry, that all was not well, internally. Strikes and limitation of output were the order of the day. Strikes are oftentimes justified, but limitation of output in my opinion, can never be justified. The uneasy feeling was not confined to employers, the same feeling was beginning to cause thinking employees to ask the question—Why all this distrust and disagreement? This questioning attitude creditable to both sides was fostered by leading articles in the newspapers pointing out the loss to the country as a whole caused by internal strife and emphasizing the benefit to be obtained from mutual trust and a give and take policy.

About this time Workmen's Compensation came within the realm of practical politics, and the feeling already awakened helped the passage of the Workmen's Compensation Act through the legislature. The passing of this Act was the first real step taken to clear up at least some of the misunderstandings between employer and employee, and marked the dawn of a better day in Industry. The Act may not be perfect as it stands today, but it is an honest effort to deal justly with both employer and employee. Previous to the passing of this Act all claims for compensation for accidents were made under Common Law and in serious cases the claims were usually opposed by Insurance Companies who had taken on employer's risk insurance. In the event of the Insurance Company being able to prove contributary negligence, little or no compensation was awarded the injured party. Besides being an expensive and uncertain method of procedure the ability to appear on the part of the Insurance Companies who had funds at their disposal, against the inability of the injured or his dependents to procure funds to cover legal expenses, resulted in many cases of gross injustice. Many just claims for compensation for accidents, sometimes caused by unprotected machinery, never received compensation of any kind on the ground that such hazards were accepted by the employee on entering the services of the company. On the other hand many cases of malingering received compensation through the agency of shyster lawyers whose importunities often forced a payment from employers who would rather pay a species of blackmail than go to court. The Workmen's Compensation Act has done away with all injustices of this nature, and as the Government handles the business itself, insurance companies are eliminated. Under this Act no matter how, when or where an employee is injured while executing the duties of his employment, he is entitled to compensation. You are probably all familiar with the Workmen's Compensation Act so I will not dwell on it, further than to say that one provision at least appealed strongly to and was early taken advantage of by the Pulp and Paper Industry—I refer to the provision whereby the employers in the industry have the right to form themselves into an association and appoint an expert to carry on an active accident prevention campaign.

Taking a broad view of the situation and after exhaustive study of the experience of other countries, the pulp and paper industry decided that something more than the guarding of machinery was required if the best results were to be obtained. A study of accident statistics showed than more than 20 to 25 per cent of the accidents were due to unguarded machinery, and the question arose as to how to deal with the other 80 per cent. It was realized that while the employer could take care of accidents due to exposed gears, etc., little or no progress could be made along other lines without the whole hearted co-operation of the men in the mill. An organization has now been in operation for four years working educationally and has secured the co-operation of a large percentage of employees. The progress made has justified the early conception of the directors of the Association and proved that the efforts of the association were along the right lines.

Idea of Co-operation a "New One".

The first year was devoted to missionary work among the employers and with few exceptions the employers proved readily accessible and not difficult to convince when the full scope of the plan was explained. Missionary work among the men in the mill was also taken up and converts were made almost from the start, in spite of the fact that some of the younger element treated the whole idea as a huge joke. A few serious accidents made use of as object lessons soon dispelled the joke idea, but some still hang back. By judicious enquiries and conversations with men whose confidence had been secured, it became evident that the hanging back was caused by a feeling of distrust. This feeling of distrust, one might call it the residue of former strife, was the most difficult to overcome. One could feel while talking to the men that while they admitted a desire to co-operate they hesitated because they were all the time looking for ulterior motives and wondering what new scheme was being put over them for the benefit of the management. The idea of co-operation between the management and the men was new and it took a long time before the men were really convinced there was noth-

*Address at the Annual Meeting of the Ontario Safety League, April 13 to 15, 1920.

ing in the background which would later be used to their disadvantage.

The question will naturally present itself—what is to be gained by an educational campaign? I will try to answer the question. 1. Reduction in accidents. 2. Reduction in lost time due to injury. 3. Reduction in labor turnover. 4. And most important of all the establishment of a bond union and mutual respect between employer and employee.

1. Statistics covering a period of years have conclusively proved that accidents can be reduced by organized effort. Our experience in the pulp and paper industry of Ontario bears this out, and I think similar results have been shown in the mills located in other provinces. I have here a chart classifying all accidents that have taken place in the pulp and paper mills in Ontario during the year 1917, 1918 and 1919. The records for 1917, however, are not quite accurate, as many accidents were not reported, so that for comparison purposes we can only deal with 1918 and 1919. The chart includes all accidents involving lost time of one-half day or more, whether such accidents were compensatable or not. During 1918 each full year worker in the industry lost 2.63 days owing to disability resulting from accident. Last year this figure was reduced to 1.99 days or a reduction of 24.3 per cent.

2. Reduction in Lost Time Due to Injury. Anyone who has been responsible for the practical management of a mill or factory will admit from personal experience, that the loss of time due to accidents is a factor to be studied and reduced. Where machinery is used, a minor accident means that the machine in question stands idle while the operator goes to the first aid room to report and have the injury dressed. This may seem a small item but at the end of the year the time thus lost makes quite a big figure. In the case of a major accident, where a man is incapacitated for some weeks, there is the loss due to training of a temporary man to fill his place. But the greatest loss of all is when an employee is fatally injured. In such a case there is bound to be almost a complete cessation of work by fellow employees in the immediate vicinity of the victim. A certain number will drop their work to give aid and will remain with the injured man until he is removed to the hospital—sometimes accompanied by one or two of his friends. After the removal of the victim, there will be further interruption to the work owing to the witnesses of the accident discussing among themselves and with others the details of the occurrence. Following this, much time and energy is expended officially in investigation, interviewing witnesses, examining conditions, etc., and in the event of an inquest the attendance of all officials directly or even remotely responsible for the occurrence. A value can be put on all these interruptions and when such figures are compiled the total will be astonishingly high even when the reduction of output is not taken into consideration.

Speaking of losses due to accidents, let me tell you of an accident that once came under my own observation. Not long ago, I met the superintendent of a plant in which a fatal accident took place. In the course of conversation I put the question: What do you consider this accident cost you, irrespective of compensation? (expecting him to mention a sum of a few hundred dollars at the outside). Imagine my astonishment, when he said, "About $1,000". Asked to explain, he said the accident happened at 9 o'clock in the morning, and owing to the unsettling of the other employees, the output of the plant fell to practically nothing for that day. Two days later the plant shut down for the funeral, all wages being paid by the company as usual. Thus the services of 200 men for practically two whole days was the price this Company paid for that one accident. The superintendent did not over-estimate when he placed the figure around $1,000.

3. Reduction in labor turnover. Safety organizing really means constructive work for industrial betterment, with the main purpose of promoting a sound body, a clear eye and brain, and a clean standard of living. Such a movement aims at preventing men from being injured, it precludes poverty, suffering and destitution in the families, it helps to prevent injury of one employee by another by carelessness or thoughtlessness, it emphasizes the necessity of guarding physical hazards, so that employees do not feel that their lives may be snuffed out if they are not constantly on guard to keep away from moving belts, flywheels or open gearing. Employees are intensely human and will seek employment, will remain with and speak well of the companies offering the best employment conditions, and showing the greatest interest in their welfare.

4. Establishing a bond of union and mutual respect between the employer and employee. There has never been a movement in the history of industry that has done so much to bring employer and employee together on a common platform as has the Safety Movement. The formation of popularly elected committees has been one of the chief influences to bring this about. When representatives of the employees sit in Committee with representatives of the management, each learns the viewpoint of the other. The feeling of restraint passes away and questions are discussed freely and openly. Meetings such as these quickly bring each side to realize that the other fellow is not such a bad sort after all.

The means adopted by the Association must of necessity vary as the men employed are not all of the same class. The grades run from technically trained men to day laborers, and sometimes the latter are not even familiar with the English language. The following are some of the principal means used to stimulate interest among employees:—

(1) Safeguarding physical hazards.
(2) Teaching English to foreigners.
(3) Improving lighting in buildings and yard.
(4) Advocating pure drinking water in mills (individual cups or bubblers).
(5) Issuing books containing Safety instructions.
(6) Placing of bulletin boards in each department, on which are posted regularly bulletins depicting the causes and results of accidents.
(7) Exhibiting at meetings of employees specially prepared Safety films, and giving short lectures of Safety topics.
(8) Arranging matinees for School children to see Safety films, and encouraging essay competitions for prizes among the children on what the pictures taught them.
(9) Designing and distributing Safety Calendars.
(10) Education—encouraging attendance at night schools.

(11) Formation of Safety Committees.
(12) Visits to all Mills and by personal contact arousing the interest of the management as well as of the men.

As well as above, means are taken to stimulate interest among employers. I may say that in some cases the employers need the stimulant mixed just as hot and strong as the law allows.

The office of the Secretary also distributes:—

1. Comparative monthly statistics showing the position of each mill in comparison with other mills in the province.
2. Charts issued annually classifying all accidents during the year.
3. Letters commenting on accidents which might have been avoided.

I do not intend to elaborate all the methods I have mentioned, but merely to touch on some of the principal ones.

First Step is to Safeguard Hazards.

Safeguarding physical hazards, for instance, is important, and this must be the first step taken. There would be no use in asking men to be careful, if glaring cases of unguarded belts or gears were left to trap the unwary. Safeguarding of hazards must be done if for no other reason than to show sincerity on the part of the employer.

What has brought the best results so far has been the exhibiting of Safety films to the employees. The usual procedure is to secure the use of a picture theatre in a mill town, issue tickets to employees a week in advance for the evening show, and invite the school children to a matinee. Men on the night shift often attend the matinee with the children. Meetings such as these are always well attended and Safety films such as "The House that Jack Built", "The Man he might Have Been", "The Crime of Carelessness", etc., are followed intently. An interval is arranged for during which a short talk on Safety Topics is given. Last year ten meetings were held at different points and invariably the accommodation was taxed to the limit. In some cases repeated shows had to be given to take care of those anxious to see the pictures, who had not, owing to the crowd, been able to secure admittance. After viewing pictures such as I have referred to, the audience is usually in a receptive frame of mind during the interval and listen attentively to anything said from the platform. These intervals are great opportunities for a speaker to push home forcefully the lessons depicted on the screen.

As a result of some such meetings an intensive effort was made in three mills, employing on an average 2250 people, to reduce accidents. A date was set for a "No accident week" during which every effort would be made to create a record of no accidents in each of the mills. The week selected was from August 4th to 9th, the same date being set for all three mills in order to create a friendly rivalry among them. During the few weeks to elapse before the opening day of the fateful week arrived, various means were taken to secure publicity throughout the mills. The date was announced in every issue of the Mill periodical, interesting articles were written bearing on the subject and putting it up to everyone in the mills to see that the mill, with which he was connected, passed through the week without an accident of any kind. Inside the mills, signs were placed in every department urging the men to be particularly careful for that week. Red colored triangles were given the employees to wear on their overalls as reminders of the "No accident week". Large cards were placed in each department, with space left for the names of those injured during the week. There was also a large sign printed on cotton placed above the entrance gate referring to the Safety Week, and asking the co-operation of everyone to make it a success.

The results were magnificent. At the close of the week two of the mills had a clean record, not having had an accident of any kind, but one employee in the third mill spoiled an otherwise perfect record. One of the employees playing ball in the machine room, in defiance of all rules and regulations, reached his hand into the winders to recover the ball which had lodged there. His fingers were caught and rather badly crushed, and he lost ten days as the result. That such an accident, caused by misbehavior, should have happened was very regrettable, but much more to be deplored was the callous indifference of this youth towards the success of the campaign in which his fellow employees showed so much interest. The remarkable success of the experiment in the mills referred to shows what can be accomplished in preventing accidents when all pull together.

Seriously Humorous.

In this serious business of accident prevention, one occassionally meets with an accident combining both humor and tragedy. After an exhibition of Safety pictures in a Safety Rally held in one of the mill towns in Ontario, I was standing at the door watching the audience disperse and overheard a couple talking of the meeting. Th wife remarked to the husband, "John you will need to be more careful now of the way you throw matches around, you might set the house on fire some day." "Yes," replied John, "I will be more careful, and you will need to stop lighting the fire with coal oil." "Indeed I won't", replied the lady, "I have been starting the fire with coal oil for twenty years and never had an accident yet." This woman was a convert to safety, as it affected the actions of other people, but as far as she was concerned, it would probably take the setting of her clother on fire to convince her.

As a means of keeping alive the interest in accident prevention all the year round, a good word should be said of the excellent service of bulletins issued by the Ontario Safety League. In nearly every mill in Ontario a Bulletin Board in every department is looked on as essential, and when these boards are taken care of and the bulletins changed regularly, they are a constant source of interest. It is a very difficult matter to secure new material every week for such bulletins, and the members of the Ontario Safety League could with very little trouble to themselves be of great assistance to the League and other members thereof if they would send particulars or procure photographs of accidents that may have occurred in their plants. Photos, such as these when prepared in bulletin form, may be the means of preventing similar accidents in other plants.

The distribution of Safety calendars at New Year time we found to appeal strongly to both the men and the families, especially if the illustrations are of a practical nature and treated humorously. Calendars, such as I have described, are taken home and studied and create an interest in Safety among the whole family. At the end of each month when a page is turned over a new lesson in Safety is exposed to the gaze of members of the family, and so on from monto to

month. In all the mills when the calendar idea was taken up the demand far exceeded the supply. The calendar issued for 1920 brought in more letters of congratulation than anything we have produced in the past.

Education an Important Factor.

I would like to say a few words on Education and what is being done along this line by the Canadian Pulp and Paper Association. The Pulp and Paper Association came to the conclusion some years ago that the better educated employees are, as a whole, the more efficient they will be, and the more efficient employees are, the less liability to accident. Working along these lines a committee on Education was appointed; this committee on investigation found there was not a text book in existence covering the pulp and paper industry as a whole. Realizing that little or nothing could be done without up-to-date text books, the committee recommended that a fund be started to cover the cost of the compiling of such text books. The Association took up the matter and it speaks volumes for the industry, that all the mills in the Association backed up the proposition and the money was immediately forthcoming. About this time, as a Committee of the Technical Association in the United States was busy along the same lines, it was thought advisable that the two Committees work together so that the method of education in the industry in Canada and the United States would be the same, and as the field covered would be so much larger, the cost would be proportionately reduced. A fund of thirty thousand dollars has been raised from the mills in Canada and the United States to be used in the production of a set of text books. These books, when they are finished, will be suitable for Class or Correspondence instruction.

The last point I wish to touch on, as I feel I have already taxed your patience, is Plant Safety Organizing.

I am a great believer in the maxim: "If you want anyone to take an interest in a movement, give him something to do." Therefore, I believe that the formation of Plant Safety Committees, popularly elected, will do much to reduce the annual toll of accidents. In the large mills I advocate a Committee in each Department responsible for the conditions in their own department. Also a Central Committee composed of representatives of the management and the Chairman of the Departmental Committees. The Chairmen of the Departmental Committees being members of the Central Committee, binds all the Committees together. Inspections are made periodically of the whole plant, and the report considered by the Central Committee, who have power, subject to the approval of the management, to order hazards to be safeguarded. All suggestions are passed on by the Central Committee, and adopted or discarded. In the event of a suggestion not being adopted a good and sufficient reason must be given, and the letter stating the objection sent to the employee making the suggestion. When a suggestion is adopted, a letter of commendation and thanks is sent to the employee responsible for the suggestion. This is merely the skeleton of a plan which we have found to work extremely well in the mills. Committee men take real interest in the work and are sincere in their efforts to spread the gospel.

The whole success of Safety work is bound up in the successful study of the personnel. The study of the personnel in any mill is most interesting and for the Safety Engineer absolutely essential.

NEWSPRINT WORKERS GET 20 p. c. RAISE

The newsprint paper situation will not be hampered by strikes of workmen, it was announced last week after a conference in New York between union representatives and eleven of the largest newsprint manufacturing companies of the country. J. T. Carey, of Albany, president of the International Brotherhood of Paper Makers, accepted a 20 per cent advance in wages for the workers, as did representatives of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, the International Brotherhood of Stationary Firemen and Oilers, and the United Brotherhood of Carpenters and Millwrights.

The firms represented were the De Grasse Paper Company, Finch, Pruyn & Co., Minnesota and Ontario Paper Company, Northwest Paper Company, St. Regis Paper Company, Spanish River Pulp and Paper Mills, High Falls Pulp and Paper Company, International Paper Company, Taggarts Paper Company, Tidewater Paper Mills Company, and the Union Bag and Paper Corporation. It was said these firms have an output of more than 3,000 tons of newsprint paper daily, and that all are running on full time. E. B. Murray, of the Union Bag and Paper Corporation, presided at the conference.

MURRAY BAY PULP CO. INCORPORATED.

Quebec, April 18.—Pulp and paper mills are "growing" out of the bush in Quebec province, and district thick and fast nowadays, and the latest addition to the paper-producing industry in the province is the Murray Bay Power and Pulp Co., Ltd., which was granted provincial letters patent on Saturday.

The company's capital will be initially of $750,000 and its head offices will be located at Murray Bay, county of Charlevoix.

Shipments of newsprint from The Ocean Falls plant of the Pacific Mills to Winnipeg are becoming a weekly occurrence now. This Company is still running on seven day time, and Ocean Falls is becoming quite a port. All kinds and sizes of vessels are reporting there from a small fishing craft to trans-pacific steamers which call to get loads for Australia and the Orient.

Powell River Pulp and Paper Mills are filling more than their usual number of orders for Canadian newspapers. These two British Columbia mills are doing their big share to help out the newsprint situation in Western Canada. Western Canada Pulp and Paper Co., successors to the Rainy River Pulp and Paper Co., have now removed their headquarters to the plant at Port Mallon, B. C. The Pulp and Paper Magazine expects to have a complete report on this re-organization at an early date.

LOG-DRIVER DROWNED.

Fredericton, N.B., April 17.—Winslow Thomas, aged 22, of McNutt's Millls, York county, was drowned last evening, while engaged on log driving operations on the Tay stream which empties into the Nashwaak river. He was employed on operations for Fraser Companies, and his body has not been recovered.

Material Handling in a Paper Mill

Labor Saving Equipment of the Dill and Collins Co.

By HENRY J. EDSALL, Link-Belt Co.

(Continued from last issue.)

Lime Handling.

The lime for the bleach plant is stored on the third floor the the bleach building so that it is readily accessible for use. For handling the lime from the railroad cars up to the storage room there is a vertical elevator and a horizontal distributing conveyor which was located above the roof, to get over the top of the bins so that they could be filled to the greatest possible depth, and so that the lime could be spread out better in the storage room by using 2-way chutes at the discharge points. These chutes deliver a little way out on each side of the conveyor, thereby making a wider pile with the peaks of the pile close up under the roof of each chute. Figures 12 and 13 show the storage room and machinery arrangement.

Since the lime contains some large lumps which are rather hard, it was considered advisable to put a grating over the feeder hopper instead of making the conveyor equipment large enough to handle the largest lumps. This grating has 6-inch openings and any lumps which do not go through must be broken by the attendant. An apron feeder is also provided underneath the

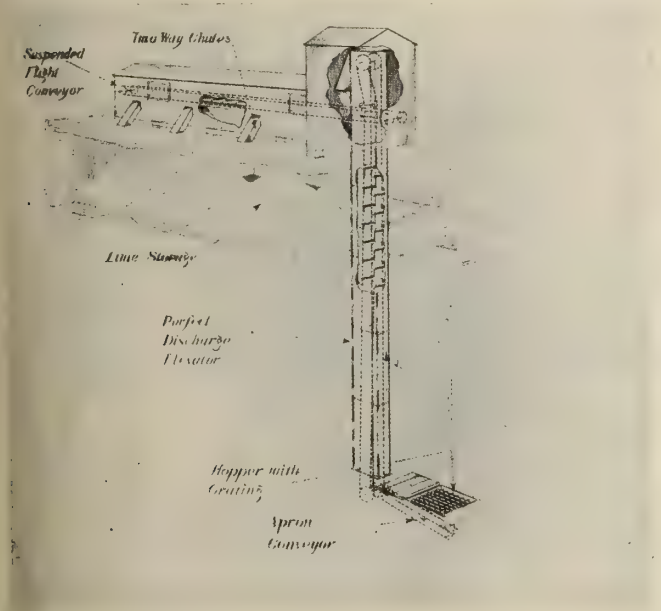


FIG. 12. GENERAL ARRANGEMENT OF LIME HANDLING EQUIPMENT.

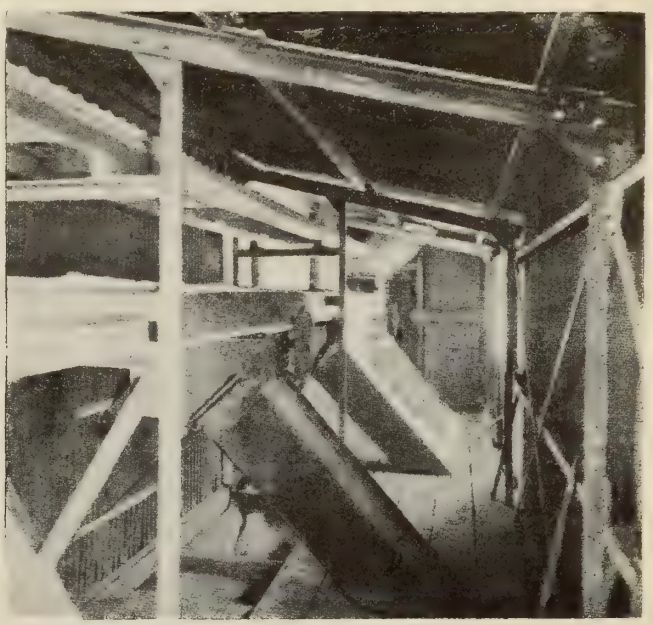


FIG. 13. FLIGHT CONVEYOR HANDLING LIME WITH SPOUTS TO STORAGE ROOM.

feeding hopper to feed the lime regularly to the foot of the elevator, since it is not a free-flowing material and the lumps would tend to jam and be hard to pick up by the elevator unless fed regularly, and even the 6-inch lumps require good sized buckets to handle them. A double strand elevator was used with 16-inch buckets attached between two strands of chain. The speed of the machine is 90 feet per minute and the capacity 20 tons per hour.

The distributing flight conveyor is also a double strand machine to handle the lumps properly, two strands of malleable iron roller chain being used with 16 by 6-inch steel flights attached between the chains at 22-inch intervals. These flights push the lime along in a steel trough and it is discharged through sliding gates in the bottom of the trough to the 2-way spouts which deliver to the storage. A single 7½ h.p. motor drives the three machines, this motor being connected by the necessary reducing gearing and chain drive to the head shaft of the elevator and the foot shaft of the conveyor, and the apron feeder being connected to the elevator foot shaft.

Salt Handling.

The salt for the bleach plant is stored in a ground floor room in a building adjoining the bleach building. To get salt into the storage room there is a short single strand elevator on the outside of the building wall and two screw conveyors which extend through the wall and run along underneath the ceiling. This efficient arrangement is shown in Figure 14. The salt is unloaded from the box cars by wheelbarrows and hand shoveling and delivered to the feeding hopper at the foot of the elevator. The buckets of the elevator take it up and deliver it to either run of the distributing screws which take it into the building and discharge it through gates at intervals into the storage room. The elevator is a single chain machine of the centrifugal discharge type and has a capacity of 20 tons per hour. It is entirely enclosed in a corrugated iron housing and the feeding hopper is arranged to swing up to give more clearance alongside the railroad cars when the elevator is not in use. The screw conveyors are 12 inches in diameter, and the flights are made of ingot iron instead of steel to avoid corrosion as far as possible. This equipment is driven by a 5 h.p. motor.

When the salt is required for use it has to be taken up to the third floor of the bleach plant building and delivered to the saturators. Figure 14 also shows the conveying equipment for handling the salt from the storage to the saturators and the screw conveyor along the wall above the third floor is shown in Figure 15 This reclaiming equipment includes a screw conveyor

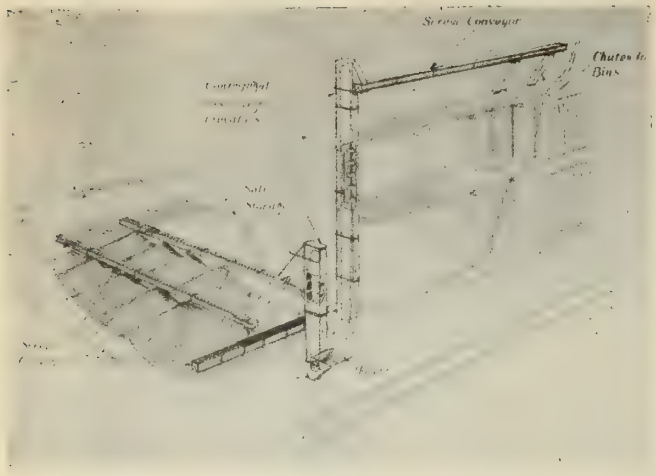


FIG. 14. GENERAL ARRANGEMENT OF SALT HANDLING EQUIPMENT.

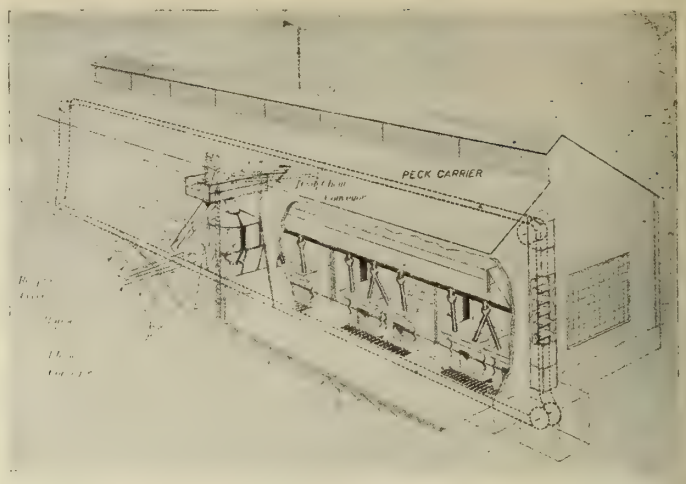


FIG. 16. GENERAL ARRANGEMENT OF COAL AND ASH HANDLING EQUIPMENT.

across the end of the salt storage room just above the floor level, a vertical elevator to take the salt up to the third floor and the screw conveyor along the wall above the third floor, for delivering to the saturator. The salt that is stored near the end of the storage room can be shovelled directly into the first screw conveyor and this conveyor discharges it directly into the foot of the elevator. When the salt near the end of the room is used up it is wheeled in wheelbarrows from farther back. The screw conveyors for this part of the equipment are similar to the two screws previously described, and the elevator is of the same type as the first elevator but much higher. The capacity of the reclaiming equipment is only eight tons per hour since this is about as fast as it can be conveniently loaded from storage.

The Boiler Plant.

The boiler room is arranged according to modern practice with seven 750 h.p. Edgemoor boilers set in batteries of two and each equipped with Wetzel stokers. Figure 16 shows the general arrangement.

A 500-ton overhead bin is provided for the coal with spouts from the bin to the stoker magazines through which the coal feeds by gravity. A Peck pivoted bucket carrier is the main conveyor for both the coal and ashes, this machine following a rectangular path with the upper run above the coal bin, and the lower in a trench underneath the boiler room floor and close in front of the ash pits, so that the ashes can be raked or shoveled out of the pits and delivered directly through grating into the carrier buckets. For disposing of the ashes is a small overhead steel bin outside the boiler house as shown in Fig. 16. The bin holds about 10 tons of ashes, and is arranged to deliver to carts. To get the ashes out to this bin there is a double strand drag chain ashes conveyor for transferring from the Peck Carrier to the bin, or to a spout leading to the railroad cars standing on a trestle alongside the bin. The ashes can, therefore, be delivered either directly to railroad cars or to the small overhead bin and then to carts. To provide additional ashes storgae to take care of the large amount made each day, and make it possible to load a railroad car quickly without having it stand long on the railroad siding, the centre section of the coal bin opposite the stack was partitioned off for ashes, thereby making the ashes bin of a capacity of 50 tons. The ashes are put into this bin until it is desired to load them into the railroad car, then they are fed back to the lower run of the Peck carrier, by means of chutes, and the carrier and drag chain conveyor handle and deliver them to the railroad cars.

Coal Handling Equipment.

The coal is unloaded from the railroad cars at about the centre of the boiler room into a 10-foot 6-inch square track hopper hung underneath the trestle stringers. This track hopper is fitted with a reciprocating feeder which delivers the coal to a 2-roll



FIG. 15. SCREW CONVEYOR ALONG WALL ABOVE FIRST FLOOR OF BLEACH PLANT FOR DELIVERING SALT TO SATURATORS.

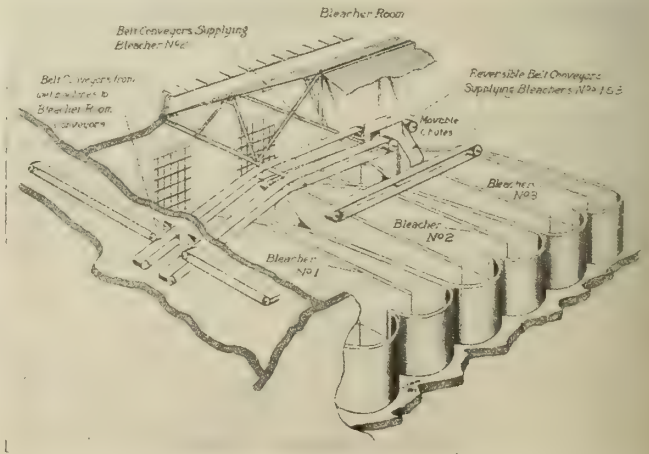


FIG. 17. GENERAL ARRANGEMENT OF BELT CONVEYORS FOR HANDLING WET PULP FROM WET MACHINES TO BLEACHERS IN ADJOINING ROOMS.

crusher, crushing to a size of about 4 inch and under. After the coal passes through the crusher it is handled by a short, double-strand flight conveyor across to the lower run of the Peck carrier buckets, these buckets then taking it up and distributing it in the overhead coal bin. The overhead coal bin is of the standard steel suspension bunker type, with the weight carried by girders along the upper edge, these girders being supported by steel columns. The outside ashes bin is circular in shape with a sloping roof and hoppered bottom. The body is 9 feet in diameter, the cylindrical part being 5 feet high and the conical part extending 2 feet 6 inches below the cylinder. It is supported on steel angle posts resting on concrete foundation.

The Peck carrier is a standard 24 x 24-inch machine with malleable iron buckets and chain links. The chain joints are fitted with case hardened steel bushings and high carbon steel pins, to give large bearing surface and low bearing pressure and bring the wear on small parts or wear resisting materials, that can be renewed at comparatively small expense when they do become worn. The rollers travel on 16-pound T-

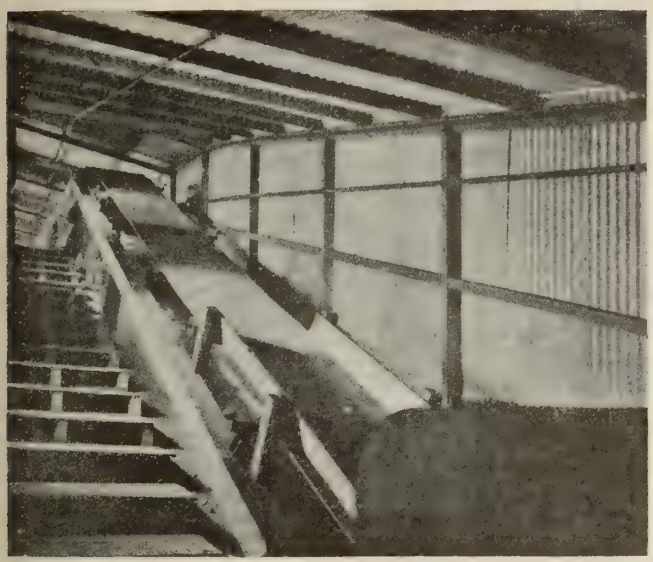


FIG. 18. BELT CONVEYOR FOR HANDLING WET PULP FROM WET MACHINES TO BLEACHER IN DISTANT BUILDING.

rails on the horizontal runs and are guided between double T-rails on both sides in the vertical runs. The buckets are hung on through rods fitted to extensions of the inside chain links and, on account of this method of attachment, they lap and unlap automatically at all the turns so that they always keep their load carrying position except when tilted by the dumper.

The bearings of the lower turns are carried by cast-iron stands bolted to the concrete foundations and the bearings of the upper turns are supported on steel frames carried by the bin and the building walls. The driving group, including the motor and counter shafts, is carried on cast-iron stands which make a self-contained unit of this group, and insure proper alignment of shafts and meshing gears. The dumper for tilting the buckets is moved along on separate 16-pound T-rails over the bin. When it is moved in the direction of travel of the buckets it is pushed along by them; and when it is moved in the opposite direction it is pulled along by a small wire cable which is wound up on a hand-operated drum. This carrier travels at a speed of only 40 feet per minute and has a capacity of 40 tons of coal per hour or an equivalent volume of ashes.

Wet Pulp Handling Equipment.

For handling the pulp from the wet machines to three bleachers in an adjoining room there is a set of belt conveyors shown in Figure 17, all of which are 18 inches wide woven belt machines. Two of these run along the wall in front of the wet machines so that the pulp is delivered to them from these machines. These conveyors deliver to two other belts extending through the wall and running above the bleachers to the centre one. If the pulp is to be delivered to the centre bleacher it drops off the end of one of the belts from the wet machine room directly into this bleacher. It it is to be delivered to either of the outside bleachers it is delivered, by means of chutes, to either one or two reversible belt conveyors extending to the outside bleachers. These belts are run in one direction in order that they may deliver to one of the outside bleachers and are reversed to deliver to the other outside bleacher. These six belts are all driven from a 7½ h. p. back-geared motor which is connected to the various machines by means of belt drives with the necessary countershafts, bevel gearing and chain

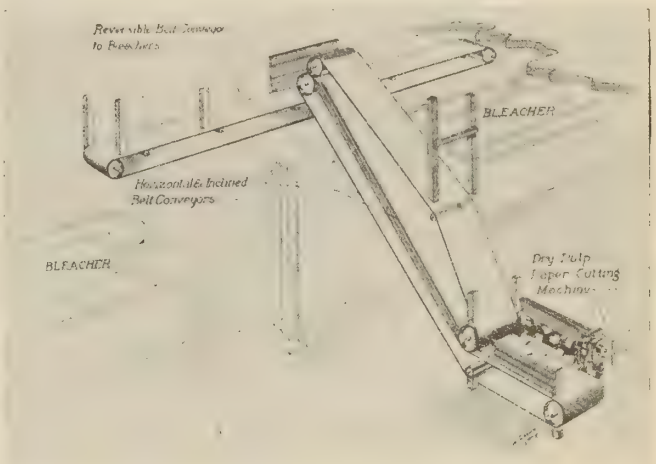


FIG. 19. GENERAL ARRANGEMENT OF DRY PULP CONVEYORS FROM CUTTING MACHINES TO BLEACHERS.

drives. Friction clutches are provided for throwing the various machines into or out of operation. In addition to this belt conveyor equipment there are two long belt conveyors like that in Figure 18, running over the roofs of some of the buildings and through others to take the pulp to another bleacher in a distant building. This transfer could have been accomplished by a single belt conveyor, except that it was necessary to go around the corner, so that the conveyor had to be broken at this point and made into two, one of them 105-feet centres and the other 180-feet centres. These machines have 30-inch rubber belts running over simple, straight-faced idlers at intervals. They are driven by a 7½ h. p. motor connected to the head shaft of one of the conveyors by means of spur gears and an intermediate countershaft, the two conveyors being connected together at the junction point by means of angle and spur gears and a chain drive.

Dry Pulp Conveyors.

The two equipments for handling dry pulp as shown in Figure 19 are exact duplicates of each other,

each of them including one conveyor about 14-feet centers with a 4-feet 6-inches horizontal length at the foot and a 9-feet 6-inch length inclined at an angle of about 60 degrees, one holding-down conveyor 9-feet 6-inches centres to hold the pulp for sliding back on the incline and one 22-feet centres horizontal conveyor over the bleachers. These belts are all 24 inches wide, the belt for the inclned machine sliding along on boards on the carrying run, and the belt of the horizontal machine over the bleacher traveling over straight faced idlers on both the carrying and return runs. The pulp is loaded on the short horizontal part of the inclined machine and travels to where the belt runs around a pulley and starts to ascend the incline. At this point the holding down belt traveling at the same speed as the inclined machine passes around a turn pulley, so that the pulp passes in underneath the holding-down belt and is held between the two belts as it travels up the incline. At the top of the incline it is discharged over the head pulley to the centre of the horizontal conveyor over the bleachers and is discharged at either end of this belt to the bleachers. These conveyors operate at a speed of 90 feet per minute.

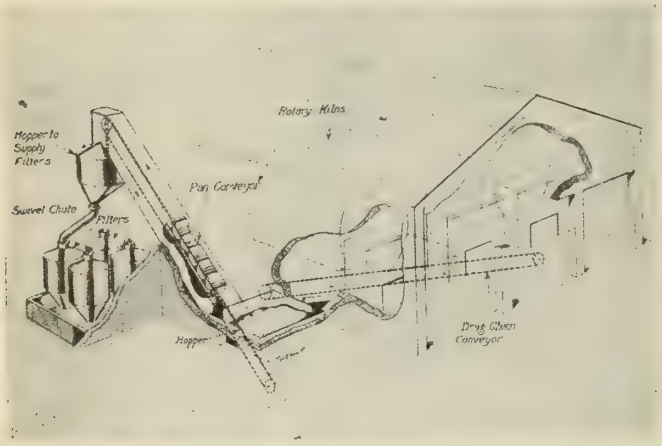


FIG. 20. GENERAL ARRANGEMENT OF BLACK ASH HANDLING EQUIPMENT.

Black Ash Handling.

In reclaiming the soda from the spent cooking liquor it is first evaporated and the residue is burned in rotary kilns so that it comes out as black ash, or sodium carbonate and charcoal. As the black ash falls out of the rotaries, it drops into a 31 feet 6 inches centres drag chain conveyor set at an angle of 15 degrees. This drag chain pushes the black ash along in a steel trough until it is discharged over the end into a steel hopper and the chain returns over idler rollers. The hopper acts as a storage reservoir for a certain amount of black ash.

At the bottom of this hopper there is a spout and gate which delivers the material to an inclined pan conveyor with overlapping steel pans as shown in Figure 20. These pans are made of No. 10 steel and are 12 inches long, 16 inches wide and 4 inches deep. They are attached to a single strand of malleable iron pin chain and every other pan is fitted with two 4-inch diameter single flanged enclosed oiling rollers which travel on angle iron tracks on both the carrying and return runs, thus supporting the weight of the conveyor and the material in the pans. This conveyor is inclined at an angle of about 38 degrees and is enclosed in a No. 12 steel casing which also serves to support the track angles. At the upper end the conveyor delivers to another steel hopper with a gate and rotating spout underneath, this spout being arranged to deliver to any one of the four bins. The speed of this conveyor is 65 feet per minute and it has a capacity of 600 cubic feet per hour. Both the drag chain conveyor and the pan conveyor are driven from line shafts with suitable clutches for throwing them in or out. Since the pan conveyor extends below the water level, the foot end is enclosed in a steel tank made of 3/8 inch steel plate with steel angle stiffening. The general arrangement of the black ash handling equipment as shown in Figure 20.

Truck Haul.

As the level of the shipping room floor is below the level of the platform for loading railroad cars, it is necessary to truck the cases of paper up an incline, and since this has been found to be very hard work for the truckmen, a chain haul was installed to push the trucks as shown in Figure 21. This haul is 40 feet centres and inclined at an angle of about 5 degrees.



FIG. 21. TRUCK HAUL IN SHIPPING DEPARTMENT.

It consists of a single strand of malleable iron chain with pushers at intervals of 3 feet, these pushers engaging with the axles of the trucks and pushing them up while the truckmen hold the handles. The chain slides along at a rate of 60 feet per minute in a steel channel on the pushing run and it slides back on flat iron tracks supported by wooden stringers in a concrete trench underneath the floor. This machine is driven by a 3 h. p. motor direct connected to the head shaft by means of spur gearing with two intermediate countershafts, and is capable of handling two trucks weighing 850 pounds each at one time. It has proved to be a great help in the shipping department.

(To be continued.)

NEW PULP MILL FOR NOVA SCOTIA.

R. A. Jodrey is building a mill at Wolfville, N.S., for the manufacture of groundwood pulp. It is planned at the start to install one 33-in. grinder, which, it is understood, will be furnished by the Chicoutimi Company. A dam has already been built to provide electricity for the community, and a 600 H.P. turbine is being installed for the pulp mill. British interests are said to have contracted for the output.

Col. Ray's Half Century of Faithful Service

Fifty years of continuous faithful service with the firm of Price Brothers, was the occasion of a splendid manifestation of esteem by his former employers and his many friends tendered to Col. Walter J. Ray, in the course of a banquet at which he was the guest of honor at the Garrison Club at Quebec, last week.

Col. Ray was presented with a beautifully engraved silver salver and a cheque for a handsome amount and was the object of very flattering remarks by several of the principal speakers of the evening.

The banquet had been very carefully prepared and the service was as near perfection as possible. When the good things provided for the sustenance and delight of the guests had been disposed of and cigars and cigarettes had been lighted, the health of His Majesty the King was proposed by Sir William Price and loyally honored by all present.

Sir William then proposed the toast of "Our Guest." He first referred to the great honor and pleasure he had last August when he had presided at a banquet and celebration in Kenogami, when the centenary of the firm of Price Brothers & Co. had been observed. The present occasion, said Sir William, was no less agreeable and pleasant to him as they were gathered together to celebrate the half century long association of their old friend the Colonel with the firm. Sir William then remarked that it was scarcely necessary to refer to the past record of a man who had faithfully served the same company and maintained the very best of relations with all its members for such a long time. The sole fact of remaining with the same combination for over fifty years was sufficient proof that he possessed qualities and aptitudes that were not generally found in the average employee.

Colonel Ray, continued Sir William, had not only served the Price Brothers Company faithfully during those many years, but he had also always taken a very keen interest in military matters and sports. He had attained the command of the good old regiment, the Eighth Royal Rifles several years ago, and it might be no exaggeration to say that the hero of the evening was really the "military father" of such well known local military men as General Turner and Watson.

A great admirer and follower of all kinds of manly sports, Col. Ray had always given athletes his best attention and study. In spite of his years, Sir William was sure that the Colonel could still allow many young men a good start on a long walk and beat them. He had made a name for himself in many other forms of sport or athletics.

Dealing with the actual connection of the guest of honor with the firm, Sir William remarked he owed Col. Ray a great deal for the instructions and lessons he had received from him when he had himself had entered the firm and it had been a great pride for him to have such men associated with him for so many years in business. He mentioned another old employee of the company, Mr. Eugene Tremblay, who had been with the firm for the past fifty-one years, grandfathers, fathers, sons, and grandsons had served with the company and Sir William expressed the hope that the sons of the younger men present would continue those splendid traditions in the future. The speaker then expressed the joy at seeing so many of his old friends round him on this occasion and so many of the Colonel's friends gathered to do him honor and express their affection and esteem.

In conclusion Sir William stated it was a very great honor indeed for him to be allowed to preside at such a function and he had great pleasure in presenting the guest of honor of the evening with a small token of gratitude and esteem as a slight proof of the appreciation of the company for his many years of loyal service. As a further mark of affection Sir William said they were happy to be able to present him with a handsome cheque.

Sir William then called upon those present to drink the health of the guest of honor and this was honored with the greatest enthusiasm, the whole attendance joining in the singing of "For He's a Jolly Good Fellow."

In reply Col. Ray spoke as follows:—

"All that I can say is that the past fifty years have been the happiest of my life, and that the knowledge that I was in the employ of gentleman pratically tells the tale, and has always been the great incentive to put forth my best effort in the interest of the firm which I have had the honor to serve in almost every capacity; sharing the responsibility of management in days when it was not all plain sailing. Few people, and certainly not the public in general, realize how unremunerative were the widespread operations, of the firm until recent years. I have seen almost as much money lost, as has been made, unavoidably, tenaciously and peristently, attempting to develop the Saguenay and North Shore, East of Quebec; in the face of annual deficits which wiped out the occasional profits of our operations on the South Shore. If the firm did carry on in the face of adverse results it was due to the parental interest of the employer in the employee, and I may add to the affectionate regard all the workers entertained for the Price family, and not without reason, as ledger upon ledger of bad and doubtful debts at our different mills could testify. Sordid motives, however, played but a small part in the foundation of the esteem in which without exception, every member of the family was held; the charm of manner and consideration of everyone alike commanded instant respect.

Then as soon as we began to tie up both ends of lumber, installation of a card-board mill was suggested and put into successful operation by the late M. John McNaughton, at Jonqu eres. Then followed our Kenogami paper mill achievement, which for years absorbed our lumber profits. I would ask the present employees not to forget those who have gone before, who labored under more strenuous and less luxurious conditions than prevail today, and to remember that, if we enjoy the privileges we do now it is due to the sacrifices made by practically three generations of Prices. It is now truly the season of the harvest and I am sure all those who have the interests of our great resourceful Province at heart are pleased to see that, animated, I may say, by the interests of the family and following the honorable tradition of the House, you are not cashing in to leave us as so many do to enjoy leisure elsewhere, but are reinvesting to build up another Saguenay town affording a further opportunity for an honest livelihood to the children and grandchildren of those who have served your uncles and grandfathers in the past.

I have always esteemed it an honor to be connected with the firm as did also my uncle, John LeSueur,

who entered the service at Chicoutimi in the time of Peter McLeod, about 1840, also my cousin, Richard LeSueur, who, when I entered the employ, was in charge of Hadlaw Cove.

The transaction of what business has fallen to me to look after has brought me in contact, I should say, with some of the best people in the U.K., and across the imaginary line to the south of us, and my recollections of them all are most pleasant. If I ever did meet a crook I have forgotten him. I have always showed the prevailing and generally accepted opinion that lumbermen are the salt of the earth.

Like my father, who was born in Quebec, and as one of the old shipbuilders of the port, had every opportunity of measuring up the merits of the French-Canadian workman, I have always held him in high esteem and I would now be remiss in my duty if I did not bear testimony (after a life long association with them) to their developed and unstinted service in the employ. I am proud to count among my best friends many of my fellow citizens of French origin and for so many of our old river men and navigateurs, especially I have the profoundest respect.

Words would fail me to express my appreciation of your substantial souvenir of my entry into the employ and it has taken a shape which will, I trust, be an incentive to those who may follow me."

DRYDEN PULP AND PAPER CO. OPEN HALL.

One of the notable events of the last few weeks was the opening, on March 11, of the recreation hall and club room for the employees of the Dryden Pulp and Paper Company.

The Pulp Mill Hall, now provided with greater seating capacity and arranged for indoor games as well as for stage performances, bids fair to become a favorite gathering place of the Dryden employees.

The program for the evening was made up of enjoyable musical and dramatic sketches, and speeches by Mr. J. B. Beveridge, the general manager of the company, and by the president of the local union. Mr. Beveridge's remarks and their enthusiastic reception emphasized the gratitude of the men for the successful results of the manager's efforts in the enterprise of the recreation hall and also the cordial relations existing between the manager and the men.

The significance of the evening lies not only in the enjoyment of the immediate occasion, but in the fact that the evening symbolizes the spirit of mutual understanding and industrial co-operation existing between the managing staff and the employees of the company.

FRASER COMPANY'S PLANS.

Fredericton, N.B., April 16.—The Fraser Paper Company's plans for a great industry on the Tobique, as revealed before the corporations' committee of the Legislature this morning, show plans which call for an expenditure of $4,00,000 annually in the province of New Brunswick for labor and material by that company.

Of this amount $1,000,000 would be paid in wages at their new pulp and paper plant at the Tobique Narrrows and the pulp wood to keep that plant in operation would cost another $1,500,000. The plant at Edmunston, when enlarged as proposed, would pay out more than $500,000 annually in wages, and it would cost $1,000,000 to suply that mill with raw material.

TRY TO SETTLE SULPHATE SMELL.

Mr. Justice Maclennan, in the Superior Court on Saturday received judgment after hearing argument of counsel engaged in the case in which Albert Joseph Brown, K.C., is suing the Canada Paper Company for $15,000 damages and asking for the issue of a writ of injunction which shall restrain the company from using sulphate of soda in the manufacture of pulp and paper at its works at Windsor Mills, Quebec.

Mr. Brown is the owner of a summer residence at Windsor, and he complains in his action that he was deprived of the enjoyment of that residence during the summers of 1917 and 1918 owing to the disagreeable odors emanating from the defendants' works through the use of the chemical complained of.

There are over six hundred foolscap pages of typewritten evidence. This was heard on April 6, 7, 8 and 9, and adjournment then made until Saturday last for argument, by George H. Montgomery, K.C., and Aime Geoffrion, K.C., for the plaintiff; and A. W. P. Buchanan, K.C., and J. L. Perron, K.C., for the company defendant.

For the defence it was argued that the plaintiff, by his silence after the change took place, from the use of carbonate of soda to sulphate of soda, in the production of pulp and paper at defendants' mills in 1908, until 1915, when the first complaint was made, amounted to toleration and acquiescence in what was done. It was said to be absolutely necessary to make this change if the company was to compete with other companies engaged in this industry. The system now used was the most modern, and everything that was possible had been done to obviate noxious odors. Whatever smell there was now was not injurious to health or vegetation. People who lived at Windsor Mills had become accustomed to the odor and, counsel said, suffered no inconvenience. It was only occasional visitors and summer residents who complained of unpleasantness. If any inconveniences were suffered—which counsel did not admit—it was argued that plaintiff could claim only damages. It was denied that he could legally be granted now an injunction to compel the company to halt its present system of manufacture.

In reply, it was denied on behalf of plaintiff that he had been silent about the company's change to the use of sulphate of soda. Therefore, it could not be logically argued that he ever sanctioned by his silence what was done. He had repeatedly complained, and had been repeatedly assured that the cause of his complaint would be removed. Nevertheless, the company's use of sulphate of soda went on increasing gradually year by year, so that finally the odors became intolerable and plaintiff was deprived of the proper enjoyment of his residence. If plaintiff had proved his case, it was submitted that he unquestionably had a right to a writ to restrain the company from continuing the offence, in addition to a right to claim damages. And, in certain circumstances, it was said, the plaintiff might claim the right to have the court order the objectionable thing destroyed.

CHEAP NEWSPRINT DUTY FREE.

Washington, April 17.—Final action was taken by Congress to-day on legislation designed to relieve print paper consumers in the United States, the Senate passing the House bill making print paper under eight cents free of duty for two years.

UNITED STATES NOTES

A resolution directing the office of the Attorney-General to conduct an investigation into the manufacture, sale and distribution of print paper and "to institute criminal proceedings against all who have violated the law, or who are guilty of profiteering," was introduced in Congress last week by Representative Christopherson of South Dakota. Coincident with this came an announcement from the chairman of the House Foreign Affairs Committee setting April 26 as the date for a hearing on the Senate resolution authorizing the appointment of an American commission to confer with Canadian Government officials regarding restrictions passed on the export of pulpwood to the United States.

The American Writing Paper Company's report for the year ended December 31, 1919, shows a surplus, after charges and Federal taxes, of $435,095, equivalent to $3.48 a share ($1000 par value) earned on the $12,500,000 preferred stock, as compared with a surplus of $1,252,629, or $10.02 a share, earned on the preferred stock in 1918.

Publishers of several big periodicals printed in New York city have decided to combine two issues in one because of the paper shortage due to the railroad strike that many of the leading magazines of nation-wide circulation might have to suspend entirely if the present shortage continues.

According to Thomas J. Keenan, secretary-treasurer of the Technical Association of the Pulp and Paper Industry, paper manufacturers in Middletown, Ohio, last year proved the practicability of manufacturing paper from the refuse and garbage of cities. The fibres of vegetable matter, old paper and cloth, wood and leather fabrics found in refuse make a satisfactory pulp, when treated by the continuous heating system and cooked with soda, for the manufacture of coarse, strong paper, says Mr. Keenan, which might be expected partly to relieve the demand for high grade wood pulp needed in newsprint manufacture.

A 50 per cent dividend, payable in capital stock, has been authorized by directors of the Union Bag and Paper Company, and a special meeting of stockholders called for May 4 to increase the authorized capitalization from $10,000,000 to $20,000,000.

Another appeal has been made by Secretary of Commerce Alexander urging the saving of waste paper. This is supplementary to the request that waste material of all kinds be conserved and turned back into the channels of trade. The importance of getting paper is specially stressed. The Department of Commerce announces that it "has on hand a limited number of two publications on waste reclamation which it will be glad to send to interested persons."

The Wallace-Bird Pine Products, Inc., has been organized under New York laws. It has acquired patents and processes for utilization of waste wood in the manufacture of chemical fibre, turpentine, pine, oil, and resin, and is based on experimental work in laboratory and mill carried on for the last fifteen years by Joseph Wallace and Company, industrial engineers of New York city, and of the chemists and engineers in the pulp and paper industry in the United States, Canada and Europe.

International to Make 1900 Tons Daily.

Earnings available for the common stock of the International Paper Company declined more than $5 a share, according to the report for the year ending December 31, 1919, issued last Thursday. The company's net income for the year after all charges and Federal taxes amounted to $4,121,494, equal after preferred dividends to $13.24 a share on the $19,803,920 outstanding common stock, as compared with $5,152,577, or $18.47 a share earned in 1918. Total income during the year amounted to $7,170,594 against $8,194,884 in 1918, a decrease of $1,024,290, or 12 per cent. After attributing the company's showing to trying labor conditions and increased prices for materials, the report points to the necessity of protecting forests to assure wood supplies for newsprint making of the future. It urges governmental co-operation in this project for the reason that private capital hesitates to take the risks involved and the long tie-up necessitated for forests to mature. Upon the completion of the new mill at Three Rivers, Quebec, the company expects to produce more than 1900 tons of paper a day, thus trebling the production of its nearest competitor. The report cites also the great disadvantage to which paper mills of the United States in general are being put because they are prohibited by the Canadian provinces from bringing into the United States pulpwood from the lands which were leased from the Provinces with the distinct understanding that the wood should be brought to United States mills. Regarding the labor situation and its effect on paper production, the report states that the cost of labor per ton has advanced from $8 in 1918 to above $20 per ton at the present time—a percentage of increase far beyond the percentage of increase in the cost of living to the workmen.

Fifteen Hundred at Paper Convention.

More than 1500 paper men from all sections of the United States were in attendance last week at the forty-third annual convention of the American Pulp and Paper Association at the Waldorf-Astoria Hotel in New York City. The four day session was held simultaneously with the annual convention of the National Paper Trade Association, composed of paper distributors. The first day was devoted to meetings of subsidiary associations, including the Book Paper Manufacturers' Association, the Vegetable Parchment Manufacturers' Association, the Cost Association, the Toilet Paper Converters' Association and the Income Tax Committee. Stanley G. Otis, executive secretary of the Insurance Federation of the State of New York, urged the vegetable parchment men to join the Americanization campaign, warning against the menace of radicalism and the cry for "one big union." The second day brought together in executive sessions five more divisions of the Association, following which there was a banquet at the Hotel Astor for the tissue paper manufacturers. The Writing Paper, Cover Paper and National Paper Trade associations dined at the Waldorf-Astoria. The pulp shortage in the United States came in for most of the discussion at the main session of the association. The situation was characterized by President George W. Sisson, Jr., as most

alarming. Only a comprehensive policy of conservation and reforestation, instituted by the Federal government, said Mr. Sisson, could bring improvement. Recommendations for Federal and State legislation along the lines suggested by Mr. Sisson were subsequently adopted as embodied in a report signed by members of the associations' committee on forest conservation. Mr. Sisson also advocated passage of the Underwood resolution asking the President to appoint a commission to negotiate with Canadian authorities for removal of embargoes on the export of woodpulp from Quebec and other provinces. He hinted that Americans should employ retaliatory measures in the event that the export of pulpwood from private lands in Canada might be curtailed. He called attention to the fact that Canada needs American coal as much as America needs Canada's pulpwood, and suggested reciprocity as the policy the two countries ought to adopt. Dinners were held on successive nights at the Waldorf-Astoria for the National Paper Trade Association and the American Paper and Pulp Association, while the Technical Association was dined the first night of the session at the Hotel Astor.

DODGE TELLS OF PAPER MAKERS' DIFFICULTIES.

Increase in the cost of labor, materials and transportation find reflection in the report of the International Paper Company for 1919, which has just been issued. President Dodge said regarding the labor situation:

"There has been a steadily increasing cost of production, due to the increasing cost of labor, material, transportation and of all other factors involved in manufacturing. In the newsprint mills the cost of labor per ton has advanced from about $8 per ton in 1913 to above $20 at the present time—a percentage of increase far beyond the percentage of increase in the cost of living to the workmen. Notwithstanding this fact, it has been found necessary to make a new arrangement with the various unions representing a further increase of 20 per cent. over the present wage, to take effect on the first of May, 1920.

"Every reasonable effort is being made to maintain friendly relations with those in the service of the company, and to show reasonable consideration in the matter of wages and conditions under which they work. Unfortunately, there is no legal, and apparently little moral, responsibility on the part of certain of the unions and their leaders. There is no way in which their agreements can be enforced, and in which the employer can obtain compensation for the losses due to the failure of the men to keep their agreements.

"On two occasions in recent days, after agreements had been reached, once through arbitration, and after the unions had solemnly entered into written agreements as to wages for a limited period of time, they repudiated or ignored their agreements, and, while they were still in force, caused the closing of the mills, with great loss to the company.

"In theory collective bargaining is advantageous to all parties. As administered, however, it generally means autocratic control of the properties by labor and the exclusion of men willing to work, unless they become members of, and subject to the absolute control of, the organization.

"The only sane system—the only system under which men may prosper and advance—is the one under which the individual in induced to produce as much as possible, and under which he can be paid in proportion. In any industry in which rigid unionism prevails, the production per capita and the average wage paid are lower than that obtaining in well conducted open shops.

"Great difficulties have been experienced due to the lack of transportation facilities and to the eccentric and arbitrary action of officials while the roads were under Government control. Mills were repeatedly hampered in their operations and a stoppage of machines was not an uncommon occurence. Thus delivery of paper produced in the mills was frequently delayed for considerable periods with inconvenience and loss alike to the producer and consumer. There continues at the present time a daily shortage of 300 railway cars. The shipment of contract tonnage to valued export customers of long standing has also been hampered and curtailed by serious dock strikes at our ports and at those of the countries affected.

"The paper mills of the United States in general are being treated most unfairly and are suffering a great disadvantage because they are prohibited by the Canadian Provinces from bringing into the United States pulpwood from the lands which were leased by your company and others from the Provinces with the distinct understanding that the wood should be brought to United States mills. Wood was permitted to come in for several years without objection, when suddenly further exportation from crown lands was prohibited and the supply of certain of the United States mills, mainly dependent thereon, was cut off; and this although, through the Publishers' Association of the United States, newsprint paper has been placed on the free list. In other words, the Government of the United States gave free entry to the manufactured product from the Canadian mills, encouraged and aided by the Canadian Government, and at the same time permitted the Canadian to deprive the United States mills of raw material."

PAPER MANUFACTURERS TO GIVE MEN WAGE INCREASE.

New York, April 14.—Representatives of eleven of the largest newsprint manufacturing companies in the United States and Canada, at a conference with union officials here to-day, agreed to grant their employees a general wage advance of 20 per cent in renewing working agreements for the next year. It has been estimated that this will add $6 or $7 per ton to the price of newsprint.

NO ACTION TAKEN ON BROMPTON PLAN.

Directors of the Brompton Pulp and Paper Company, Limited, at a meeting last week failed to take any action on the rumored capital reorganization of the company, reports regarding which have been current in market circles for several days past.

Following the meeting of the board, however, it was announced that the construction of the new 18,000-ton pulp mill at East Angus would be proceeded with without delay, and, it is hoped, that the new installation will be in full operation before the end of the current year.

Winnipeg, Man.—The paper bag manufacturing comapny in the west will be established here in the near future. The Western Canada Paper Bag Co. is at present being organized by A. Seabrook, and equipment costing $50,000 being purchased for the plant.

International Number

OF

The Pulp and Paper Magazine of Canada

Early in May, the Pulp & Paper Magazine will issue its first Special Number, which will be called The International Number.

Editorially, this issue will be in charge of Mr. J. N. Stephenson, M.S., Editor of Pulp & Paper Magazine, and Mr. Edward Beck, Manager of Publicity for the Canadian Pulp & Paper Association. It will contain the most complete magazine description of the Pulp and Paper Industry in Canada that has yet been attempted. The object is to show the importance of this industry in the life of the Dominion, the wonderful resources behind it and the unparalleled opportunities ahead, and the part it plays in the paper markets of the world. There will be a brief story of the development of pulp and paper making in Canada, an account of the Canadian Pulp & Paper Association, a description of Canada's forests, water powers, transportation systems, etc.

ADVERTISEMENTS WILL BE ACCEPTED ONLY FROM FIRMS WHOSE ANNOUNCEMENTS APPEAR IN THE REGULAR ISSUES OF PULP & PAPER MAGAZINE.

If you have not already sent copy for the International Number advise us what space to reserve for you. Copy and cuts should be mailed as soon as possible, but not later than May 1st.

Rates are as follows:—Half page, $40. One page, $75. Two pages, $70 each. Four pages, $60 each. Type size of page, 7 x 10 inches. Coated paper will be used.

Pulp and Paper Magazine

GARDEN CITY PRESS

Ste. Anne de Bellevue, Que.

Technical Section

REVIEW OR RECENT LITERATURE.

A-1. Length of wood fibres. Paper, **26,** 15, (1920). The length of wood fibres is practically useless for identification purposes, for a greater difference may be found in one tree than exists between the av. fibre lengths of different species. Some relations have been observed between the lengths of fibres and their position in the tree. No clearly defined relation has been found between fibre length and the strength of wood. —A.P.-C.

A-1. The determination of cellulose in woods. W. H. Dore, Univ. of Cal., Berkeley, Cal. J. Ind. and Eng. Chem., **12,** 264-9, (1920); Paper, **26,** 10-5, (1920). A comparison is made of three proposed methods of treating woods in other lignified materials previous to chlorination in the cellulose determination. These methods consist of (1) absence of hydrolysis, (2) alkaline hydrolysis, and (3) acid hydrolysis, restricted in each case to the degree of intensity considered necessary for avoiding attack upon the cellulose proper. The data show that all processes involving preliminary hydrolysis result in diminished yield of alpha- cellulose as well as total cellulose and are therefore unacceptable as accurate cellulose processes. The ratios of alpha-cellulose to total cellulose are practically the same whether or not preliminary hydrolysis is used. This shows that the highest type of cellulose is as strongly attacked during hydroylsis as the lower types. During the treatments incidental to chlorination the hemicelluloses are hydrolyzed and dissolved in the filtrates and washings. Preliminary treatment with the object of removing the hemicelluloses is therefore superfluous. A considerable proportion of the furfural-yielding complex (probably oxycellulose) remains in the residue practically unaffected by any of the hydrolytic treatments employed. The rest of the furfural-yielding material (probably xylan) is readily hydrolysed and dissolved during chlorination. The significance of the term "cellulose" as applied to wood products is discussed.—A.P.-C.

A-1. The constituents of wood and their economic value. I. Konig and E. Becker. Papier-Fabrikant, **17,** 982-987, 1014-1019, 1171-1174 è1919). A detailed review of the methods used in determining the constituents of wood together with a discussion of their economic value for industrial purposes. For the determination of lignin four methods were used: (1) the disintegrated wood was heated for 7 hours with 1 per cent. HCl under a pressure of 6 atoms (2) treated with 72 per cent. H_2SO_4 at room temp. (3) HCl of 1.21 specific gravity for a short period (4) gaseous HCl.

Tabulated results are given for all of these methods for various woods. The composition of the lignin obtained varies with the method used, however, an analysis of the lignin from the 1 per cent. HCl method giving 68.62 per cent. C and 4.99 per cent. H while for the gaseous HCl method 64.76 per cent. C and 5.52 per cent. H. For the separation of hemicellulose from pure cellulose the woods were cooked at various pressures with 0.4 per cent. H_2SO_4. In regard to the sugar content of hemicellulose it was shown that the products of the partial hydrolysis of fir wood are xylose, mannose, galactose, fructose, and glucose. The value of waste liquors from cellulose plants, particularly from the sulphite process, is discussed with regard to their use for fertilizers, alcohol and cattle feed.—J.S.

A-4, L-7. New pulp processes and wood pulp as a textile raw material. A. Klein. Papierfabrikant, **17,** 1049-30 (1919). A discussion of the different effects of the various pulp processes on the cellulose produced from a certain kind of wood. It is pointed out that cellulose produced from the same pine wood by the soda, sulphate and sulphite processes shows entirely different and characteristic properties. For purposes of relative comparison soda pulp is likened to wool, sulphate pulp to cotton, and sulphite pulp to linen. Furthermore, sulphite pulp when cooked with soda liquor assumes a wool-like character. A knowledge of such effects on the properties of wood pulps is particularly useful in their application to the textile industry. —J.S.

A-7. Standards for lime used in papermaking. Paper, **25,** 745-6, (1919). Tentative specifications for quicklime and hydrated lime for use in the cooking of rags for the manufacture of paper, as drawn up for the use of the U. S. govt. by the Inter-Departmental Conference on Chemical Lime, 1919, covering definition, packing, marking, sampling, testing, rehearing, and requirements. The methods of analysis to be used will be determined later.—A.P.-C.

A-12. The influence of the method of manufacture on the use of casein in glue-making. Samuel Butterman, Forest Products Lab., Madison, Wis. J. Ind. and Eng. Chem., **12,** 141-4 (1920). A brief description of the commercial methods of manufacturing casein is given. The variation in the behavior of casein made by different methods when used in water-resistant glue is due to the variation in ash content. Since the amount of water required to give the glue of medium viscosity is a linear function of the ash content, it is possible to plot a "glue characteristic curve" for any casein glue formula, by means of which a uniform production of glue from casein made by any of the commercial methods can be insured.—A.P.-C.

A-12. A colloidal method for increasing the volume of adhesive water-glass. J. D. Malcolmson, Mellon Institute of Industrial Research, Pittsburgh, Pa. J. Ind. and Eng. Chem., **12,** 174-6, (1920). The desirable properties of water-glass for use as an adhesive are, in general, a function of the viscosity. The vol. of most water-glasses can be increased to the extent of 25 per cent. by the addition of a brine about 2/3 saturated, with no loss in viscosity, adhesive power or drying rate, provided the water-glass soln. is stirred during the addition of the brine and for a short time afterwards. The final viscosity can be varied to a large extent by small changes in the brine concentration. Samples of corrugated container board made in both laboratory and factory with the treated adhesive remained unaffected by age for a period of more than a year.—A.P.-C.

A-14. Testing tearing resistance of paper. C. Frank Sammet. Paper, **25,** 1053-4, (1920). A new method for

determining the factors that influence the tearing resistance of paper, by means of a modified Schopper tensile strength machine, is described. Results of tests are given to give an idea of the accuracy to be expected.—A.P.-C.

A-14. Detection of gelatin and casein. Paper Makers' Monthly J.; Papeterie **42,** 122, (Feb. 10, 1920). The paper is soaked for a few minutes in 2 per cent. $CuSO_4$ soln.; 5 per cent. NaOH is then poured on the paper. In the presence of gelatin or casein a violet coloration is produced. They are differentiated by the xantho protein- reaction, which is positive with casein and negative with gelatin. The paper is treated with a drop of conc. HNO_3: casein gives an intense yellow coloration which turns brown on adding NaOH and orange on adding NH_4OH. Groundwood gives a yellow color which interferes. In the case of casein coated papers the surfaces may be scraped off or the casein extracted with borax or alkali, precipitated with acetic acid, and the dried precipitate treated with HNO_3 or Millon's reagent.—A.P.-C.

A-14. Testing the mildew resistance of textiles. B. S. Levine and F. P. Veitch, Leather and Paper Lab., U. S. Bur. of Chem. J. Ind. and Eng. Chem. 12, 139-41, (1920). The methods heretofore usually employed for testing the mildew resistance of fabrics are outlined and their disadvantages pointed out. The method devised consists in washing discs 3½″ in diam. for at least two days in running water, removing the excess of water between blotting papers or towels and incubating for 7-10 days at 20-5°C in Petri dishes with 10-5 cc of plain agar jelly free from nutrient matter. If there is a heavy, well-developed growth, the test is discontinued. If the growth is entirely absent or merely starting, the discs are innoculated with stock cultures of **Alternaria, Cladosporium,** and a pink Mucor, and further incubated for 3-4 weeks. During the second period of incubation weekly examinations of the plates are made microscopically and with a binocular microscope. The factors to be observed are (1) extent of contamination or so-called spontaneous growth, (2) extent of innoculation growth, (3) discoloration, (4) strength of fabric, (5) nature of predominating growth. A rating on the basis of 10 has been worked out; but this is arbitrary and subject to modification. A comparison has been made of the results of the lab. tests with the results of exposure tests. (This procedure should be helpful in testing, wallboard, container board, etc.—Ed.)

A-14. Tearing strength of paper. Paper, **26,** 18, (1920). There is no relation between the actual tearing strength of the toughness of paper, as measured with a Schopper tensile strength tester, and the values obtained with the commonly used testers.—A.P.-C.

A-14. Determination of water resistance of fabrics. F. P. Veitch and T. D. Jarrell, Leather and Paper Lab., U. S. Bur. of Chem. J. Ind. and Eng. Chem., **12,** 26-30, (1920). After briefly describing the testing of water resistance by Gawalouski's apparatus, Dannerth's test, the bag test, the burette test, the funnel test, the water pressure test, the spray test, etc., the author sgive the details of the funnel test and the spray test as modified by them, also a scale of rating for each test, enabling results to be expressed numerically. They claim that the tests, when carried out under the standardized conditions, are simple of execution, give results within a reasonable time, and yield more information on water resistance of cotton duck than the other tests tried at the Bur. of Chem. (There are doubtless suggestions here on paper testing.—Ed.)—A.P.-C.

B-2. Problem of renewing forest resources. Hugh P Baker. Paper, **25,** 615-7, (1919). A discussion of the above report, followed by suggestions as to a forest policy for New York.—A.P.-C.

H-0.—The stabilizing of bleaching powder. A. N. Meldrum, J. Soc. Chem. Ind., **38,** 80T, (1919). Chimie & Industrie, **2,** 1059, (Sept. 1919). The loss of Cl is decreased by dessication. The dessication is more rapid with basic than with acid dehydrating agents. It takes place in 2 stages; (1) Loss of water and of hypochlorous acid, (2) Loss of water and of Cl, there being a relation between the partial pressure of the water and the Cl. Dessication is much more rapid when a mixture of Hg and Hg_2Cl_2 is added to the P_2O_5 to absorb the Cl.—A.P.-C.

K-10. Paper; Process for sizing—by the aid of montan wax. P. Klemm, Gautzsch. Ger. Pats. (a) 305, 678, 12.1.17, and (b) 310, 076 8.5.17.

(a) A stable emulsion of montan wax, suitable for sizing paper, is obtained by heating it with a small quantity of resin soap or naphthenic acid soap in alkaline solution. (b) Liquid resin (Tallœl) obtained from soda-cellulose waste lyes (J.S.C.I., 1916, 1163) is saponified and used as the emulsifying agent, somewhat less than 25 per cent of the quantity of montan wax being required.—J.S.

K-7. Paper; Apparatus for making—. J. T. Murphy and E. J. Raney, Assignors to J. L. Carey, Chicago, Ill. U. S. Pat. 1,318,900, 14.10.19. Appl., 30.1.19. Two beating engines are provided at different levels, the lower one being operated intermittently and the higher one continuously. A stuff-chest having a capacity greater than that of the intermittent beating engine, is situated at an intermediate level, and means are provided for conveying stock from the intermittent engine to the stuff-chest and from the stuff-chest to the continuous beating engine.—J.S.

K-12. Removal of air from between the sheet and the felt. D.R.P. No. 314,570, Jakob Heesz, Ebertsheim. Papeterie, **42,** 164, (Feb. 25, 1920). The felt is passed over the suction rolls which are covered with felt or a textile fabric to obtain a better vacuum.—A.P.-C.

K-12. Process and apparatus for making wire-marks, rulings, or water-marks in paper. Fr. Patent No. 496,612, Feb. 11, 1919. Kangas Paperbruks Aktiebolag, Finland. Papeterie, **42,** 19-20, (Jan. 10 1920). Jets of water, steam, air, or other fluid, are forced from the under side through the felt carrying the sheet, thereby loosening the fibres at the points where the jets strike the sheet. The loosened fibres are displaced by applying suction at points close to those where the jets strike, causing a thinning of the sheet at some points and a thickening at neighboring points.—A.P.-C.

K-23. Paper; Process of removing mineral matter from—. Y. Nakamura, Assignor to Nippon Sen-I Kogyo Kabushiki Kaisha, Tokyo. U. S. Pat. 1,318,902, 14.10.19. Appl. 9.7.18. Paper is subjected to the action of a solvent consisting of aqua regia containing an excess quantity of nitric acid and hydrofluoric acid for the removal of mineral matter.—J.S.

L-5. Nitroacetylcellulose. B. Oddo. Gazz. Chim. Ital., 1919, 49, ii., 140-145. The preparation and the properties of a mixed acetyl-nitro derivative of cellulose, probably the tetracetyloctonitrate, are described. (See also J. Chem. Soc., 1920, 1., 16.)—J.S.

The Riordon Pulp & Paper Company Limited

ANNUAL REPORT

For Year Ended December 31st, 1919

BOARD OF DIRECTORS:

CHAS. RIORDON, President
CARL RIORDON, Vice-President
F. B. WHITTET, Sec.-Treas.
J. W.. WHEELER
T. J. STEVENSON
J. S. DOUGLAS
J. B. WHITE
C. B. THORNE
C G. BANCROFT
T. E. WARREN

Balance Sheet, December 31st, 1919.

ASSETS.

Properties:—		
Timber Limits, Land, Buildings, Machinery, and Equipment, etc., at the values adopted at June 1, 1912, with subsequent additions, less depreciation		$7,569,405.44
Investments Held in Trust:—		
Preferred and Common Stocks of the Company, the Income from which will be available for benefit of Employees		484,800.00
Investments in the Capital Stocks of Associated Companies:—		
Deposited with the Trustees for the Bondholders		5,104,676.63
Other Assets:—		
Inventories of Logs, Lumber and Supplies and Expenditures on Logging Operations, Season 1919-1920	$2,016,834.09	
Loan to Kipawa Company, Ltd.	1,959,456.10	
Accounts Receivable:—		
Customers Accounts (less Reserve)	$523,075.86	
Sundry Accounts Receivable	68,006.17	
	591,082.03	
Cash	257,148.50	
		4,824,520.72
Deferred Charges:—		
Discount on General Mortgage Bond Issue	$200,000.00	
Insurance, Taxes, etc., prepaid	78,626.75	
		278,626.75
		$18,262,029.54

LIABILITIES.

Capital Stock:—		
Seven per cent Cumulative Preferred:—		
Authorized and Issued—15,000 shares of $100 each		$1,500,000.00
Common:—		
Authorized and Issued — 45,000 shares of $100 each		4,500,000.00
		$6,000,000.00
Six Per Cent Thirty-Year First Mortgage Sinking Fund Debentures Due June 30, 1942:		
Authorized & Issued $2,500,000.00		
Less: Bonds in Treasury $146,900.00		
Redeem by Sinking Fund. 442,700.00		
	589,600.00	
	$1,910,400.00	
Six Per Cent Ten-Year General Mortgage Sinking Fund Gold Bonds Due January 1, 1929:		
Authorized & Issued $4,000,000.00		
Less: Bonds in Treasury	1,000.00	
	3,999,000.00	
		$5,909,400.00
Mortgages Over Properties Purchased		153,000.00
Other Liabilities:—		
Bank Loans ($1,700,000.00 secured under Sec. 88 of Bank Act)	$1,950,000.00	
Accounts and Bills Payable	491,911.70	
Accrued Liabilities	806,513.69	
		3,248,425.39
Insurance Reserves:—		
Employers' Liability Insurance	18,894.55	
Forest Fire Insurance	85,000.00	
		103,894.55
Surplus:—		
Surplus at June J, 1912, the date of formation of the new Company	255,512.74	
Surplus Profits as per Statement	2,591,796.86	
		2,847,309.60
		$18,262,029.54

Contingent Liability:—
Bills under Discount $332,100.54

Approved on behalf of the Board,
CARL RIORDON, Director.
F. B. WHITTET, Director.

AUDITORS' REPORT TO THE SHAREHOLDERS.

We have examined the Books and Accounts of the Riordon Pulp & Paper Company, Limited, for the year ending December 31, 1919, and have obtained all the information and explanations which we required; and we certify that, in our opinion, the above Balance Sheet at December 31, 1919, is properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs, according to the best of our information and the explanations given to us and as shown by the books of the Company.

PRICE, WATERHOUSE & CO., Auditors.

Montreal, March 3, 1920.

STATEMENT OF PROFIT & LOSS AND SURPLUS, December 31st, 1919.

Earnings from Operations, after deduction of all Expenses of Manufacturing, Administration and Selling		$1,099,251.74
Deduct: Provision for Exhaustion of Timber Limits		148,665.03
		$ 950,586.71
Add: Income from Investments, Interest and Exchange		859,540.21
		$1,810,126.92
Deduct:—		
Provision for Depreciation of Plant and Equipment	$ 225,098.74	
Interest on Bank Advances	123,802.82	
Interest on Bonds and Mortgages	326,063.65	
Proportion of Discount on General Mortgage Bonds	200,000.00	
		874,965.21
Balance of Profit for the year		$ 935,161.71
Surplus Balance, December 31, 1918	$2,218,376.11	
Less: Adjustment in respect of Government Taxes and Stumpage Provisions at Dec: 31, 1918	27,667.46	
		2,190,708.65
		$3,125,870.36
Deduct—Dividends paid:—		
On 7 per cent Preferred Stock.	$ 84,073.50	
On Common Stock	450,000.00	
		534,073.50
Surplus Profits, Dec. 31, 1919		$2,591,796.86

Note:—No Provision has been made in respect of Government Taxes on 1919 Profits.

PULP AND PAPER NEWS

J. A. Mathieu, Limited, has been granted incorporation by the Dominion Government with head office at Fort Frances, Ont. The company is authorized to carry on business in all lines of the lumber and pulp industries. The authorized capital is $1,000,000, and Fort Frances people are named as the provisional directors. Mr. Mathieu is a member for Rainy River in the Ontario legislature.

The many friends in the pulp and paper trade will sympathise with Mr. E. R. Hyland of the Hyland-Thompson Company, Toronto, in the death of his brother, George Hyland, which took place in Norwich on April 9th after a protracted illness.

A new building to be used exclusively for the University of Toronto Press will be erected at a cost of $70,000. To make room for it Professor Mayor's house, between the physics and the chemistry buildings, will be torn down. Some up-to-date printing equipment will be installed.

The members of the Women's Press Club in Toronto listened to an address this week by Dr. J. D. Logan of Halifax on the subject of "The Spirit of Canadian Journalism," in which the doctor presented convincing proofs of the value and dignity of newspaper work.

William H. Parsons Jr., of Parsons and Whittemore, Inc., Paper Exporters, New York, was in Toronto this week on a buying trip.

A visitor to Toronto this week was F. G. Warburton of the Harland Engineering Company, Manchester, England, manufacturers, among other things, of a special electric drive for paper making machines.

George Carruthers, of the Interlake Tissue Mills, was in New York this week attending a meeting of the Joint Executive Committee of the vocational and educational committees of the pulp and paper industry. T. L. Crossley and A. P. Costigane were there for the same purpose.

E. G. R. Clark, the new Canadian representative of the Canadian Nashua Gummed and Coated Paper Company, has returned after spending two weeks at the headquarters of the company at Nashua, N. H. He reports that the new plant at Peterborough will soon be ready to start operations.

The annual meeting of Ritchie and Ramsay, pulp and paper dealers, was held this week, when satisfactory reports of the years business were presented. F. A. Ritchie was reelected President, C. N. Ramsay Vice-President and Managing Director; George W. Pauline Assistant Manager and J. L. Finlay, Secretary-Treasurer. The firm are exceedingly busy at the present time and are working two shifts, while arrangements are being made to add materially to the equipment of the plant.

The Specialty Paper Bag Co. have moved from 93 Spadina Avenue, Toronto, to their new factory, corner Geary Avenue and Bartlett Street where they have ten thousand feet of floor space.

Fire, which broke out in the paper box factory of A. E. Long, 357 Gerrard Street, Toronto, did about $2,000 damage to stock.

The New Ontario Colonization Company at Jacksonboro, New Ontario, are making some improvements to their rossing plant and expect to handle about the same quality of pulpwood as last year, although owing to the high cost of production, the scarcity of wood and labor conditions it is expected that a higher price for the finished product will be realized than last year. The Company have also started operations at their planing and saw mills. They are building several houses for their workmen and other improvements of a public character in Jacksonboro are under way as a result of the enterprise of the Company.

P. W. Wilson, Vice-President, J. G. Gibson, Secretary and George Gray and Thomas Watson, left Toronto on Thursday morning last to attend an executive meeting of the Spanish River Pulp and Paper Company in New York.

Canadian Pulp and Paper Investments, Limited, has been granted a charter by the Federal Government with authority to deal in lumber and pulpwood and allied industries. The authorised capital is $1,000,000 and the head office is to be in Montreal. Among the incorporators are E. R. Parkins, Colville Sinclair, R. E. Allan, S. G. Greenshields and William Taylor.

With power to manufacture and deal in gummed and coated paper, pulp, pulpwood, paper bags, cardboard, etc., Butler and Jones, Limited, with head office in Toronto, have been granted incorporation. The company is capitalized at $25,000 and Toronto people are mentioned as the incorporators.

Frederick Gray, for many years lumber manager of the Standard Chemical Company, and brother of George Gray of the Spanish River Pulp and Paper Company, Limited, died this week in the Toronto General Hospital. The funeral took place from the family residence in Coldwater, Ont., on Saturday afternoon.

George L. Burley, aged 39, and a veteran of the Great War, who has been taking a D. S. C. R. course died suddenly while on his way to the Toronto Telegram office where he was pursuing his studies, on Friday afternoon.

The office of the Weekly Section of the Canadian Press Association, which is at present temporarily located on King Street, East, will, after May 1st be in the Manning Chambers, 72 Queen Street, West.

The Ottawa Valley branch of the Weekly Section of the Canadian Press Association have adopted the two dollar rate for weekly papers and most semi-weekly papers throughout Canada are now being raised to $2.50. It is stated at the Toronto office of the Association that it will only be a matter of a short time when the dollar weekly will be no more.

Investigate every accident that happens in your gang, and try to prevent an accident occurring in a like manner.

WATEROUS PEOPLE SUCCESSFUL.

Arrangements have just been completed by the Waterous Engine Works Co., of Brantford, for the manufacture in Canada of the famous Wolf Collar.

This collar, when attached to the cylinder mould, allows any leakage of white water to pass directly to the machine chest, thus doing away with the necessity of putting the white water from the wet machines over the save-alls.

Announcement has also been made that the Waterous Tire Engine Co. of St. Paul, with whom the Waterous Engine Works Co. are identified, were the highest bidders for the Voith property. The J. M. Voith Co. is a well-known firm manufacturing many successful lines of pulp and paper mill equipment.

GRISWOLD GOES BACK.

H. J. Grisweld, who in May 1918, temporarily left the Dominion Engineering and Inspection Company to organize and operate the Canadian Branch of Messrs. MacGovern & Co., Inc., of New York City, is completing a two year contract on June 1st, and will then resume active participation in the affairs of the Dominion Engineering & Inspection Company in which he is a partner.

WOLF RIVER PULP AND PAPER CO. CAPITALIZES AT $1,000,000

New York, April 8.—The Wolf River Pulp and Paper Company, Ltd., which has just been organized with a capital of $1,000,000, has bought the property of the River du Loup Pulp Company, Ltd., Fraserville, Quebec. This property includes a pulp mill with a daily capacity of forty tons, timber lands and a water power development of 5,000 horse power. The new organization will immediately increase the capacity of the pulp mill to eighty tons and utilize some 3,000 horse power still undeveloped. The timber limits, which are considered perhaps the best in Canada because of the fact that all the timber is within twenty miles of the mill, consist of almost a million cords of standing spruce. Another advantageous factor lies in the location of the mill which is situated on the shore of the St. Lawrence River and on the main line of the Inter-Colonial Railroad, seventy miles below Quebec. One of the immediate plans of the company includes the erection of a news print mill at Buffalo, New York, which will have a daily capacity of 100 tons and will be guaranteed a supply of ground wood from the River du Loup mill.

The organizers of the company are W. W. Moss, one of the leading members of the War Credit Board, Congressman Porter H. Dale, U. M. Waite, vice president and general manager of the Reliance Mill and Trading Corporation, of New York City. and R. W. Moore, identified with the Curtiss Airplane Company.

THE DOMINION PULP MILL NOT SOLD.

It is understood that the offer of the Howard Smith Co for the Dominion Pulp Co.'s properties has been finally rejected, and that the mill will continue to run under present ownership and mangement. Mr. McCabe, who had arranged to leave, will remain, it is said, in his present position.

No matter if you are hidden in an obscure post, never content yourself with doing your second best.—Gen. Phil Sheridan.

WHY THE PORT ARTHUR PULP AND PAPER CO. HIRED MAITLAND

Port Arthur, April 5.—A delegation from the Masters and Mates Association, Number 71, waited on the Port Arthur City Council last Monday to complain that by chartering the tug Maitland to do the season's towing, the Port Arthur Pulp and Paper Company had violated a clause in the agreement with the city to employ, where possible, only local labor in its operation.

Captain Gerow who spoke on behalf of the Association stated that early this spring he had approached the Company in connection with towing for the coming season. He claims he was asked to submit a price. His price for part work was $12 an hour and for all the towing of the Company $10 an hour. The latter price he says was accepted.

On the strength of this promise that he would secure the whole work of towing which he says he had from officials of the Company, he went to Goderich and purchased the tug "Horton" at a cost of $10,000.

On his return from the east he claims that Messrs. Pounsford and Gardiner had informed him they had engaged another in the east, but they would give him the "tag ends." Captain Gerow states he would not have made the purchase of the tug had he not felt certain of getting the contract from the company.

Following the visit of the delegation, A. G. Pounsford, general manager of the Company, has submitted a statement to the chairman of the Industrial Committee of the Port Arthur City Council which says in part:

In order to make the position of this Company clear, I think it wise to review the conference held this morning between Capt, Gerow, the Council and myself.

During the month of January this company took up the question of the charter of a tug to tow approximately 36,000 cords of wood from points outside Thunder's Bay to our mill. Local men, including Capt. Gerow, were asked to figure on this work and state their prices as well as outside firms. Capt. Gerow quoted a price of $12.00 per hour for towing time and $8.00 per hour for laying time, stating he did not have suitable equipment, but advised he was contemplating the purchase of a tug which could do this work. We advised him his price was too high and he submitted a price of $10.00 per hour for towing time and $8.00 for lay time. We advised him we could take this price into consideration. At no time did we give Capt. Gerow any assurance of our business on which to base the purchase of a tug, either verbally or in writing, which statement he stated was correct, this morning.

After going into the matter of our operations further, we found we would be unable to obtain booms satisfactory to our work unless we were able to rent them.

Knowing the "Maitland" was equipped with such booms, none of which the local men had, we met the oweners and asked them for a tender for our work. They quoted a price so much lower than the local men, including their booms, that we could not see our way clear to pay the higher price asked by Capt. Gerow. The above explains the negotiations prior to our chartering the "Maitland."

Mr. Pounsford also claims he will take up the matter of employing a local crew with the owners of the "Maitland."

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, April 17.—The newsprint situation continues to occupy the centre of the stage in paper circles This week C. A. Stevenson, of the Chicago Herald-Examiner, and a party of American newspaper publishers reached Toronto in their hunt for newsprint to help relieve the situation across the line, a number of large shipments having been held up in Toronto and other yards owing to the switchmens strike in the United States. Over there they are facing a very serious shortage and the freight tie-up d.ln't help matters any. The American publishers were able to get many carloads of paper diverted from London, Ont., to points across the border and motor trucks gathered the product up for many miles around Chicago and other big centres, according to the statement of Mr. Stevenson, who added that large quantities were still needed by the American publishers if they were to continue in business.

As to the Canadian situation there has been little change in the aspect of affairs during the week and the shortage is still being actually felt, not only in newsprint circles but in practically all lines of paper and raw stock. The general impression in Toronto appears to be that no attempt will be made by the Canadian publishers to have newsprint control reopen and that the mills will continue to honor the mutual agreement entered into in December last for the 4 cent figure until the end of the period fixed. which is July 1st. After that, the price of newsprint will be a matter of speculation. Much, of course, will depend on the price prevailing across the line and the urgency of enquiries from abroad. It is known that one leading Canadian mill was recently offered $10.75 for their entire output, but this could not be accepted owing to the fact that the bulk of their product for the coming year is already covered by contracts. Needless to say, the mills will be loath to turn down such attractive offers after July 1st and it is quite possible that some of the mills may be allured by the high prices and offer their product as spot lots in the open market.

It was pointed out by the head of one big Canadian mill this week that just before newsprint control came into effect not far short of thirty million dollars worth of extensions and equipment to Canadian mills were cancelled and this as the result of the arbitrary interference by the Government. The fact that these might have been in operation now but for the action of the publishers, and that the present shortage would perhaps not have occurred, are not pleasant thoughts and while a lot of this expansion is under way now, it is considerably belated and is not helping the situation much at the present time. "While newsprint control has not killed this cancelled program of expansion, it has delayed production by thousands of tons," is the way the gentleman quoted, put it.

Meanwhile Toronto representatives of Canadian pulp and newsprint manufacturers declare that newsprint will be forthcoming in sufficient quantities to meet the Canadian demand. Some anxiety has been caused here by the rumour that certain American publishing interests, with unlimited capital at their disposal, were planning to offer fancy prices for Canadian newsprint, in an attempt to ensure their own supply of the commodity for some time to come. J. G. Gibson, Secretary of the Spanish River Pulp and Paper Company, just before leaving Toronto for New York, stated that the rumor was without foundation in fact.

Undoubtedly newsprint would increse in value, he said, but the Canadian publishers would be looked after. "Of course," he said, "you must understand that 80 per cent of our customers are on the other side and naturally the greatest supply must go where the market is. Hoever, it has always been our maxim to support Canadian business and our customers in the Dominion are going to get a square deal. It is quite possible that newsprint may go to $100 a ton.

Another authority in the pulp and paper industry put it this way: "Even suppose we wished to cut off the Canadian market and ship all the paper to the States, how long do you think we could get away with it? The power of the press in Canada is no myth, as we have found to our sorrow. If any attempt was made to put anything like that over we would certainly be drawing a hornet's nest around our ears. It is no exaggeration when I tell you that we have sold paper to firms on this side at a far lower figure than we could get across the border, simply because we

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HIL NEW YORK

Write us when you have any surplus of Ground Wood Bleached or Unbleached. We are always in the market.

had to respect the power that would be wielded against us. I am not sure whether an attempt will be made by American interests to commandeer the Canadian newsprint when the embargo is lifted, but I do know this that the firm I represent will give the Canadian publishers a fair deal."

Other lines of paper continue high in price and low in warehouse stocks and a number of the warehouses have ceased to take orders until they can get caught up with arrearages. Kraft remains at 11 cents and glazed kraft is practically off the market. One dealer said that he would not be surprised to see kraft go to 15 cents a pound for both glazed and unglazed.

There is still a great shortage of pulp. Easy bleaching is quoted at $115 a ton although as high as $120 has been paid for it. News grade runs at $90 a ton and bleached at $135 to $145 a ton according to quality, with indication of an increase in May. One of the factors that will enter into a further increase of price, if it comes, will be the price of bleaching powder, which has about doubled in the past two months. From $75 to $80 continues to be the ruling price of groundwood pulp, although as high as $100 has been offered and paid for some lots.

The recent in crease in the price of all lines of boards has been responsible for a considerable advance in quotations on boxes and containers of all kinds, which is another illustration of the tendency of the age to make the ultimate cost fall on the consumer. The last increase in box boards represented about fifteen per cent and the consumer in the last analysis will have to pay the shot. All lines of Bristol boards and blanks are scarce and stocks aer low and the same may be said of bonds and ledgers. Although high in price at the present time, these lines may undergo another advance this month following the general boost of a few weeks ago.

All departments of the pulp and paper industry may be said to be extremely busy and prosperous. That this is so is indicated by the high points reached on the stock market for pulp and paper securities while there is further evidence in the fact that mills and paper houses in many instances are months behind with theid orders. Of course it is not all cream—this great activity in the pulp and paper industry, particularly when it is considered that choppers are being paid $70 and $80 a month and board while getting out the pulpwood and that other lines of labor at the mills are up proportionately.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$75.00 to $80.00
Sulphite, news grade	$82.50 to $90.00
Sulphite, easy bleaching	$110.00 to $120.00
Sulphite bleached	$140.00 to $150.00
Sulphate	$110.00 to $115.00

Paper.

(These prices, for the most part, must be considered as nominal, the situation in many lines being quite abnormal.)

*News (rolls) at mill, in carload lots	$4.00
*News (rolls) in less than carload lots	$4.25
*News (sheet) in less than carload lots	$5.25
*News (sheet) in less than carload lots	$5.50
xBook papers (carload), No. 1	13c.
xBook papers (ton lots) No. 1	13½c
xBook papers (carload), No. 2	12c
xBook papers (ton lots), No. 2	12½c
Ledgers	17c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tinted bonds	28c
White wrapp	$6.50—$1.00
Writings No. 2 (M.F.)	13½c
Coated book and litho, No. 1	$14.50
Coated book and litho, No. 2	$13.50
Coated book and litho, colored	$14.75
Grey Browns	$7.00
Writing No. 1 (S.C.)	15½c
Fibre	$9.00
Manila, No. 1	$9.00
Manila B.	$7.25
Tissues (unbleached sulphite)	$1.40
Tag Manila	$10.00
Unglazed kraft	$11.00
Glazed kraft	$11.00
Tissues, bleached	$1.65
Tissues, cap	$1.25
Tissues, Manila	$1.10
Nattural greaseproof	17c
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	24c.
Drug papers, whites and tints	10½c and 11½c
Paper bags, Manila (discount)	25—5 per cent
Paper bage (kraft)	30—7½ and 5 per cent
Confectionery bags, white	25—5 per cent
Straw board	$88.00
Chip board	$88.00
Vat lined chip board	$96.25
Filled wood board	$99.00
News board	$96.25
Manila lined folding board, chip back	$104.00
Pulp folding board	$113.00
Jute board, No. 3	$88.00
White patent coated board	$145.00
Grey folding board	$126.00

*Government fixed price to Canadian publishers.

xThese prices are for machine finish supercalender one-half cent higher.

NEW YORK MARKETS

New York, April 17.—The strike of railroad switchmen and other operatives about ten days ago, now appears to be petering out with the return of many of the strikers. This strike, which has almost completely tied up freight traffic in most sections of the country, has been creative of a situation in the paper market doubtless never before experienced. Prior to the walkout of railway employees, stocks of paper at various consuming centres were at best very light because of the fact that with the demand for paper of practically all kinds far in excess of the output of mills, consumers have been running along as close to their available stocks as they dared, and when shipments from producing points were held up it only required several days when stock of paper in New York and in other cities reached a vanishing point. The things that have resulted therefrom have been indeed novel. Local daily newspapers in a number of instances stopped carrying advertisements and cut their issues down to a few pages with naught but news matter in them. One of the largest papers in New York, printing morning and afternoon editions, carried no advertisements, with the exception of theatrical notices, for a space of three successive days. This paper's afternoon edition, which ordinarily runs from

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Rio de Janerio, Brazil.

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Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

24 to 32 pages, was reduced to 8 pages, and the lack of advertisements was made more apparent by the fact that for several months this newspaper has been, excepting the front and back cover pages, the first inside, sporting and editorial pages, almost solidly advertisements.

Magazine publishers, having no paper on hand and unable to get supplies from mills, have been obliged to skip issues, and are now combining their issues. Printing shops the town over have been forced almost to close up shop because of their inability to acquire paper, and paper jobbers have been in a position of being unable to do business owing to the depletion of their stocks.

Just what effect the situation prevailing during the past few days is likely to have on the future market is problematical. The probabilities are, however, that it will be negligible. Publishers and printers who have been compelled to reduce their consumption temporarily will doubtless make up the loss within the next several weeks, or whenever the movement of supplies from mills is resumed on a more normal scale. The consumption of newsprint paper, for example, is to-day not a matter of how much advertising can be secured but hinges on the tonnage of paper that is to be had. There is no question that every daily newspaper publisher in the States could get sufficient advertising to warrant doubling the size of the papers now being printed, but with newsprint so scarce they are obliged to practice conservation and use only such amounts of paper as they have immediately at hand. The same conditions apply to book and fine papers. The probabilities are that consumers of these classes of paper will make up the loss in consumption incurred during the railroad strike within the very near future or whenever the paper is obtained from mills, for, having the business, all they require is the necessary paper on which to print.

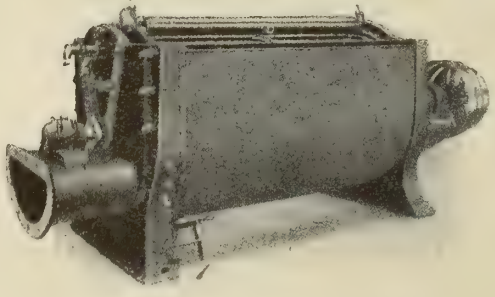
The market, as would be expected under such circumstances, is exceedingly strong. Prices at the moment are mainly nominal, for there have been too few transactions involving sizable tonnages of the different kinds of paper to establish definite values. Some very high prices have been paid for spot lots. Reports have been received of sales of newsprint in standard rolls as high as 16 cents per pound, while actual transactions have been recorded at 4 cents. Paper dealers tell of being offered as much as 20 cents per pound for newsprint by publishers, who in their anxiety to secure supplies are paying old prices, yet this is undoubtedly beyond the true market value of news. Publishers are besieging importers to get newsprint for them in the Scandinavian countries and are ofering to meet any cost to obtain supplies from such sources. Sales have been made within the past few days at 14 cents on the docks here, and importers say that they are just as much unable to acquire further supplies on the other side as they are in this country.

Prices on all other grades of paper are strong, and, in a sense, nominal. There are very few offerings in the open market as contract customers are taking all the output of mills and would readily take more if such was possible. Manufacturers are running their plants at as full capacity as present conditions will permit, despite which supplies fall far short of the wants of buyers. Book papers are quotably firm and the entire production of mills is sold up for some months to come. Fine papers are actively sought and prices are constantly seeking higher levels. Tissues and wrappings are eagerly wanted and buyers are ignoring questions of price whenever finding these papers available. Boards are in a firm market position and quotations are on the uptrend. Plain chip board is quoted in the neighborhood of $95 per ton and filled news board at around $105.

GROUNDWOOD.—Demand for mechanical woodpulp is of an excited character, and consumers, in their anxiety to cover requirements, are paying record-breaking prices for such lots as are to be had. Prime spruce pulp for prompt shipment has sold at as much sa $110 a ton at grinding mills, and indications are large tonnages could be readily marketed at this price and at more if sellers had the pulp to dispose of. The truth of the matter is that very little or no supply is to be obtained in the open market, with the result that spot prices are strictly nominal. Consumers express the hope that with warmer weather in view grinders will be enabled to increase their output, thus effecting an easing up of the supply situation, but thus far there are no visible signs of this developing.

CHEMICAL PULP.—Quotations on chemical pulps are rapidly and consistently advancing under a very keen demand from consumers, who evidently are sorely in need of supplies and who are meeting almost any price to obtain pulp. Sales have been reported of unbleached sulphite of newsprint quality at 7 cents per pound, while domestic bleached sulphite has been reported sold at 9.50 cents, foreign easy bleaching sulphite at 10 cents, Scandinavian kraft at 7 cents and domestic kraft at 6.75 cents. These prices probably establish new record value levels for chemical fibres, and indications are that unless demand lets up to a

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considerable degree in the near future, quotations will go to still higher points. In fact, predictions are made by local pulp men that newsprint sulphite will reach 10 cents and domestic bleached sulphite 15 cents before the present market rise is checked. Whether or not this will be realized, there is no question that the market is destined to remain extremely strong for some time to come and that there is small likelihood of values receding to any great extent during the next several months at least.

RAGS.—Shippers of papermaking rags have been largely prevented from doing business during the past few days by the difficulties in moving supplies. Packers and dealers in New York and vicinity have shipped out but few lots owing to the tie-up in railroad transportation, and yet in the face of such conditions, the market tone has become increasingly firm. Dealers are of the opinion that when shipping can be resumed, mills, having used up their stocks on hand, will come into the market for large quantities of rags, and there is little or no effort being expended at the moment to secure orders. High prices are quoted and buyers seeking to make commitments find it necessary to pay full asked figures.

OLD PAPERS.—Trading in waste paper stock also has been curtailed by the railroad strike, which has prevented dealers and packers from effecting shipments to mills. Nevertheless, there is a firm tone to values, and slight advances have been recorded in some of the lower grades. Packers are generally refusing to accept orders covering future deliveries when they can make shipment unless receiving topnotch prices, it being their contention that the market gives promise of rising when business opens up again and that simply for their own protection they should not book orders excepting at figures which will not necessitate them shipping at a loss later on. Shavings and the other better qualities of paper also are feeling the influence of the advance in woodpulp values and quotations on them tend upward. Flat stock is quotably steady and is held at a basis of around $3.35 per 100 pounds at shipping points for No. 1 heavy books and magazines. No. 1 mixed paper is quotable at $1.45 to $1.50 and folded newspapers at $1.80.

OLD BAGGING AND ROPE.—There is a steady demand for old rope and prices are on a firm level and are looking up. Prior to the railroad strike the market was rapidly soaring but the checked movement of supplies evidently has stopped the advance, at least temporarily, and quotations now range from $8.50 to $9.00 per 100 pounds at shipping points for No. 1 Manila rope. Strings are quotably firm at around $3 for mixed strings and are under good inquiry. There is little stirring in the way of active business in old bagging and prices are easy, this being about the only papermaking material that is not characterized by a strong market position. No. 1 scrap bagging is offered at $3.25 per 100 pounds and could possibly be bought at slight recessions from this figure.

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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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J. NEWELL STEPHENSON, M.S., Editor.

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-:- EDITORIAL -:-

CANADA WILL WELCOME COMMISSION.

A good deal has been said about the Underwood Resolution in the United States Congress and much of this has not been entirely complimentary to the attitude of certain Americans toward the policy of the Provincial Governments with regard to pulpwood cut on Crown lands. There is something however, to be said in favor of the appointment of such a commission as is provided for in the terms of this resolution. One of the advantages of personal intercourse in this way is the opportunity of coming face to face with the people we are dealing with. More can be accomplished in a brief conversation in friendly conference than can be accomplished in a long while, if at all, by written and printed communication. The commission that will be appointed to represent the U. S. Government in investigating the pulpwood policy of the provinces will be courteously and cordially received in Canada. They will have an opportunity to learn at first hand the reasons underlying the restrictions which the provinces found necessary to the protection of their wood using industry. They will come to realize the entire fairness of the Canadian attitude and will understand that American paper mills are not absolutely doomed because they cannot get all of their pulpwood from Crown lands, and that the purpose of the restrictions is not to put U. S. mills out of business, as a recent Washington despatch intimates, but rather that Canadian mills shall not be rendered extinct by such forest methods as now threaten the prosperity of some American concerns.

A feature of the situation which has not received much consideration is the fact that many Canadians would be very glad indeed to have the privilege of cutting pulpwood on Crown lands and exporting it to the United States. Some of this kind of thing has been done in a piratical fashion but the governments realized what they were losing and of late they have rather successfully discouraged the practice. Another point which the commission will note is that while a small amount of American capital has been invested in limits that can be disposed of at a good profit, a large amount of money from across the line is invested in Canadian factories whose future depends on the proper conservation of the forest. Congress really should have met the situation, which has been practically unprotested for nearly ten years, by helping provide a pulpwood supply to American mills. Surely no provincial government could reasonably be expected to do so, though they have shown a desire to look out for Canadian mills.

It will also be remembered that the American newspapers, which are now protesting most vigorously against the forest policy of the Eastern Provinces, were the ones primarily responsible for the only clause in the Reciprocity Treaty which actually went into effect. This clause was the rider that provided for the importation into the United States of newsprint paper from Canada free of duty whether the real treaty went into effect or not. At that time 2 cents was the price limit and this has subsequently been raised to 5 cents and just recently increased again to 8 cents, so that as far as reciprocity is concerned the publishers enjoy the only benefit that Americans have received from the terms of the treaty. They wanted Canadian newsprint duty free so as to keep down the price of this commodity in the United States and now they complain that the industry is moving to Canada and falling, they fear, into the hands of a group of pirates who, not being subject to American laws, will squeeze them to the limit. As a matter of fact the majority of contracts for newsprint in both countries is not far from the average for the whole continent and no advantage whatever is taken or will be taken by Canadian producers because they happen to be under the British flag.

The commission will find these things out when they come over.

AMERICANS WANT PROFIT ON CANADIAN RAILWAYS.

Canadians who must burn American coal, and indirectly, nearly everybody in this Dominion will be affected by the ruling of the Delaware and Hudson R. R. that all shipments must be **prepaid** in U. S. funds from origin **to destination.** No reasonable person will complain of payment in U. S. funds for services by an American line **in that country,** but to be required to pay exchange on the cost of operating a Canadian road in **Canada** is not fair. The clause requiring prepayment is bad enough, even to the border, as it will curtail endless confusion in accounts and result in congestion and delays in shipments. Besides all of which inconvenience and expense to the Canadian people, the American roads are getting the use of about 35,000 Canadian freight cars in excess of the number of American cars north of the line.

WATCHING THE FRASER COMPANY.

Announcement has been made of the plans of the Fraser Company to extend their already large activities in New Brunswick by the incorporation of a new company to build a dam and paper mill at the narrows of the Tobique River. Comments on the subject in the New Brunswick papers indicate that the people of this province appreciate what the establishment of such an industry will mean in the way of employment and the distribution of money in wages for workmen and payment for pulpwood, but they exhort the powers at Fredericton to beware of giving way too much in the form of concessions. The people of Edmundston are also addressed in a similar vein from the local point of view. Le Madawaska of Edmundston states that the company is under obligation to manufacture paper in that town according to its agreement with the municipality. This matter is brought up by the newspaper in connection with local elections.

The provincial aspect of the matter is, doubtless, of more than local significance. It appears to be but another indication of the tendency of the provinces to take more care in the safe-guarding of their natural resources for the benefit of the people than has frequently been the case in the past. Fortunately many Canadian communities are coming to realize that the possibility of having in the future industries in Canada which can offer employment depends almost entirely upon the manner in which the natural resources are administered now. Canada is rich in water-powers and their development should be encouraged under such terms as will give the people annual rental for their use. The water-powers will always be making money for the province as long as rain falls and the run-off is properly regulated. Another of the important natural resources, and perhaps the most important, namely, the forest, is not only important in itself but also because of its influence on rain fall and the flow of rivers. This consideration, combined with the fact of the forest being the raw material for the two most important manufacturing interests of the province, pulp manufacture and the lumber industry, makes it essential that the government at Fredericton deal most carefully with industries dependent upon wood as a raw material.

There is already a very serious forest situation in New Brunswick brought about by the ravages of fire, wind, and insects, and by the careless and wasteful methods of lumbering that are still persisted in. The establishment of a new mill which will require something like 100,000 cords of wood a year demands the consideration of the province as to what provision shall be made for a continual supply of raw material for such an industry, in order that it may for an indefinite time furnish employment to New Brunswick people and be a source of revenue to the government.

WORTH A MILLION.

A bill which is likely to pass the United States Congress will authorize the expenditure of one million dollars for a comprehensive survey of the timber and pulpwood resources of that country. The definite information that such a survey will furnish will certainly be worth what it costs. There is a great deal of uncertainty, misunderstanding and speculation at the present time as to how much wood there is in the United States, how fast it is being produced and how long it will last. There also seems to be an idea that a pulp and paper mill can be stuck up almost anywhere in the Rocky Mountains and make paper at a profit, even underselling that made in other regions. From personal interviews and authentic statements of men who have been through the western forests, we are inclined to think that someone is due to be disillusioned with regard to the forest resources of the Rocky Mountain and coast states, especially with regard to their availability for paper manufacturing. We, therefore, are of the opinion that the survey will be of the greatest help in impressing on Canadians the necessity for the immediate institution of more careful regulation and control of the methods by which the forests of the Dominion are utilized.

WEARING OVERALLS.

The recent fad that is spreading in the United States for the wearing of overalls in protest against the cost of other garments is said to have had a slight effect in some cases in reducing the cost of the higher priced apparel, but it has also been noted that a much greater proportional rise has taken place in the cost of overalls. An excessive demand for a commodity always has such a result. In this case the increased cost hits the man who must wear overalls and probably will not give any lasting advantage to those who have assumed this humble garb, unless psychology takes a hand and they turn to productive pursuits in consequence of the suggestiveness of their attire.

COBWEBS.

The most exciting reading in the trade journals these days, except for an occasional fatal accident, forest fire, or jail sentence, is in the market reports. There is certainly something doing.

Why does the Bureau of Statistics at Ottawa use "Mfgs" as the abbreviation for "manufacturers" in reporting pulp and paper exports? We shouldn't complain of this, but they have contaminated the office of the Secretary of the Canadian Pulp and Paper Association with this bad habit.

We have some very good friends among the anti-prohibitionists, but we can't quite reconcile their tolerance of liquor with the assumption that at heart they are Christian gentlemen.

American Paper and Pulp Association Convention

The annual paper week in New York which took place this year from April 12th to 16th was, as usual, a huge success. "Huge" is used advisedly as there never was a meeting at which the attendance was greater, nor at which greater interest was in evidence throughout the whole convention. More than 1,500 live wires attended the various meetings that took place during the week and nearly 100 plates were set at the banquet which took place on the evening of the 15th.

As usual there was a large number of gatherings scheduled in connection with the main event of the week. For instance, on Wednesday morning there were no less than ten groups conducting business at the same time, while the total number of separate business meetings of the various associations affiliated with the American Paper and Pulp Association would be nearly a score. The addresses and the conduct of business were marked by keen interest and close attention on the part of those in attendance, and the attendance at meetings was unusually good. Dr. H. P. Baker, who assumed the duties of secretary for the Association the first of March is to be congratulated on the success of the meeting. Changing the date of the convention from the first week in February to the middle of April was certainly a happy thought and a move which this year is especially appreciated in view of the almost impossible condition existing in New York in mid-winter. Transportation troubles were bad enough as it was owing to the outlaw railway strike that was in progress at the time, and this circumstance doubtless prevented some from attending the meetings.

After the individual associations had considered the business relating particularly to their own special lines, the whole association gathered for its annual business meeting at the Waldorf Astoria on Thursday. It would be difficult to say which was the most important topic for discussion as keen interest was shown in the addresses relating to labor situation, vocational education, taxes, forestry, trade customs, cost accounting, and other matters of vital importance to the paper makers of this continent. One of the prominent underlying currents of thought which was quite evident was the idea of the value of co-operation among manufacturers and between the manufacturers and those with whom they do business.

The general business meeting of the American Paper and Pulp Association was called to order by George W. Sisson, Jr., president of the association. Mr. Sisson's annual report was unusually interesting and timely and dealt ably with many vital problems of the day.

The next matter considered was the report of Frank L. Moore, chairman of the Forestry Committee, which was immediately adopted.

Carlile P. Winslow, director of the Forests Products Laboratory of the Forest Service. Madison, Wis., read a letter from E. T. Meredith, secretary of the Department of Agriculture from President Sisson, in which the secretary mentioned the seriousness of the newsprint situation and stated that the Department of Agriculture in order to serve well the paper and pulp industry depended upon, first, its ability to hold well-trained and experienced men under the compensation afforded by Congress, and second, its financial resources for undertaking or extending work of obvious importance, closing with the remarks that the present situation of the Federal departments in both these respects is extremely critical.

Secretary Hugh P. Baker then read a partial report of the Pulp and Paper Traffic League. This was followed by a talk by P. T. Dodge, president of the International Paper Company who urged members of the American Paper and Pulp Association to contribute to the amount of $4,000 to the financial support of the Joint Executive Committee on Vocational Education to complete the fund for the text books. Mr. Dodge then started the "drive" by the International's contribution of $2,000 and the balance was quickly supplied by other firms represented at the meeting.

Henry W. Stokes, chairman of the Tariff Committee, said in his report that in view of the fact that there had been no tariff legislation since the last convention, the Tariff Committee had no report to make, although it is in close touch with tariff affairs in Washington, and has received assurance that no changes in tariff laws were made during the last fiscal year.

The report of the Income Tax Committee was read by Frank H. MacPherson, committee chairman, followed by a symposium on the income tax problems.

Next came the reading of the report of D. E. Burchell, chairman of the Committee on Education, which was unanimously adopted.

Dr. James F. Campbell, chairman of the Resolutions Committee, read additional resolutions, all of which were adopted.

The Nominating Committee recommended that inasmuch as Dr. Hugh P. Baker had so recently been chosen secretary-treasurer, it seemed to them not timely to change officers and recommended that all the old officers be re-elected. This recommendation was adopted. The officers for the ensuing year follow:

Officers Elected

President, George W. Sisson, Jr., Racquette River Paper Company, Potsdam, N.Y.

Vice-president, Frank L. Stevens, Stevens & Thompson Paper Company, North Hoosick, N.Y.

Vice-president, Arthur H, Nevius, Miami Paper Company, West Carrolton, Ohio.

Secretary-treasurer, Dr. Hugh P. Baker, 18 East 41st street, New York.

The President's address was one that will be long remembered not only for the able way in which Mr. Sisson presented his thoughts but the careful and finished style of his reports and recommendations.

Among the subjects which he touched upon were membership, the National Industrial Conference Board, industrial relations, industrial education, vocational training, technical research, forest conservation, hydraulic development, taxation, income tax questionaire, foreign trade and the activities of the affiliated associations.

One matter that will be of interest to all Canadians was the approval and support of the American Paper and Pulp Association with regard to the Underwood Resolution which provides for a commission to treat with the Canadian and Provincial Governments with a view of obtaining an easement of the restrictions now obtaining with regard to the export of pulpwood cut from Crown lands.

The Secretary-Treasurer's report, which was prepared by Mr. L. B. Steward, who was succeeded about six weeks before the meeting by Dr. Baker, brought to the attention of the Association many points of importance and interest. Referring to the new Articles of Association which were adopted last year the secretary reported the organization of the Cardboard Manufacturers Association, the Water-Proof Wrapping Paper Manufacturers Association, the Toilet Paper Converters Association, and the Book Paper Manufacturers Association. These organizations are members of the A. P. & P. A. and some others are also affiliated with the present body.

The secretary reports valuable work having been done by the standing committees on various subjects in which paper-makers are particularly interested.

A particularly favorable report was made regarding the fall business conference and special meeting which was held in New York on Friday, Nov. 14, 1919.

The Secretary reported a membership of 391 companies in the Association and that the services extended by the office embrace such matters as statistics, bulletins (of which 584 were issued) import and export information, matters relative to the Federal Trade Commission and the answering of some 683 requests for miscellaneous information relating to the pulp and paper industry.

The Association, through its members, has taken a large part in three very important other activities, namely, the National Industrial Conference Board, the Chamber of Commerce of the United States and the National Safety Council. The latter includes the names of 126 pulp and paper mill members.

Reports of Committees

The standing committees of the Association all had interesting reports to make and they were received with close attention by the members of the Association. In most cases the discussion and comment were spontaneous and keen. If the recommendations of these committees be followed out and if the future activities of the Associations continue along the lines laid out, the American Paper and Pulp Association will have become one of the most important factors in the industrial life of the United States, we should even say beyond the United States because what the Americans do must necessarily affect, to a considerable extent, trade and commerce in other countries.

The Technical Association Meeting

The Technical Association of the Pulp and Paper Industry has only five years to its credit as compared with the 43 of its parent, but as the child may be a source of interest in the house just so is the Technical Association a source of very great interest in the affairs of the Paper and Pulp Associations.

The Fifth Annual Meeting of the Technical Association was held in the Waldorf Astoria from Tuesday to Thursday of the same week in which the main association met. The banquet was held on Wednesday evening at the Hotel Astor and was a delightful and successful affair in every way. There were the usual short and snappy speeches which put live ideas in the minds of the diners and there was the usual mixture of fun and good fellowship which goes so far in making meetings of the Association the popular events that they are. Secretary T. J. Keenan had charge of arrangements for the convention and he is certainly to be congratulated on the interest and enthusiasm that the program aroused.

From the reading of the President's address to the final adjournment there was never a moment without something very important going on. Some of the addresses will be published in the Pulp and Paper Magazine but it is expected that Paper Inc., will print not only the text of the papers but the complete discussions as well.

Two of the most interesting items on the program were the symposium on Rag Selection and Cooking and the one on the extent to which the Jordan can replace the beating engine in the production of paper.

The most important business of the meeting was the action taken with regard to the President's address. Mr. Raymond S. Hatch, having called the meeting to order, read one of the shortest addresses we have listened to but one which contained as much meat as any that we have heard. He announced that a new class of membership has been provided for, a Corporate Membership and he mentioned that a number of firms had already joined on the basis of a contribution of $100 per year, a fee which assures such concerns of valuable technical service from the Association.



T. J. KEENAN.
Secretary of the Technical Association of the Pulp and Paper Industry and Editor of Paper.

Another matter which is of the greatest interest to members and others connected with the industry was the decision that the Technical Association should publish its own journal to be called "Journal of Pulp and Paper Industry." The matter had already received the careful consideration of the Executive Committee for sometime past and the recommendations of the committee were heartily supported by the membership. Means were suggested for financing the proposition and there is no doubt but that the matter will go forward with the usual success that has attended the efforts of the Association thus far. In this connection it is proposed to issue bonds.

A nice courtesy was shown the Canadian visitors when President Hatch asked Mr. Stephenson to take the chair for a while.

ACCIDENTS

If you are injured, no matter how slightly, tell your foreman at once and go to the doctor to have the wound properly cleaned, dressed and bound up. If trivial wounds are cleaned and bound up, they amount to nothing.

Decay in Pulpwood—Deterioration in Pulp

Outline for an Investigation into the Trouble—What Produces the Losses—How to Prevent Them

(By R. J. BLAIR, Pathologist, Forest Products Laboratories of Canada, Montreal.)

These are two questions which have recently been attracting a lot of attention in the pulp industry in both Canada and the United States. All of this trouble is due to fungus plants which destroy the wood before it is made into pulp or else stain and discolor pulp after it is made. There are two types of organisms which need to be studied; the wood-destroyers, which produce decay in both pulpwood and mechanical pulp and the moulds which cause discolorations in all kinds of pulp.

Wood-Destroying Fungi.

These organisms are plants of low order so constituted that when conditions are right for their development they are also to obtain their sustenance from wood. In this way they bring about its deterioration and ultimately destroy it. This condition in wood commonly known as red-heart, rot or decay is a subject of great importance to the pulp industry on account of the increasing cost of raw materials, the need for closer utilization of the supply of wood available and the growing necessity of securing wood when it is possible to get it and of storing it until needed. The usual methods of storage as practised at most of the mills would need to be changed but little to ensure rotting of the wood in the shortest possible time.



FIG. 1.—STICKS OF PULPWOOD PARTLY ROTTED

Two main facts must constantly be kept in mind mind when this subject is under consideration. These are, that a large proportion of the wood used already has fungus in it when it reaches the mill and that if sound wood remains piled with such infected material it will become infected also and will be unfit for making pulp after a short time.

Rot in Wood for Groundwood.

Such conditions in pulpwood affect the process of pulp-making in a number of ways. Mechanical pulp made from wood containing fungus is inferior in quality and is liable to rot if stored. It has been found at some mills that when groundwood has to be stored, it pays to cull the wood carefully and use only the sound sticks. The process of manufacture does not affect the fungus in any way except to separate it into a great number of small pieces which are distributed throughout the pulp. When such pulp is stored each piece of the fungus plant may set up a centre of decay within the pile whether of laps or of bales. When such stored pulp is used for paper the product is darker in color, weaker, has more specks in it and the conversion loss is greater.[1]

Rot in Wood for Chemical Pulp.

For chemical pulp the use of decayed wood should not be permitted. Pulp made from such wood has been found to be dark in color. The yield per cord of wood is less and the chemicals used in cooking rotted chips are wasted. When such wood is bought, a price equal to that paid for good wood is paid for something which both lowers the quality of the pulp and reduces the output of the mill. In some mills wood containing rot is culled out and used separately for second quality pulp.

Control of the Organisms Causing the Trouble.

If we are to control the rotting of wood and avoid it, it will first be necessary to study the habits of a few of the fungi which cause the greater part of the trouble, and so find out what needs to be done to avoid their appearance. Wood-destroying fungi are plants just as much as any of the green plants which we see every day. The distinguishing characteristic is that the body of the fungus plant is built up almost directly from the organic constituents of the wood upon which it lives, while the green plants are formed of organic materials produced within themselves from the carbon dioxide of the air, water and mineral matter taken from the soil. Before the fungus plant can begin to grow a certain amount of moisture must be present within the wood and this amount of moisture is the limiting factor which it is necessary for us to study. Air and a proper temperature are usually listed among the requirements of fungus growth but as the presence of both is practically inseparable from pulpwood as stored under present methods, these conditions need but little consideration here.

Moisture in Wood is Necessary for Fungus Growth.

The moisture requirement of the fungus is the one deciding factor which needs our careful attention. The fungus thrives only when exactly the right amount of moisture is present in the wood for it to grow. If too much moisture is present it will not grow and if there is not enough moisture it cannot grow. If we were to study one of the forms and find out that its range was between 23 and 31 per cent of moisture in the wood, then we would only need to store our wood so that it would contain either less than 23 per cent moisture or more than 31 per cent, to keep it safe

[1] Kress, Humphrey, Richards. Some Observations on the Deterioration of Wood and Wood Pulp. The Paper Industry. October 1919, p. 526. Also Pulp and Paper Magazine.

from attack by this fungus. However, there are different varieties of fungi which are causing these losses and each one has its own particular moisture requirements. The problem seems thus to be a very complicated one but what we need to do is to select a fungus with a low moisture requirement and find its extreme low limit. At the other end of the scale take another with a high moisture requirement and find its high limit. We will then have the two extreme points which limit the range of the various forms of fungus which are destroying our wood and we have only to maintain the moisture in the wood we are storing outside of these limits to keep it safe from attack.

Fungus Plants Have Definite Moisture Requirements.

It happens that the two varieties of fungi which are at the extreme limits of such a moisture scale are those most active in the rotting of all kinds of coniferous woods used either for pulp-making or for structural purposes. **Lenzites sepiaria.**, the most destructive, is able to grow where comparatively little moisture is present. It is found on sticks at the tops of woodpiles which have not been disturbed for some time. It also grows in roofs where the wood is heated in summer to a high degree and dried out to a corresponding extent. At the other end of the scale is found **Fomes roseus.** This fungus is found growing luxuriantly on pulpwood sticks at the bottom of old piles and also flourishes in cool moist basements.

Data as to Moisture Requirements.

To find what the moisture limits of the various fungi are, it will be necessary to carry on cultural experiments with each where the moisture within wood is maintained constant for long intervals. Enough samples of wood will be used to maintain a complete series of moisture conditions, and living material of the fungus will be given an opportunity to grow on each.

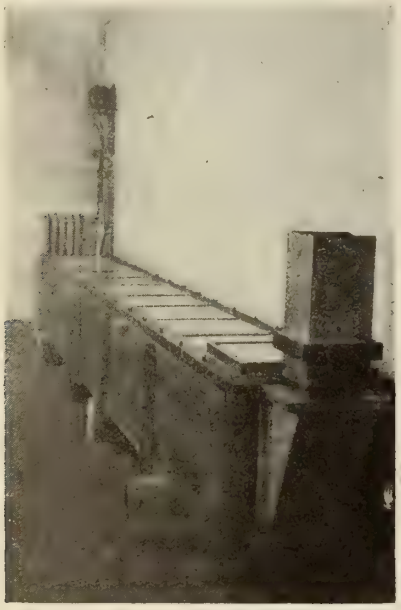


FIG. 2.—HUMIDITY BOX FOR FINDING THE MOISTURE REQUIREMENTS OF WOOD-DESTROYING FUNGI

In some instances the wood will be too dry, in others perhaps too moist. But after a sufficient interval an examination of the wood will show which conditions satisfy the moisture requirements of the fungi and which ones do not. When such information has been secured, its application will be made by storing the pulpwood in such a way that it will contain either more or less moisture than is required to satisfy any of the wood-destroyers.

It will be necessary to carry on a careful study of the moisture in wood when stored in different ways and for different periods, so as to find what the moisture actually is in wood as stored at the mills. In a single pile of wood it will be necessary not only to find the variations in moisture in the various parts of the pile but also in different parts of different sticks. When such data has been secured for all kinds of wood which have been cared for in all possible ways we can see which methods of storage produce in the wood such moisture conditions as do not satisfy the requirements of any of the fungi. We will then be in a position to store our wood in a thoroughly scientific manner and be confident that it will not deteriorate.

Deterioration in Chemical Pulp.

A similar method of moisture limit experiments should solve the trouble with deterioration of chemical pulp in storage. The process of manufacture kills all wood-destroying fungi in the wood used. The organisms causing the trouble are moulds, which infect the pulp after it is made. The greater amount of damage is the production of discolorations and a weakening of the fibre in spots. These are the more serious the higher the quality of the pulp. The trouble occurs commonly in lapped pulp; in dried pulp it seems probable that the trouble comes either from allowing the pulp to get wet or else in storing it in a damp, unventilated place.

Deterioration of Mechanical Pulp.

The storage troubles with groundwood may be placed in two groups. Part of it commonly known as rusted or burned pulp is due to the action of some of the



FIG. 3.—FRUITING-BODIES OF THE WOOD-DESTROYER **CLAUDOPUS**, GROWING ON GROUNDWOOD PILES IN THE YARD AT A CANADIAN MILL

wood-destroyers which were probably in the wood before the pulp was made. Control of this trouble by drying the pulp to a point below the moisture requirements of any of the wood-destroyers is out of the question so the alternative of keeping the pulp too moist might prove a satisfactory solution. Experiments have been planned to find what does take place when pulp is stored in tanks of water in the form of slush, laps or bales. If such measures do not succeed, something further such as the use of a salt or preservative could be tried on the pulp whether stored in bales or in tanks.

Outline for an Investigation.

The following outline is offered as a list of the various points which could be worked into a comprehensive study of the problems of decay in pulpwood and deterioration in pulp as they affect the pulp and paper industry.

1. Bibliography
2. (a) Statistics as to losses, (b) Collection of samples showing material representing all forms of deterioration, (c) Determination of organisms causing trouble.
3. Data as to conditions under which losses take place (a) History of material, (b) Duration of storage for rate of deterioration, (c) Conditions of storage as to temperature and moisture.
4. Moisture limits of a wood destroyer—(a) With high moisture requirements, (b) with low moisture requirements.
5. Moisture in single sticks of wood—(a) sound sticks, (b) sound parts of decaying sticks, (c) heartwood, (d) sapwood, (e) peeled or (f) with bark on, (g) driven, (h) carried on cars and stored for (i) 1, (j) 2, (k) 3, or (l) more years, (m) in a high block pile, or (n) ranked piles.
6. Moisture content in sound and unsound pulp during deterioration in the pile.
7. Moisture limits of organisms with high and low moisture requirements which discolor pulps.
8. Microscopic study of—(a) Wood containing fungus, (b) Material coming out on knotters and screens, (c) specks in pulp, (d) specks in paper,—to determine the bearing which decay in the wood has on the problem.
9. Decrease in yield of—(a) Mechanical pulp made from decayed wood, (b) Chemical pulp made from decayed wood.
10. Lowering of quality in each kind of pulp—(a) as pulp, (b) when used for paper.
11. Study of fungi which delignify wood as to the possibility of biological methods of making pulp from wood.
12. Comparative chemical analysis—(a) of sound and decayed wood, (b) for nitrogen and sugar in driven wood when compared with natural wood.
13. Grading and inspection rules for those who buy or sell pulpwood.
14. Storage experiments with groundwood in tanks when kept.—(a) Very moist, (b) Immersed in water which is frequently changed, (c) Immersed in water which is not changed, each with pulp in the form of slush, laps and bales.
15. If 14 shows nothing of value try the use of various preservatives and salts both in the pulp and in a solution surrounding it.
16. Holding of pulp in cold storage.
17. Storing pulp in atmospheres of various kinds.

Solve the Problem by Co-operation.

The number of points listed and the diversity of the field to be covered seem to indicate that the undertaking of such a problem would entail an immense amount of work to secure any results of value. The most satisfactory way of meeting the situation is for all who are interested to co-operate in every way possible. The problem is hardly one which is suited to the research department of any one mill, however much a mill might profit by the results. At the same time at a large number of mills, there are valuable pieces of information which would be very much to the point provided they were collected and made available to everyone.

Such an idea of co-operation has worked out very advantageously in the work upon decay in structural timber which has been in progress for the past three years at the Forest Products Laboratories of Canada. During this time about 165 industrial plants of various kinds have been visited and at more than 80 of these it was found that roofs has been recently renewed or else would be renewed within a short time. In every case an experiment in roof-building has been tried which was not a success. In building a new roof, it would happen that a type of roof different from what had been used would be tried, but in the majority of cases, what would be tried would be something which someone else has tried without success. Each mill had only its own experience for a guide in building a new roof. All of the people with the 80 bad roofs cooperated in furnishing the writer with the results of their experience. When the results of all of these experiments were examined and tabulated, with the weak points noted, it became possible to prepare plans for an advance in the art of building roofs.

Along the line of decay in pulpwood no extensive experiments have as yet been carried to completion. If all information which is to the point were collected and made available to everyone and, if all agreed to co-operate in every way possible, we could plan a line of work which would result in a speedy solution of the problem. Mills with research departments would tackle certain definite sections of the problem. Storage experiments on small lots of pulpwood and pulp could be carried on under actual mill conditions in mills which do not have research facilities, and the Forest Products Laboratories could take on other parts of the problem for which mill laboratories are not suited. An important feature of the arrangement would be the formation of a central link in the organization which would act as a sort of clearing-house for collecting such information and making it available for all who could use it. It is suggested that the Forest Products Laboratories of Canada act in such a capacity.

In conclusion the writer wishes to express his appreciation to F. J. Hoxie of Boston for numerous suggestions made in this connection and to thank the officials at several mills who have already offered to coöperate or supply material for use in experimental work at the Forest Products Laboratories. Criticisms of the scheme, as outlined here, and suggestions as to points not mentioned which need attention will be welcome at any time.

THE THIRTY-THIRD ANNUAL POCKET GUIDE.

The Editor used to have a friend whom he called on annually and always looked forward with great pleasure to the event. Since engaging in his present position he has come to look forward to the annual visit of Waldon's A. B. C. Pocket Guide. No introduction is necessary and many an office knows, immediately the package is seen, that an old friend has come to make its annual appearance. As usual, the book is divided into sections and for convenience in locating these sections they are printed on different colored papers. The book is larger than usual, consisting of some 500 pages. There are lists of paper distributors in the United States and Canada and manufacturers of paper in these two countries. The manufacturers of coated and glazed papers, cardboard, gummed paper and cloth, gummed tape, etc., toilet paper, towels and napkins, water-proof and waxed papers and of various other converters of paper are listed and indexed. On turning to look for the price we are quite shocked to find that it is the same as it was last year, namely $1.00. Copies can be had from Waldon, Sons and Mott, Inc., 41 Park Row, New York. If readers desire to send their orders in through the Pulp and Paper Magazine they should add ten per cent for exchange.

British Trade News

(From Our London Correspondent.)

London, April 7, 1920.

The decision, as cabled to London from Ottawa, that the Dominion Board of Commerce had no power to compel manufacturers of newsprint to furnish supplies of newsprint to the Canadian Press at fixed prices, was received here as a welcome victory for the papermill owners. If there is anything the paper producer abhors in the United Kingdom it is the policy of interference with a legitimate trading concern, by a government or other authority, and, for this reason, British paper makers, who realise the present position and conditions of their Canadian confreres, have read with interest the judgment of Canada's Supreme Court against fixed prices. Since war with Germany ended there is a strong feeling among manufacturers that control should end also. It was a war-time measure and should not be allowed to creep in unchecked into peace-time methods.

The majority of the newspapers here, which have given prominence to the cabled judgment from Ottawa, on the other hand, view the judgment with some alarm. They are of the opinion it will act as an incentive to paper sellers in looking for a higher price. The "Evening Standard" says that "Canadian newspapers are already paying $80 per ton for paper and as a result of this judgment may have to pay from $90 to $100 per ton. The paper crisis is equally acute in England where the present price per lb. is 5 3/4d. and still rising. Here the trouble is not merely price alone but actual shortage."

The prices of newsprint today in England and in Canada show a wide divergence on paper, but when the rate of exchange is taken into consideration it will be found in actual experience that British newsprint is not far behind Canadian in price.

English Prices Up.

"Paper up and Paper Scarce." is heard from the lips of consumers in the United Kingdom today. They are just beginning to realise that all classes of fine printings, newsprint, and other qualities are going to cost more in the near future, and, consequently, the old policy is being adopted of holding orders up in the hope that a decreased consumption might reduce quotations. To augment this policy holidays have been unusually extended in large printing works. However, it is gradually coming home to the consumers that paper prices are being fixed with a strong determination, and, until wood pulp shows some easing-off and the scarcity replenished, no hope of a reduction can be anticipated.

Wayagamack Kraft.

A suit is being at present investigated in the law courts here between Thos. Lumb and Co., Ltd., of Skipton, Yorkshire, and Powell Lane and Co., Gloucester, paper merchants. The latter firm are sued for failing to sell to Lumb and Co. Ltd., 100 tons of maple kraft at £21 10s. per ton to be delivered in 1916. Counsel for Thos. Lumb and Co. Ltd., explained that the Wayagamack Pulp and Paper Co.'s mills in Canada were to make the paper under a contract, but only a portion of the paper could be delivered. War clauses were in the contract and submarines accounted for a portion of the paper going to the bottom of the sea. Questions then arose about price and it was alleged the Wayagamack Pulp and Paper Company would only ship to an importer who agreed to pay market prices. Suggestions were then made to reduce the contract but Thos. Lumb and Co. Ltd., would not consent, though 24 tons were offered at half the then market price to them. There were also difficulties in obtaining shipping space, besides the risk at sea. Deliveries were postponed, in the case of Powell Lane and Co., and damages could not be claimed on behalf of the 100 tons in the original contract.

One of the witnesses called to support Thos. Lumb and Co.'s case was Mr. W. Corke, of the firm of Messrs. C. E. Corke and Co., who told the court that any Canadian orders he had given out were carried out, all but one. He bought from Canadian mills and their agents down to the end of 1916 and the conditions for delivery in England were the same as those from America. New York received the Canadian kraft and shipped it across but delays occurred through want of shipping space and other causes. The case is still before the courts, who are at present on Easter holidays, and will be resumed in the course of 8 or 10 days.

The Pulp Market.

At present there is a holiday feeling in the pulp market. Quotations are strong and firm, and any spot supplies introduced by sellers are quickly captured by consumers. Bleached sulphite still stands at $60 a ton and easy bleaching is at present quoted £57 15s. Newsprint sulphite is up to £48 a ton. Groundwood (moist) shows a slight revival, owing to some recent shipments from Scandinavian sources; but there is very little business doing and up to £20 a ton is asked for any spot parcels. Canada and Newfoundland are still out of the market, which, of course, is much regretted. If they have the pulp they will get record prices today in England for it—"money is no object".

Imperial Press Conference.

I would like to remind pulp and paper men in Canada of the Imperial Press Conference which will be held in the Dominion this summer. Lord Atholstone is in London mapping out the plans for tours in industrial areas and the visitors will include the big newspaper owners in the United Kingdom, some controlling their own paper and pulp supplies. Montreal, Quebec, Ottawa, and numerous other places are in the program for inspection.

Newspapers Cost More.

About 18 more newspapers announce their prices up owing to the cost of newsprint at 5 3-4d. per lb. There are, however, small quantities going on the market at 7½d. per lb. but 5 3-4d. is the contract rate with the mill. Newspaper proprietors are now advocating that the solution of the present problems is to continue raising the prices of newspapers. Scandinavians are asking up to 7d. per lb. Belgian and French newspaper prices are also advanced. This, of course, was to be expected as the conditions governing the supply of paper are not licked into shape yet and many mills have not been restarted owing to delays in getting them re-erected after Germany's depredations and bombardments.

Caesar Fletcher in London.

Mr. E. C. Caesar Fletcher, representing Fletcher and Sons, of Regina City, is in London at present studying the wood and lumber positions. He came here from Norway and Sweden to meet some old business friends and the re-unions were happy ones.

Vicount Burnham on Canada and the World Paper Shortage

(Special from Our London Correspondent).

London, April 8, 1920.

The world paper shortage and the remedy for it, were two topics discussed to-day at a luncheon given in London to Mr. Stanley Cousins in celebration of his 50th birthday. Viscount Burnham of the "Daily Telegraph" presided. Mr. Cousins is one of the real "live" business men of the British paper industry, a director of the Imperial Paper Mills and of Messrs. Albert E. Reed & Co., Ltd., the large papermill owners in England, and a gentleman who is highly valued and respected, as is evidenced by the fact that the luncheon was organized by such prominent men as Mr. F. E. R. Becker, Sir Howard Spicer and Mr. F. W. Bowater.

The company assembled to meet Mr. Cousins included Lord Riddell ("News of the World") Sir T. Vansittart Bowater, Sir Frank Newnes, Sir Andrew Caird, Sir Geo. Sutton, Sir Campbell Stuart, Mr. A. W. Foster, B.A. (Secretary British Paper Makers' Association) and other well known men in the paper industry.

After luncheon Mr. Cousins was presented with a silver tea-set on behalf of his many business friends in the pulp and paper industries.

Canada's Resources

Proposing the health of the guest, Viscount Burnham said that Mr. Stanley Cousins was responsible for an output of 4,500 tons of paper per week, which represented about 6,000 tons of raw material. Everywhere we were suffering from a paper famine, due to what was called a world shortage. "I fancy what is happening now," went on Viscount Burnham, "is pregnant with meaning for all of us here who believe that though we may not and cannot be self-sufficient to ourselves in the British Empire, still we ought to be able to draw more largely than we do on the output of the great Dominions beyond the seas. It is difficult to see, with the increasing use of paper for every sort of purpose, how the supply can be made up unless the resources, particularly of the Dominion of Canada, are utilized with far greater power and potency than they are now." Even looking at it from the news point of view, he continued, it was certain that, as the races of the world were brought more and more within the community of world knowledge, there would be an increasing demand to be met from existing supplies. For other growing purposes also we had to depend upon the present area of supply, and, in addition, the crippling of Eastern and Middle Europe would cut off for years to come what was the main reason for keeping down prices in days gone by. There was not likely to be for many years any effective competition from Germany in the paper trade and the mere fact that Italy had had to draw upon the West for paper supplies instead of upon Austria had contributed to the present scarcity and tended to raise prices.

"I am certain," concluded Viscount Burnham, "it will be our duty here soon to set ourselves in downright earnest to develop the paper resources of the Empire, or for years to come there is likely to be a stringency that will react prejudicially on the national life, and even the common life of our community.

Grave Outlook

"No newspaper man can look without a good deal of fear at the coming years, which are likely to prove almost too heavy for smaller people to bear and which may mean the end of many publications that have had an undoubted value as contributing to the efficiency and knowledge of the people; and may seriously handicap free access to information and to knowledge in all its forms through the cost of paper. Because of these facts they welcomed the fact that at the head of the paper-making industry was a man of such proved industry and enterprise as Mr. Stanley Cousins."

The toast was very cordially received by the luncheon party.

Mr. Stanley Cousins, in reply, pointed out that the paper question affected nearly every human being in the land. Before the war the United Kingdom consumed and exported 33,000 tons of paper and boards weekly, of which two-thirds were manufactured in the United Kingdom, the remaining tonnage being imported from Scandinavia, Germany, Holland, Belgium, Austria, U. S. A., and our Colonies and it was largely because paper was dumped so low, that most of the British makers had not had the heart to go ahead with new enterprises. Could they be blamed under the circumstances?

High Cost of Raw Materials

Owing to the war, continued Mr. Cousins, we had come up against a world shortage, which was likely to last for sometime, because, as quickly as pulp mills were put down the world demand for paper would be increased. Consequently unless we went ahead with pulp propositions speedily, the price was bound to keep up and might even go higher. The present average quotations showed an advance of 600 per cent on pre-war prices for pulp alone, leaving out the question of all other extra costs in the manufacture of paper, such as coal, transport, and wages, etc. Personally he could not agree that this 600 per cent was justified, but while the demand exceeded the supply there was no telling to what height it would go.

But if suppliers of raw materials would be satisfied with a very handsome and substantial profit per ton they could put their materials in at anything between four and four-and-a-half times pre-war prices and this would save the industry on raw materials alone, exclusive of that supplied by our colonies, a sum of nearly £12,000,000 a year, taking 1913 as a basis year for imports. When capitalized it approached £230,000,000, and this was the difference represented by a fair price and present day quotations.

Canada's Opportunity.

Mr. Cousins next mentioned that they must find further markets for raw material. There was plenty of room for all supplies of raw material, but healthy competition would bring back prices to pre-war normal, supply and demand ruling nearly every market.

In addition to our present importation of pulp, amounting to about 720,000 tons dry weight per annum, our colonies could supply us with a further 150,000 to 200,000 tons and it only required enterprise to accomplish this at comparatively small cost and give a good yield for investment. Look at Canada and Newfoundland! High prices were bad for all paper consumers and still worse for the country in general, because we should arrive at a time when we should be paying out annually the enormous sum he had men-

tioned if the high prices were maintained, and which extra production of raw material could alone reduce considerably. It was in the paper manufacturers' interests to supply paper at low prices, because it was output they looked for, but it was impossible for them to assist consumers with low prices when the raw materials were sky-high as at present. Paper manufacturers alone cannot grapple with this raw material question; it is for us, one and all, to do so by every means in our power. He thanked the company for their token of respect and good wishes.

Lord Riddell, in proposing the health of Viscount Burnham, said that very few papers with a large circulation were carrying on at a profit. That is, if they debit paper at 5¾d per lb.

SURVEY OF PULP MARKET IN SWEDEN.

During the month of January, 1920, the United States imported 19,150 tons of chemical unbleached wood pulp from Sweden, or about 43½ per cent. of the total import for the month, and 1,346 tons of bleached pulp, or about 18 per cent. of the total import, according to the figures published by the U. S. Department of Commerce.

This represents a distinct increase over the average for the previous months and in spite of rising prices and continued high freight rates.

Svensk Handelstidning for March 5th gives the following survey of the market situation in Sweden.

Mechanical Pulp.

The great demand for wet mechanical pulp continues, and prices are unusually high. The whole world is short of ground pulp, and the great consumers, as for example, England, are unable to satisfy their needs either from Scandinavia, Canada, or the U. S. A. Meanwhile production has been somewhat limited by extremely cold weather because of its effect on the water supply. The latest quotations for wet, mechanical pulp are: about 250 kronor f. o. b. East Coast, and about 275 kronor f. o. b. West Coast.

The demand for dry pulp is also in excess of the supply. Prices are on the rise and quotations must be changed every two or three days. At present the quotations are about 500 kronor f. o. b. East coast, with an addition of about 50 kronor for f. o. b. delivery at West Coast ports, but a rise is to be expected.

Sulphite Pulp.

The demand for chemical sulphite is spirited, but it is difficult to place new orders because practically all the manufacturers are sold out for the first half year, and very large orders have already been accepted for the last half. A conservative estimate is that about 75 per cent of the year's output is already sold. A few factories have taken orders for delivery next year, but the majority hesitate to close any deals for the future, owing to uncertainty concerning market developments. It is reported that all kinds of chemical pulp are feverishly bid for in the United States with prices on the rise. The same is true in Canada.

Easy bleaching sulphite has hitherto had good sales with prices up to 950 to 1000 kronor per ton f. o. b. Strong sulphite is quoted at 750 kronor per ton f. o. b. Gulf of Bothnia and 775 to 800 f. o. b. Goteborg.

The high cost of all kinds of pulp and paper naturally causes alarm in England, especially as it is evident that the peak has not yet been reached. The principal factor is the tremendous consumption in the United States and Canada, which exceeds the domestic supply and forces these countries to import raw material from Scandinavia. Paper production is low in England and the prices are about six times as high as in pre-war times. It seems likely that some sort of restriction in the use of paper will become necessary in England as it has become in the United States in order to avert a crisis.

Sulphate Pulp.

The whole sulphate industry is working to full capacity and the sales are made at increasing rates. The latest quotations on strong sulphate are 600 to 625 kronor f. o. b. Gulf of Bothnia, and about 650 kronor f. o. b. West Coast, and on easy bleaching sulphate, 600 to 625 kronor f. o. b. Gulf of Bothnia and about 700 kronor per ton f. o. b. Goteborg.

Freights.

The freights for all wood pulp continue high. It is interesting to note, however, that American tonnage is underbidding Swedish. There is no doubt that this competition will be a significant factor during the present season, as a great many United States ships are beginning to ply in the North and Baltic seas.

A DIRECTORY OF AMERICAN MANUFACTURERS

The eleventh edition of the Thomas' Register of American Manufacturers, dated January, 1920 has just been published, in which more than 300,000 names of United States manufactures of products classified under over 70,000 headings are listed. It weighs 17 pounds and containes 5980 arvertisements, said to be the largest number of advertisements ever printed in a trade publication.

The Register is divided into three main sections with an index totalling 176 pages. The classified section (3,340 pages) furnishes a complete list of the makers of every known United States product, classified according to the article, eleven pages alone being devote to the single item of acids. A capital rating is also given of each manufacturer, showing the amount of capital invested and the approximate size of the concern. About 800 pages are devoted to two other main sections, listing the trade names or brands of manufactured products, and a continuous list of the names of manufacturers in alphabetical order from A to Z, also giving the adresses of head office, branches, names of officers, etc., of the concerns listed.

Thomas' Register lists all names absolutely free of charge and irrespective of advertising support. The purchasing agents and buyers for nearly 25,000 important business houses use it, several hundred of these being Canadian concerns which find it indispensable when buying United States products.

An international trade section, listing exporters and importers, is included in the eleventh edition, together with a directory of banks, commercial organizations and trade papers in the United States and Canada.

The Thomas' Publishing Company, New York, are represented in Canada by the Canadian Buyers' Register Company, 92 Constance Street Toronto, from whom specimen pages, etc., can be obtained. The price of Thomas' Register in Canada is $17.50, all charges prepaid.

A despatch says a number of American magazines are to print doubled up issues this summer to save newsprint. That is throwing mud at a high class magazine.

Carruthers is President Ontario Safety Association

The annual meeting of the Ontario Pulp and Paper Makers' Association was held in Toronto on Wednesday last under the chairmanship of I. H. Weldon, the President. Reports were submitted, as under, by the Chairman and the Secretary-Engineer, both of which were approved and adopted and the old Board of Directors was elected for the ensuing year. They are as follows: I. H. Weldon, George Carruthers, Col. C. H. L. Jones, C. B. Thorne, C. Nelson Gain, L. R. Wilson and H. F. E. Kent of the W. J. Gage Co. At a meeting of the directors held subsequent to the annual meeting George Carruthers of the Interlake Tissue Mills, Ltd., was unanimously elected President and C. Nelson Gain of the Don Valley Paper Co. was elected Vice President.

Chairman's Report.

During the year just closed there has been no wavering from the pursuits of the ideals of this Association as enunciated by the original Directors. Education and co-operation are still the watch-words, and it is gratifying to know that work along educational lines has been more intensive than ever during 1919. Meetings of employees were organized on a larger scale, and judging from the year's statistics their influence is beginning to show in the downward accident curve. I have gathered from conversations at various times with our Secretary-Engineer that great strides have been made in securing the co-operation of employees in those mills where the management is right behind the Safety Movement: unfortunately there are still instances where the desired support of the management is not forthcoming. One would think that in the latter cases a study of the annual report issued by the Workmen's Compensation Board, which shows clearly the ever-increasing cost of Compensation, would carry the conviction that accident prevention pays. The mills not active in accident prevention to my mind are shirking a duty, and thereby placing a heavier burden on their fellow employees. It is not playing the game.

When looking over a batch of accident reports in the Secretary's office, one cause of accidents claimed my attention. I refer to the number of accidents caused directly or indirectly by employees discarding or removing Safety devices provided. One would imagine if an employer is willing to provide safeguards, that in the event of an accident taking place owing to willful misuse of such safeguards, a portion of the burden caused by such accidents should be borne by the individual. If a lower rate of compensation was paid to the party injured under such circumstances as noted above, possibly there would be a decrease in the frequency of their occurrence.

A new note was struck in educative work this year in the form of a Safety Calendar, and I would like to say a word in appreciation of this effort. This calendar is the first of its kind to be produced in Canada; it is unique in so far as it was designed by Canadians, the paper was made in a Canadian mill, and the printing was done in a Canadian establishment by Canadian workmen. This is not only a good example of supporting home industries, but an instance of capturing from outside. I am hopeful that another and even better calendar may be produced next year, and if so, it should receive the full support of all the mills. Accidents are serious but there is nothing that I know of that more effectively reaches the employees and their families than practical illustrations without detracting from the seriousness of the lesson conveyed when treated with a humorous point of view. These calendars are hung up at home and become a daily reminder of the importance of carefulness.

I am disappointed that greater interest on the part of the Companies is not taken in the Annual meetings of this Association. This may be that the Companies not represented are satisfied with the work being done; on the other hand, it may mean that they are dissatisfied. In any event, satisfied or the reverse, every mill in Ontario should be represented at the annual meeting, which is the best opportunity of making suggestions for the greater efficiency of our Safety service. Suggestions and constructive criticisms are most welcome and will be appreciated by your Directors.

Workmen's Compensation Act.

There has been no change in the Act during the year, but I understand several amendments will be considered during the present session of Parliament; these deal principally with an increased scale of compensation and pensions.

The merit rating system recently introduced seems to be giving satisfaction. Under this system each firm's assessment is regulated by the cost of their own accidents. Companies with a good accident record receive a merit rebate, whereas companies whose accidents during the year cost more than the estimated amount are called on to pay a supplementary assessment. During 1912, 22 companies got merit refunds, 7 were supplementarily assessed and 3 came out square. The refunds amounted to $6,055.22 and the supplementary assessments to $2,395.78.

Finance.

The audited statement of receipts and disbursements, copies of which have been distributed to those present, shows the cost of running the Association is within $100 of last year. This is very satisfactory and means that the affairs of the Association have been carried on very economically.

Signed,
I. H. WELDON,
President.

SECRETARY AND ENGINEERS' REPORT.

In the course of his report to the Association, Mr. A. P. Costigane said:

The difficulties of carrying on the work of Accident Prevention during the year have been somewhat lessened owing possibly to more stable conditions in the labor market. The difficulty of obtaining skilled help is not now so great, large numbers of skilled men having returned from service in France to the industry in which they were formerly engaged. This fact alone has helped towards a reduction in accidents, as during the war period the victims of a large percentage of accidents were green men attracted to the industry at that time by the high wages being paid.

During the year a marked improvement has been shown in the attitude of superintendents and foremen toward the movement. In the majority of cases not only is a sympathetic attitude exhibited, but active assistance is given in organizing meetings and making suggestions for improving conditions; especially is this the case where the management has let it be understood clearly that the Company is sincerely behind the movement.

There are unfortunately still a few cases where official apathy prevents progress. Under these circumstances the only thing to be done is to confine our efforts to the guarding of physical hazards. Quite a number of Safety Rallies were held during the year, mostly in the western and northern parts of the province, in fact in all the mill towns in which a standard moving picture machine could be secured for an evening. These meetings were all well attended, and in several instances repeat shows had to be given to accommodate those who had not been able to gain admittance to the first show.

To drive home the lessons of the pictures and to rouse a feeling of individual responsibility among the employees, short talks were given pointedly addressed to the individual employee and showing that in some mills where Safety Committees had been operating the tendency was for the other employees to shoulder their responsibility onto the Committee and leave it to the Committees to prevent accidents. The speaker dwelt on the fallacy of this conception, and emphasized that no matter what safeguards were installed by the Company, or how sincere the personnel of the Safety Committees might be in the discharge of their duties, no permanent progress could be accomplished unless all employees as individuals were willing to share the responsibility of preventing accidents.

Accidents Reported During 1919 Exclusive of Woods Operations.

The total number of accidents exclusive of woods operations reported by the mills during the year 1919 was 1032 non-fatal and 8 fatal accidents, compared with 1124 non-fatal and 11 fatal for the year 1918. This means a decrease of 8.2 per cent in non-fatal and a decrease of 27.27 per cent in fatal accidents. During the same period the total number of full year workers increased from 7064 in 1918 to 7159 in 1919, or an increase of 1.3 per cent.

The toal time lost decreased from 18650 days in 1918 to 14251 in 1919, or in other words 23.5 per cent.

The figures are satisfactory in so far as they indicate that we seem to have passed the peak of yearly accident increase and have started on the downward curve. Notwithstanding the fact that the number of full year workers for 1918 and 1919 is practically the same, the figures quoted above show a decided reduction in both frequency and severity of accidents in the pulp and paper industry during the year 1919. Possibly the improvement in labor conditions since the war came to a close will mean a more decided downward curve next year.

Class 2
Comparison Table 1917—1918—1919.

	1917	1918	1919
Accidents, non-fatal	852	1124	1032
Increase per cent	...	36.24%	...
Decrease per cent	...	...	8.2%
Accidents fatal	7	11	8
Increase per cent	...	37.14%	...
Decrease per cent	...	...	27.27%
Full year workers	6792	7064	7159
Increase per cent	...	4%	1.3%
Time lost (in days)	14249	18650	14251
Time lost per full year worker (in days)	2.1	2.63	1.99

It takes two to make a bargain, and the people who buy their success are apt to be stuck.

THE ONTARIO TIMBER INVESTIGATIONS.

The Port Arthur News Chronicle gives some interesting information regarding the conditions underlying the necessity for the investigations now going on in Ontario:

For more years than most people now resident of this town recall there has been talk of queer doings in connection with lumbering operations. Away back in the days when the territory was in dispute timber berths and timber limits figured as among the prizes that should go to the faithful of a particular stripe of politics. Timber lands sold for a dollar an acre or a dollar a square mile. It does not matter much now, for more money is paid today for one log than a carload would fetch in the good old days when the natural wealth of a new country was fair prey for those who could grab and hold. And the holding was as small a part as the getting, since the gentlemen of the governments knew nothing and apparently cared less, of what they were giving away.

When the dispute between the Dominion and Province was settled by a decision of the Privy Council the huge concessions were cancelled and the quest for timber prizes was begun by adherents of the other party. as that time some extravagant limits were sold for a low sum and those berths then acquired are today worth unlimited wealth.

Numerous changes have been made in the laws governing the handling of the timber resources of the province, some have been in the interests of the operator of limited means and others in the interests of the big operators. The induction of a new minister of forests produced changes in the law, and the arrival of a new government transferred favoritism in the granting of concession from one political camp to the other. Always there have been rumors of sharp practices in isolated cases, such as the cutting of timber on allotted areas, cutting of timber off homestead lots and abandonment of the lots as soon as the timber had been exhausted, cutting of timber on mining locations and so forth and so on for years and added years.

The probability is that a great deal of the talk is merely talk, as such things usually turn out,but if the commission which has been appointed to hold enquiries into the case of a number of lumber concerns in Northern Ontario have been given freedom of delving, the probability is that the atmosphere will be cleared and the truth sifted from the chaff.

POOR QUALITY PAPER DELAYS BUSINESS.

Scarcity of paper and the inferior quality that is being placed on the market is interfering to a marked degree in the transaction of business in this section, according to a statement made by Postmaster A. S. Guffey of Pittsburgh.

"We are constantly notifying patrons of this office that their mail is being held because it has been mutilated on its arrival at the office," said the postmaster. "Envelopes are torn open, wrappings are not sufficiently strong to withstand the handling to which they must be subjected. This is due to the very inferior quality of paper from which envelopes are now being manufactured, and great care should be taken by business men in the preparation of important mail. If there is any question as to whether the envelope is strong enough to withstand the necessary handling, additional precaution should be taken by wrapping it with twine."

Technical Section to Visit Sault

A meeting of the Council of the Technical Section was held the 12th day of April, 1920, at which time considerable business was transacted by those present. Secretary Dawe has sent the following letter to members.

Standing Committees.—It was unanimously decided to invite the Chairmen of Standing Committees to continue their work for a further term of one year, it being the general opinion that better results could be obtained from continuity of leadership. In order to refresh your memory I give you herewith the Standing Committees together with their Chairmen:

Committee on Abstracts and Publications:—Chairman, Mr. J. N. Stephenson.

Committee on Education:—Chairman, Mr. T. Linsey Crossley.

Committee on Chemical Standards:—Chairman, Mr. A. G. Durgin.

Committee on Testing Moisture in Pulp:—Chairman, Mr. E. B. Slack.

Committee on Mechanical Standards: — Chairman, Mr. John Stadler.

Committee on Statistics: — Chairman, Mr. S. L. Burns.

Committee on Samples:—Chairman, Mr. A. L. Dawe.

Advisory Committee to the Forest Products Laboratory:—Chairman, Mr. L. H. Shipman.

All of these committees are voluntary committees and their work up to the present has been of a very high order. Each of the Chairmen, however, would feel immensely encouraged in his work by a greater display of interest by the members of the Section. The membership is not so large but that every member can and should take an interest in what his fellow members are doing and a great many pleasant friendships have been built up out of a casual letter of enquiry to one or other of the above mentioned chairmen.

The object of the Section is not merely so that we will meet one another twice a year, but that we will feel constantly in touch in connection with the many problems of common interest which arise in our industry.

Employment of Summer Students by Paper Mills.

The Secretary reported that the following companies had notified him of their willingness to accept students, with the number of suitable positions:—Kinleith, 4; Laurentide, 3; Dryden, 5; Brompton, 5; Howard Smith, 5; Price Bros., 5; Abitibi, 4; Riordon, 2; Spanish River, 6; Port Arthur, 3; Nashwaak, 3; Provincial, 5; Don Valley, 2; Belgo, 6; Ontario, 5.

A much larger response was reported from the Universities than the previous year and there appeared to be every prospect of successful results. The Council decided again to offer prizes for the best prepared essay on the subject of "My Summer's Work in a Pulp and Paper Mill" not to exceed 5,000 words. The terms of the competition and the judges were to be arranged on the same basis as last year.

Forest Products Laboratory.—Discussion took place on the present situation at the Forest Products Laboratory and the following resolution was adopted:—

"Whereas, in the opinion of the Council of the Technical Section of the Canadian Pulp & Paper Association the activities of the Forest Products Laboratory have been unduly hampered because of lack of government interest, and

Whereas, it appears undesirable that there should be divided control of the above laboratory.

"Be it resolved that the Council of the Technical Section recommend that the Canadian Pulp & Paper Association favorably consider the taking over of the Pulp & Paper Division of the Forest Products Laboratory, and that the facilities and apparatus now provided be used as a laboratory for the investigation of fundamental problems connected with the industry and also the manufacture of pulp and, further, that this laboratory shall serve also as a bureau of information for the industry."

Summer Meeting.—The Chairman announced at the Council Meeting that he was in a position to extend a very cordial invitation from the Spanish River Company to hold the summer meeting of the Section at the Soo. The programme outlined includes a visit to the Soo for the business meeting, inspection of the paper mills, and the locks and international bridge, followed by a trip through the steel works. Water transportation would be provided to Little Current, and a visit arranged to the Espanola mills of the Spanish River Company. Proceeding thence from Espanola to Coppercliff and a visit to the International Liquid Sulphur Dioxide Company's plant. Thence to Sudbury and via C.P.R. back to the East. The week of June 21st was selected as being the best time and members will be notified very shortly as to the exact dates and program. The question of papers to be prepared for this meeting is one which has not yet been definitely decided upon, but the Secretary would be glad to have suggestions from members as to suitable subjects for discussion at this time.

Any members who have not visited the Soo district are assured of a very pleasant trip and an extraordinary opportunity of inspecting one of the leading plants of the industry. Please, therefore, *bear in mind the week of the 21st of June and try to arrange to be with us on the special train which will leave Montreal.*

Magazine.—Complaints reach this office from time to time that the magazine is not reaching our members regularly. If you are not getting your copies please notify us at once, so that we can take this up with the publisher.—(Amen.—Ed.)

SARNIA TO START BI-WEEKLY NEWSPAPER.

The new paper is promoted by F. J. Deitrich, formerly of the Chicago Record; Charlton Brothers, formerly of London, and William Cook of Windsor.

The paper will not accept Port Huron advertisements, and, according to Chris Charlton, the advertising man, the first edition will contain over 100 columns of advertising from local concerns. It will be published twice a week at first, but when the plant is installed, stock will be placed on the market, and another daily started. The city has at present but one advertising medium.

As far as we are aware, this is the only newspaper started in Canada during the past year.

A recent visitor to the Montreal office of the Pulp and Paper Magazine was Mr. C. Nelson Smith, Treasurer of the Green Bay Foundry and Machine Works, Green Bay, Wis., manufacturers of North water filters and save-alls, who are represented in Canada by Hydraulic Machinery Co., Ltd. Mr. Smith is visiting the Canadian mills in the interests of his products.

BOARD TO DISTRIBUTE DIVERTED NEWSPRINT

Distribution of newsprint diverted from the tonnage of contract customers of the International Paper Company to newspapers without supply is expected to start shortly under the direction of a joint-committee, composed of representatives of newspaper publishers and newsprint manufacturers. R. S. Kellogg, secretary of the Newsprint Service Bureau is chairman of the joint committee.

It is planned to have also an advisory committee composed of one publisher and representatives of the American Association of Advertising Agencies, Audit Bureau of Circulations and Association of National Advertisers, to more closely cement relations between publishers and users of advertising space, so that conservation of the latter may be effectively carried out.

Many Profiteering Charges.

Meanwhile, newsprint prices on the spot market continued to soar, aided by the stringency of supply caused by the railroad strike, quotations of 14 cents a pound being heard several times during the week in New York. Charges of profiteering are being made by publishers throughout the country against the makers and sellers of newsprint, and Editor and Publisher telegraphed Attorney General A. Mitchell Palmer, asking whether the Department of Justice had taken any recent action to prosecute those making undue profits at the expense of the country's press. Mr. Palmer's reply, dated April 14, was as follows:

"The department has heretofore instituted both criminal and civil proceeding against certain newsprint paper manufacturers. The civil case resulted in a decree and agreement, with which you are doubtless familiar. This department some time ago requested the Federal Trade Commission to make an investigation and report whether the decree and agreement have been violated. If either has been violated, appropriate action will be taken. The Department of Justice feels that it has done and is doing all that can be done under the existing law to relieve conditions in the newsprint paper market."

The decree and agreement to which Mr. Palmer refers was executed in 1917, and provides that paper shall be sold at a fixed price until three months, after the end of the war. The Attorney General is trustee for the publishers under the agreement, which was rendered practically inoperative by superseding agreements in 1920 contracts between the important paper manufacturers and many of their newsprint customers.

Drastic Methods Start.

With demands on advertising space increasing geometrically, publishers are realizing that conservation measures in force for the last six months will not put enough paper into storage to carry them over the expected enormous demands of next fall. Drastic measures were put into effect throughout the country this week because of the railway strike and the prospect is that "some of it will stick."

Meanwhile, the talk of the hour is "more paper." That means more production, which, if arrived at by the normal method of building new mills and installing new machines exclusively for the manufacture of newsprint, will be deferred for the greater part of two years. Extra production for the present market is what publishers from all parts of the United States are seeking, they inform Editor and Publisher, which this week asked R. S. Kellogg, secretary of the Newsprint Service Bureau, for information on this point.

Mr. Kellogg's data, gathered from reports of members of the bureau and statistics of the Federal Trade Commission, show a monthly production of practically 9,000 tons by mills whose product is normally other grades, but which have been attracted to the newsprint market by the fancy spot prices that have been prevailing during the past six months.

New machines that will be installed during 1920 will give an approximate increase of 715 tons of newsprint daily, or 87,000 tons a year, which will go a long way to alleviate the shortage which would otherwise be calamitous in the latter months of the year.

COMMUNITY FORESTS IN N. Y. STATE.

Syracuse, N. Y., April 12.—New York State will endeavor to solve its timber problem by planting community forests. Foresters from the New York State College of Forestry here will do the planting, but the woods will be owned by the villages, townships and even cities in which they are planted. The timber produced will be utilized eventually to supply the state's annual need for $125,000,000 worth of lumber. Profits derived from cutting the timber will be used to pay the taxes of the communities owning them.

CONCRETE TANKS FOR INDUSTRIAL PURPOSES

The Portland Cement Association, 11 West Washington St., Chicago, has recently issued an interesting illustrated booklet on the use of concrete for a great variety of tanks for industrial plants. Among the illustrations and letters of reference we find many pulp and paper mills represented. In this industry concrete is successfully used for brine and bleach solutions, bi-sulphite cooking solution, for storing pulp, silicate of soda and other liquids and one concern attests to a successful continuous operation of a concrete digester for five years and states that no trouble has been experienced, there being no leaks and but small radiation losses, while the initial cost of the digester was low and the lining lasted a long time. Copies of the booklet and other information regarding the use of concrete will be furnished on application.

PRODUCTION AND EFFICIENCY AVERAGE FOR MARCH, 1920, AT LAURENTIDE

	News	Boards	Wrapper
Capacity	244.0 tons	49.0	14.0
Production	223.0 tons	46.0	13.0
Efficiency	91.4 p.c.	93.9 p.c.	92.8 p.c.

The Laurentide Company have purchased a farm of 50 acres upon which will be constructed dwellings for their employees, as well as shops for the manufacture and repair of aeroplanes and hydroplanes. They have also purchased a square mile of land near Lac a la Tortue for other buildings.

A company is being formed and a plant located in Vancouver to manufacture an invention of a San Francisco man for protecting piles from toredos, the wood-boring creature that create such havoc to wood-on underwater construction. The device consists of a series of rings, chains and blocks which hang about the piles under water and through the action of the tide currents keep the piles clear of marine growth by constant rubbing.

Material Handling in a Paper Mill

By HENRY J. EDSALL, Link-Belt Co.
(Concluded from last issue.)

Conveyor Details.

In the previous descriptions it has been the attempt of the author to convey an idea of the problems involved and the reasons for selecting a certain type of equipment for the solution. The elements entering into the various kinds of problems of handling materials are more numerous and tend to increase the difficulties of proper selection and design of the equipment more than is ordinarily realized. Two materials which seem quite similar in most of their characteristics and which therefore, seem to present similar problems in handling, may differ sufficiently in one or two characteristics to make it necessary to use machines of quite different types to handle them satisfactorily, or may require differences in the details of the equipment in order that the operating and maintenance costs shall not be excessive. Differences in sizes and capacities required, and in the path that it is necessary to follow, often make a shift from one type of equipment to another advisable, so that the selection or design of the most suitable machine is not always a simple matter.

To bring out more forcibly the differences in the equipments used in the solution of the various problems, the table of conveyor details given herewith was compiled. This gives in condensed form the lengths, speeds, capacities and various other main features of the machines used, and serves to bring out the contrasts in types, sizes and design of details. It is, of course, true that where a certain material is handled frequently under different conditions and in a similar manner, a more or less standard type of equipment is used and such standard equipments are often quite carefully perfected and imporevd to suit this service; for instance the Peck carrier for handling coal and ashes in boiler rooms. All the other conveyor installations at the Dill and Collins plant, with the exception of the log-stacker, are more or less out of the ordinary and required engineering knowledge and experience in selecting the most suitable equipment for the work, and considerable designing in arranging the machinery, storage bins, etc. The table of details shows what a variety of different types of machines are used, the various sizes of bucket, flights, belts, etc., the different styles of chains, and the various speeds at which the machines are operated.

Saving Obtained by Installation of Conveyor Equipment.

As a rule, it is very hard to obtain a definite figure in regard to the actual saving in dollars and cents by the installation of labor-saving equipment. Records are not kept in such a way as to make the figures easily obtainable; or in many cases the conditions to be met are entirely new, so that it is not possible to make comparisons with any previous costs. In this case, however, Mr. Taylor of the Dill and Collins Company has furnished definite figures of saving by the installation of the coal and ashes handling equipment and the log stacker, and an estimated saving by the installation of the clay handling equipment and storage bins.

Peck Carrier Handling Coal and Ashes.

The cost of equipment is about as follows:

Overhead coal bin	$10,000
Coal and ashes handling machinery	28,000
	$38,000

In round figures, therefore, the total cost of the coal and ashes handling equipment is $40,000. As to the saving, Mr. Taylor states as follows:

Since this apparatus has started operations we have reduced the number of men handling coal from 8 to 5, equivalent at the present rates to $3,580 per year.

The number of firemen per shift have been reduced from 5 to 3, equivalent to a saving of 7,254 per year.

The number of ash-wheelers has been reduced from 3 to 2, equivalent to $3,524 per year.

This makes a total saving due to the installation of this machinery of $14,358 per year.



FIG. 22. ELECTRIC MONO-RAIL HOIST FOR HANDLING CLAY AND CHEMICALS FROM FLOOR TO MIXING TANKS IN COATING ROOM. LENGTH OF TRAVEL ABOUT 50 FEET.

Credit should also be given to the fact that the boiler plant is now generating about 20 per cent. additional power and handling between 10 per cent. and 15 per cent. more coal than was being handled during the period with which comparisons have been made.

The above figures give the amount of saving in cost of labor in handling coal and ashes but, to make a comparison, it is necessary to get the operating and maintenance costs and the fixed charges for the new equipment as follows: In order to obtain the power cost, it will be noticed from the table of details that the motors are as follows:

	H.P.
For crusher, feeder and flight conveyor	10
For Peck carrier	7½
For drag chain ashes conveyor	5

In actual operation, these motors would undoubtedly be run below their rated power, except in starting,

but to make the allowance liberal we will assume that they would be run at the rated horsepower. For handling coal, therefore, 7½ h. p. would be required; for handling ashes 15 h. p. for part of the time, and only 10 h. p. when handling to the large ashes bin which forms part of the coal bin.

At present the coal consumption is about 135 tons per day, which at the rated capacity to 40 tons per hour, would require about 3.4 hours to handle. There would, however, be delays in getting the coal out of the cars and in shifting cars, so that we will assume that 5 hours per day are required for handling coal. The horsepower hours would then be 5 x 17½, or 87½ horsepower hours per day. Taking the time required for handling ashes at 3 hours per day, and the average horsepower 12½, would give 37½ horsepower hours per day for handling ashes, or a total of 125 horsepower hours per day for handling both coal and ashes. Figuring $0.01 per horsepower-hour for the cost of this power, would mean a cost of $1.25 per day; and figuring 300 days per year, would give $375 per year, or in round figures $400 per year. The costs would then work out about as follows:

	Per Year
Power cost	$ 400
Maintenance cost, 2 per cent. of $40,000	800
Depreciation, 5 per cent. of $40,000	2,000
Interest, 6 per cent. of $40,000	2,400
	$5,600

The total labor-saving saving given above was $14,358, so that if we deduct the $5,600 yearly expenses it will leave a net saving of $9,758, or, allowing something for the cost of supplies, and other incidentals, say a saving in round figures of $9,500 per year. This figures a 23.7 per cent. return on the investment. In addition, as given in Mr. Taylor's statement, the power plant is generating about 20 per cent. more power and handling about 10 or 15 per cent. more coal than was being done before the labor-saving equipment was installed.

The maintenance cost of 2 per cent. as given above would undoubtedly be sufficient to cover the cost of repairs, since a great deal of the total cost is for the steel bin and steel supporting structure for the machinery, for which the maintenance would be mostly painting and occasional repairs and even for the machinery itself the figure of 2 per cent. would probably be sufficient, since the principal cost is the Peck carrier, on which the maintenance is very low. The figure of 5 per cent. for depreciation should also be ample since the coal bin, with little care, will undoubtedly last 20 years, and the machinery with the proper replacements when necessary will keep on going indefinitely.

Log Stacker.

As to the saving obtained by the installation of the log stacker Mr. Taylor states as follows: "The results from the installation of this piece of apparatus have been a saving of 10 men per day for 90 days in the year, equivalent to $3,080 per year." The cost of the machine installed was about $6,000. The motor used on this machine is 20 h. p., and the machine is operated on an average of about seven hours per day, or 2,100 hours per year. If we assume that the full rated horsepower of the motor is used this would mean 42,000 horsepower hours per year. Figuring again $0.01 per horsepower-hour, the cost would be $420 per year. The operating and carrying charges would then be about as follows:

	Per Year
Power cost	$420
Maintenance cost, 2 per cent. of $6,000	120
Depreciation, 5 per cent. of $6,000	300
Interest, 6 per cent. of $6,000	360
Supplies	80
	$1,280

If, therefore, from the saving given above of $3,080 we deduct the $1,280 expenses, it leaves a net saving of $1,800 per year, which is a 30 per cent. return on the investment.

Editor's Note.—The estimated cost of electric power, equivalent o less than 1.4 cents per K.W.H. seems rather low.

Clay Handling Equipment.

Mr. Taylor's report on the clay handling equipment is as follows:

The installation of this machine has resulted in a saving of labor estimated at $1,600 per year, and a



FIG. 23. ELECTRIC MONO-RAIL HOIST FOR LIFTING RAGS AND PAPER STOCK FROM INDUSTRIAL CARS TO THIRD FLOOR.

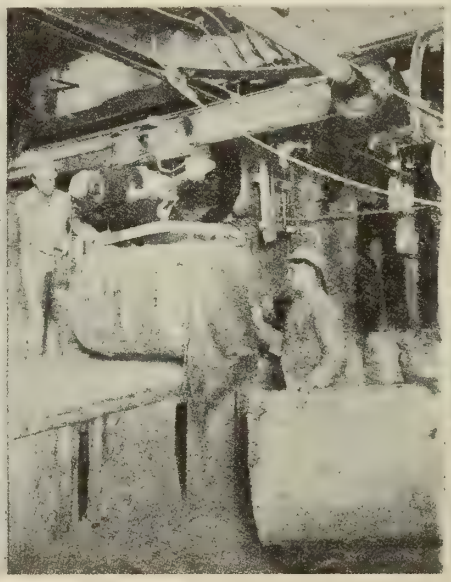


FIG. 24. ELECTRIC MONO-RAIL HOIST FOR LIFTING CLAY FROM FLOOR TO PLATFORM SERVING MIXING TANKS.



FIG. 25. ELECTRIC MONO-RAIL HOIST FOR LIFTING SODA ASH FROM RAILROAD CARS TO STORAGE IN ALKALI ROOM.



FIG. 26. TRAVELLING CRANE FOR HANDLING AND STORING CASES OF FINISHED PAPER. ABOUT 7500 TONS OF FINISHED PAPER CAN BE STORED IN THIS WAREHOUSE. WHICH IS 65 x 200 FEET IN PLAN. A SIMILAR CRANE IS USED FOR HANDLING AND STORING VARIOUS RAW MATERIALS FOR PAPER MAKING.

much greater advantage in the additional capacity to store clay which was absolutely necessary. This has enabled us to run steadily through a number of freight embargoes and other critical times, which we would not have been able to do with the available storage before the installation of this apparatus.

Credit should also be given to this installation for a saving in labor in storing out the clay, which is considerable, probably equaling the figure given above of $1,600 per year.

Mr. Taylor's reports give a good idea of the saving obtained by the installation of the three equipments mentioned. All the other equipments were put in to take care of new conditions, so that there is no basis on which to make a comparison of costs or to figure the saving obtained, but it is reasonable to assume, were comparisons possible, that the savings would be proportionately as great as they are with the three equipments in which comparisons are possible.

In addition to the actual saving in the cost of handling there are other advantages gained, such as increased storage of certain materials, the expeditious unloading of railroad cars and boats, the reduction in the amount of dependence on unskilled labor, and therefore, the reduction in the likelihood of strikes and other labor troubles, and the insuring of regular and continuous operation.

Electric Hoists and Cranes.

The illustrations showing the electric hoists and cranes speak for themselves, and the saving in labor and the expedition gained in handling material can readily be appreciated from the pictures and the titles. These machines can be obtained of various capacities and amounts of lift, speeds, etc., and the spans of the cranes can be suited to the conditions so that almost any requirements can be met. The mono-rail electric hoists with trolleys traveling on lower flanges of I-beams, can be made either hand or power propelled so that they are frequently the most effective means for handling packages, or sometimes, bulk materials from place to place.

The Dill and Collins plant is equipped more completely with labor-saving machinery than any general manufacturing plant with which the author has ever come into contact. It is, therefore, an excellent example of what results can be obtained by the intelligent use of such equipment. It is always results that count, and in this case they have been most gratifying. Output has been increased, and labor has been materially reduced, especially the unskilled labor which is the most uncertain.

DETAILS OF CONVEYOR EQUIPMENT.

MATERIAL HANDLED	TYPE OF MACHINE	CHAINS USED	BUCKETS, FLIGHTS ETC	SIZE OF MACHINES	SPEED OF MACHINE	CAPACITY OF MACHINES	AMOUNT OF MATERIAL PER UNIT OF MEASUREMENT	DRIVING MACHINERY	H.P. OF MOTORS	SPEED OF MOTORS
PULP WOOD	108 STACKER	55 & 66 ROLLER CHAIN	STEEL PUSHERS SPACED 48 IN	140 FT CENTERS	120 FT P M	20 CORDS P H	128 CU FT = 1 CORD.	SPUR GEARING WITH INTERMEDIATE COUNTERSHAFT	20 HP	800
WOOD CHIPS	GRAVITY DISCHARGE ELEVATOR	D.S. PITCH STEEL SPACED 8"	SHARP BUCKETS BOLTED ON 24" CENTERS	UNDER 143 UPPER 76	126 FT P M	25 CORDS P M.	210 CU FT = 1 CORD	BELT DRIVE FROM MOTOR TO COUNTER SHAFT SPUR GEARED TO DRIVEN	15 HP.	800 R.P.M.
	CENTRIFUGAL DISCHARGE ELEVATOR	RUBBER BELT	BUCKETS SPACED STEEL SPACED 14"	CENTERS	350 FT P M	"	"	SPUR GEARS AND CHAIN DRIVES WITH INTERMEDIATE COUNTERSHAFT	5 HP.	1150 R P M
	SUSPENDED CONVEYOR	D.S. #88 SMART DETACHABLE CHAIN	24" T M STEEL STEEL TROUGH	76'-4" CENTERS	123 FT P M	"	"	SPUR GEARING WITH INTERMEDIATE COUNTERSHAFT	5 HP	1150 R.P.M.
CLAY	2-ROLL CRUSHER		ROLLS 15" DIA. BY 10" FACE	75 FT P M	10-TONS P H.			BELT DRIVE FROM MOTOR TO SPUR GEARED COUNTERSHAFT ON CRUSHER	7½ HP	850 R.P.M.
	BELT CONVEYOR		14-4 PLY RUBBER BELT	48 CENTERS				CHAIN DRIVE FROM CRUSHER COUNTERSHAFT		
	CENTRIFUGAL DISCHARGE ELEVATOR	55 & 85	016 STYLE A MALL IRON BUCKET SPACED 20"	56'-7½" CENTERS	230 FT P M	"	"	LINE SHAFT SPUR GEARED TO MOTOR CHAIN DRIVE TO HEAD OF ELEVATOR	7½ HP	850 R.P.M
	DISTRIBUTING SCREW CONVEYORS		MALL IRON SHAPE 20" DIA MON TROUGH	2-31'-11" LONG	73 R P M	"	"	LONG TWO SCREWS GEARED TO LINE SHAFT WITH BEVEL GEARS CROSS CONVEYORS DRIVEN BY CHAIN		
	RECLAIMING SCREW CONVEYORS		" "	1-35 FT LONG 1-23 " "	73 R P M	"	"	DRIVES FROM LINE SHAFT		
	CENTRIFUGAL DISCHARGE ELEVATOR	55 & 85	1016 STYLE A MALL IRON BUCKET WITH STEEL BACK SPACED 20"	22'-0" CENTERS	230 FT P M	"	"	LINE SHAFT SPUR GEARED TO MOTOR CHAIN DRIVE TO HEAD OF ELEVATOR	7½ HP	850 R.P.M.
LIME	F-FEEDER	55 & 77 H ROLLER CHAIN	#10 STEEL SLATS 18" LONG	7'-0" CENTERS	117 FT P M	20 TONS P H	6518 PER CU FT	CHAIN DRIVE FROM FOOT OF ELEVATOR	7½ HP	1100 R P M
	PERFECT DISCHARGE ELEVATOR	D.S. 110 MALL IRON PATTERN	1610 STYLE A MALL IRON BUCKETS SPACED 30"	82'-5" CENTERS	90 FT P M.	"	"	TWO (2) SPUR GEARED COUNTER SHAFTS AND CHAIN DRIVES FROM HEAD OF ELEVATOR		
	ROLLER CHAIN CONVEYOR	D.S. #112 MALL IRON ROLLER WITH	1616 STEEL BUCKETS SPACED 22"	39'-3" CENTERS	100 FT P M.	"	"	CHAIN DRIVE FROM ELEVATOR COUNTERSHAFT		
SALT	CENTRIFUGAL DISCHARGE ELEVATOR	55 & 85	1016 STYLE A MALL IRON SPACED 20"	16'-4½" CENTERS	220 FT P M.	20 TONS P H	4518 PER CU. FT	LINE SHAFT SPUR GEARED TO MOTOR AND CHAIN DRIVE TO HEAD OF ELEVATOR	5 H.P.	1100 R P M
	2-SCREW CONVEYORS		12-0 STYLE A STEEL TROUGH	EACH 42-0 LONG	97 RPM	"	"	CHAIN DRIVES FROM LINE SHAFT		
	1-SCREW CONVEYOR		12-0 STYLE A STEEL TROUGH	21' LONG	73 R P M	8 TONS P H.	"	COUNTER SHAFT GEARED AND CHAIN DRIVE FROM LINE SHAFT		
	7-CONVEYOR	55 & 66 CHAIN	D.S. STYLE A MALL IRON BUCKETS	42'-5" CENTERS	228 FT P M	"	"	BELT DRIVE & SPUR GEAR WITH INTERMEDIATE COUNTERSHAFT +	5 HP	900 R P M
	ELEVATOR	D.S. #110 MALL IRON PATTERN	1610 STYLE A 30" MALL IRON BUCKETS	35'-0" CENTERS	23 RPM	"	"	CHAIN DRIVE FROM ELEVATOR HEAD SHAFT		
	SCREW CONVEYOR		12-0 STYLE A STEEL TROUGH							

DETAILS OF CONVEYOR EQUIPMENT.

MATERIAL HANDLED	TYPE OF MACHINE	CHAINS USED	BUCKETS, FLIGHTS ETC	SIZE OF MACHINES	SPEED OF MACHINES	CAPACITY OF MACHINES	AMT OF MATL PER UNIT OF MEASUREMENT	DRIVING MACHINERY	H.P. OF MOTORS	SPEED OF MOTORS
COAL AND ASHES	2 ROLL CRUSHER			28"x 24" ROLLS	56 RPM.	40 TONS P H OF COAL	SOLD PER CU FT.	BELT DRIVE FROM MOTOR TO SPUR GEARED CRUSHER COUNTERSHAFT	10 HP	800 R.P.M.
	FLIGHT CONVEYOR	D.S. #110 MALL IRON ROLLER CHAIN	6"M.I. FLIGHTS SPACED 24"	18'-0" CENTERS	80 FT P M	"	"	CHAIN DRIVE FROM ROLL SHAFT OF CRUSHER		
	PECK CARRIER	D.S. #4 PITCH ROLLER	24"x 24" MALL IRON BUCKETS SPACED 24"	206' HORIZ 31' VERT.	40 FT P M	"	"	"	7½ HP	800 R.P.M.
	DRAG CHAIN CONVEYOR	D.S. #110 MALL IRON ROLLER CHAIN	NONE CHAIN CONVEYING	22'-0" CENTERS	30 FT P. M	30 TONS ASHES P H	40 LB PER CU FT	3 SPUR GEARED CENTER SHAFTS DRIVEN BY BELT TO FOOT OF CONVEYOR	5 HP	860 R.P.M.
WET PULP TO 3 BLEACHERS IN ADJOINING ROOM	ONE BELT CONVEYOR		18" 4 PLY CANVAS BELT	31'-0" CENTERS	150 FT P.M.			COUNTERSHAFTS BEVEL GEARING AND CHAIN DRIVES FRICTION CLUTCH PUL EACH MACHINE	7½ HP	400 RPM. (BACK GEARED)
	TWO BELT CONVEYORS			16'-6" CENTERS	"	"				
	"			38'-0" CENTERS	"	"				
	"			30'-0" CENTERS	"	"				
WET PULP TO DISTANT BLEACHER	ONE BELT CONVEYOR		30" BELT	105'-0" CENTERS	150 FT. P M.			SPUR GEARS WITH INTERMEDIATE SHAFT FROM FOOT OF CONVEYOR WITH ANGLE AND SPUR GEARS ON	7½ HP	1100 R P M.
	"			180'-0" CENTERS	"	"				
TWO DRY PULP HANDLING EQUIPMENTS	BELT CONVEYOR			24" BELT	14'-0" CENTERS	80 FT. P. M.		FROM LINE SHAFT		
	HOLDING DOWN BELT			30" BELT	9'-6" CENTERS	"				
	BELT CONVEYOR			"	22'-0" CENTERS	"				
BLACK ASH	DRAG CHAIN CONVEYOR	D.S. #88 MALLEABLE IRON BLOCK CHAIN		NONE	31'-6" CENTERS	50 FT PER MIN	600 CU FT P H	FROM LINE SHAFT		
	INCLINED PAN CONVEYOR	S.S. #730	12"x 8"W PANS OF #10 STEEL	42'-0" CENTERS	65 FT P. M.	"				
	TRUCK HAUL	S.S. #3 MALL IRON CHAIN	PUSHERS EVERY 36"	40'-0" CENTERS	60 FT P M					

How the Text Books Stand

There are frequent inquiries in regard to what progress is being made with the preparation of the test books on pulp and paper making. The following minutes and Report will throw some light on the subject and should be encouraging to those who are interested in the establishment of classes in communities where pulp and paper mills are located.

Minutes of Meeting of Vocational Education Committees, New York City, April 13, 1920.

The meeting was held at the Chemists' Club on this date, there being present representing the Vocational Education Committee of the Technical Section of the Canadian Pulp and Paper Association, Messrs. Carruthers, Costigane, Crossley and Stephenson, and representing the Vocational Educational Committee of the technical Association of the Pulp and Paper industry of the United States, Messrs. Williamson, Lucey, Winslow, Kress, Clark, and Kellogg. During part of the meeting there were present members of the Executive Committee of the Technical Association Hatch, Wolf, Carruth and Fletcher. Mr. J. C. Wright of the Federal Board for Vocational Education was present throughout the entire session and gave numerous helpful suggestions during the various discussions.

Mr. Williamson called the meeting to order and after appropriate introduction asked Mr. Carruthers to act as chairman, which he did.

The minutes of the Joint Committee held at Buffalo June 12, 1919, and of the joint Executive Committee in new York City October 31, 1919 were approved in the form transmitted to all committee members by the secretary.

Editor Stephenson made a detailed report of the progress to date in the preparation of the textbook material, which has been included in the Fifth Progress Report, (see below) sent to all contributors to the Vocational Education Fund. A financial report prepared by Secretary Kellogg, showing total receipts and disbursements from the U. S. and Canadian Fund to date were as follows:—

United States:—		
*Receipts	$15,845.27	
Disbursements	11,116.63	
Balance		$4,728.64
Canada:—		
Pledged	$10,000.00	
Disbursements	4,744.03	
Balance		$5,255.97
Total balance		$9,984.61

In addition to the foregoing there still remains nearly $4,000 to be raised by the United States portion of the Industry in order to make up the total fund of $30,000 for the undertaking as originally proposed and steps will be taken at once to secure pledges for this balance.

* There is still due account U. S. subscription $250,- which will bring this to $16,095.27.

Prolonged discussion was had as to the use of trade names in connection with colors, machines and processes, and the conclusion was reached that such names should be used wherever necessary to identify the procedure to be followed and to make the instruction plain.

Mr. Stephenson submitted page proofs of the suggested style of typography for the textbooks which were approved and he was authorized to notify McGraw-Hill to go ahead at once with the setting up of material for the first volume in accordance with the standards suggested by them.

The question of the quality of paper to be used for the printing of the books was left to the decision of the Editor assisted by Mr. Clark in the testing of samples of paper and the giving of suggestions as to sources of supply.

Mr. Kellogg read a letter from the University Extension Division of the University of Wisconsin outlining the probable cost of correspondence instruction and said also that the University of Wisconsin is prepared to give correspondence instruction in the course anywhere in North America.

Mr. Wright outlined in detail the procedure to be followed in the establishment of part time and evening schools designed especially to train men in the various industries and also emphasized the fact that the Federal Board is prepared to bear the expense of training teachers for the giving of such instruction, those teachers to be selected from among the best workmen in the Industry and to be given from 60 to 120 hours of training in the handling of the material prepared.

Mr. Wright suggested that before next September a pamphlet be issued setting forth the magnitude of the Pulp and Paper Industry, calling attention to the need for Vocational Education therein and pointing out the occupation which are especially susceptible to training in order that this information may be sent to the Department of Education in every state where the Pulp and Paper Industry is a matter of importance.

Mr. Wright also outlined methods used by the Federal Board in making surveys of plants to classify the payroll jobs and determine for which jobs the training can and should be given, and indicate the subjects to be studied.

Upon motion by Mr. Stephenson unanimously passed, the secretary was instructed to write the Federal Board asking that such a survey be made for the Pulp and Paper Industry and assuring the Board that the Committee will co-operate to the fullest possible extent in making such a survey. A motion was also unanimously passed that the Committee stand Mr. Wrigh's expense for a trip to Canada if it is decided that it will be helpful to include a Canadian plant in such a survey. Upon motion of Mr. Costigane a vote of thanks was given Mr. Wright for his many helpful suggestions in regard to the further preparation of the course and the methods of instruction to be followed.

There being no further business, the meeting adjourned.

R. S. KELLOGG,
April 16, 1920. Secretary.

NOTE.—At the meeting of the American Paper and Pulp Association on April 15, 1920, the remaining $4,000 was pledged to the U. S. fund, thus completing the total of $30,000 asked for by the Committee.

RESOLUTION PASSED BY THE CANADIAN PULP AND PAPER ASSOCIATION, JANAURY 30, 1920.

"Resolved that the Joint Educational Committee or their successors be authorized on behalf of the Canadian Pulp and Paper Association to hold in trust the copyright of the textbooks now in preparation and that they be further authorized to collect from the publishers all commissions and royalties which accrue on the sale of the text books, such funds to be applied towards future revisions and for any expense which may be necessary for the advancement of vocational education in the pulp and paper industry."

RESOLUTION PASSED BY THE TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, APRIL 15, 1920.

"Resolved that the Joint Educational Committee or their successors be authorized on behalf of the Technical Association of the Pulp and Paper Industry to hold in trust the copyright of the textbooks now in preparation and that they be further authorized to collect from the publishers all commissions and royalties which accrue on the sale of the textbooks, such funds to be applied towards future revisions and for any expenses which may be necessary for the advancement of vocational education in the pulp and paper industry."

Fifth Progress Report.

Since the issuance of the Fifth Progress Report on January 15th, there has been steady progress in the preparation of textbook material, both in the writing and submission of manuscript by the authors and in revision by the editorial staff and preparation of accompanying illustrations.

The present status of the various volumes is summed up by Editor Stephenson as follows:

With the exception of a small portion of the section on "Mechanics" and the Section on "Elementary Chemistry," the author's manuscript for Vol I is complete. The elementary arithmetic and the section on "Reading Drawings" are in the hands of the publisher, and the section on "Mathematical Application" is ready for the publisher when called for. The section on "Elementary Electricity" with illustrations is being examined by a practical authority on electrical equipment and can be handed to the publisher in a very short time. Unless some misfortune overtakes us the first of June should see the material for Volume I, ready for the publisher.

With regard to Volume II it is a pleasure to report that the manuscript and illustrations covering the principal properties of pulpwoods have been prepared and that these will be published soon in the official organs of the two Associations most interested in the project. It is hoped that there will be a careful examination of this material by mill men and a full discussion of the suitability of the material as presented for use by men who are most interested in the manufacture of pulp and paper.

The section on "Groundwood Pulp" is well on toward completion, the last portion of the manuscript on "Soda Pulp" is being examined with a view of making suggestions by one or two others who are cooperating with the author in the matter, the manuscript for the section on "Sulphate Pulp" has been received, but slight additions may be made when the author returns from Scandinavia. The section on the "Treatment of Pulp" is in the editor's hands and has been reviewed by the manager of a large Canadian mill who remarks that if the other portions of the work are as carefully done as this one, the books will be of much greater value than anybody had anticipated. The section on "Bleaching of Pulp" has been sent to a number of persons interested in the matter and some very good suggestions have been received. This matter is being turned over to the author for incorporation where possible and advisable in the texts.

This with the section on "Testing Materials for Pulp and Paper Making" completes the material for Vol. II which has been reported on recently. The absence of the author for sometime has delayed the final revision of the section on "Logging Operation" and at last report the section on "Sulphite Pulp" was going forward, but rather slowly. The section on "Wood Preparation" was to have been in hand during the past month but has not yet been received.

The material for Volume III is in good shape. A brief chapter on the "Collection and Grading of Rags" is in hand, the "Preparation of Rags and other Fibres" is about finished. The section on "Beating" has been partly examined. The section on "Engine Sizing" is being rewritten a second time and the section on "Loading" is going forward and progress is being made. The section on "Coloring" has been received and published in Paper and the Pulp and Paper Magazine. If there are any criticisms of this article the editor would appreciate receiving them as soon as possible, a suggestion which applies also to other material regarding the textbooks which appears from time to time in our journals. The manuscript on the "Paper Machine" is being passed about for examination by men in various lines of paper manufacture so as to have this material cover the industry as completely as possible. The manuscript on the "Making of Handmade Papers" has also been received and passed on for additional examination. The sections just mentioned will make up Vol. III. Of the material to be included in Vol. IV which continues the manufacture of paper the sections on "Finishing Operations," "Tub Sizing" and "Paper Coating" have been received and distributed for review. As mentioned in the last reports a part of the manuscript on "Pumps" has been received and a mill superintendent who is an authority on equipment calls it "very good." The author of the section on "Paper Testing" reports that his material will be complete within a few weeks.

There has been received manuscript for a proposed section on "Experimental Equipment" which many mills already have and which many more in the near future will doubtless install. This material will be published in the trade journals and the opinion of the industry regarding its value as a part of the textbook would be of great service to the committee. An outline of this section has already appeared in print.

In talking with many mill men there is a very pronounced desire to have included in the textbooks some explanation of the necessity of means for keeping proper account of costs of production. It seems decidedly worth while to include a brief chapter on this subject and the Cost Association of the paper industry is co-operating with the committee in this matter.

The editor and several of the gentlemen who are preparing the material for the course have visited a number of typical mill operations in order to get the benefit of practical suggestions and experience with

respect to various types of machines and methods, and every opportunity is being taken to secure criticisms upon all sections of the textbooks from those best qualified to judge the material prepared.

The first few pages of Vol. I have been set up and proved on three grades of paper for examination by the committee and approval by them of the character of the work and the style. These pages show all the type that will be used in the volume. When approved by the committee, the publishers are ready to go ahead with the setting of the book. The committee will thus have an opportunity of examining the appearance of the type when printed on three different papers and it is hoped that a selection of the color and quality can be decided on shortly.

The committee is now proceeding with the preliminary arrangements for the offering of instruction beginning next September through the co-operation of Vocational Education Boards, University Extension Departments and other public agencies. It is expected that by next Fall opportunity will be afforded for all who so desire to begin, through some of these means, the study of the first volume of the textbooks.

R. S. KELLOGG,
April 14, 1920. Secretary.

The Royal Securities Corporation of Montreal announce the issue of $185,000 of First Mortgage Bonds of the Fraser Companies, Limited. These are six per cent ten year First Mortgage serial gold bonds, of which both principal and interest are payable in New York funds. The issue price is such as to yield seven per cent. The amount mentioned is available in blocks due annually from 1924 to 1929.

DEAN'S DIRECTORY DESIRED.

When a papermaker's directory is wanted it is usually wanted in a hurry. An instance of this occurred last week when a telegram came from New York asking that ac opy of the Papermakers' Directory of all Nations published by Dean and Son, be sent down immediately. The dependence that the trade places on this directory is quite to be expected when one considers the wide range of its contents and the difficulty and expense entailed in the collection of the diverse yet accurate data that it contains. There are several of these comprehensive publications but the one referred to, which is published by Dean and Son, Limited, 160a Fleet St., London E.C.4, contains more than 900 pages and includes alphabetical, geographical and topical lists of the papermakers of the world. Besides this there are lists of paper dealers, stationers, pulp and paper agents and other appropriate information regarding Great Britain in particular.

Copies are available from the publishers at 17s. 6d. and orders may be sent in through the Pulp and Paper Magazine if our readers so desire.

REMOVE RESTRICTIONS ON FRENCH NEWS PRINT PAPER.

Washington, April 13.—A special cable to the Department of Commerce states that the French Government has removed restrictions regarding newsprint paper and permits publishers to make their own contracts as to price and shipping arrangements. The newsprint situation at Paris is acute with prices 9,000 francs a ton.

A VISIT TO CAMPBELLFORD.

Toronto Carton Club and Box Board Association looked over big Pulp and Board Mill.

Members of the Toronto Carton Club and other members of the Canadian Paper Box Manufacturers' Association spent a very enjoyable and profitable day in Campbellford on April 20th, travelling from Toronto by a special Pullman car. The party, under the guidance of David F. Robertson, General Manager of the Northumberland Paper and Electric Co., Ltd., and Mr. Stephens of the same company, proceeded to the big pulp mill and board mill, where they inspected the different processes of manufacturing pulp and board. At the luncheon at Campbellford at noon, about thirty-five sat down and one of the features was an address by the mayor of the town. The outing proved a thoroughly enjoyable one, and was due in the main to the hospitality of Mr. Robertson who was indefatigable in looking after the visitors from the time of their arrival in Campbellford until their departure. Those present on the trip were:

From Toronto:—Mr. Bennett, Rudd Paper Box, Limited; Mr. Fielder, The Fielder Paper Box Co.; Mr. Fisher, F. W. Fisher & Co.; Mr. Harvey, Lawrason-Doughty Co.; Mr. Lawrence, Dominion Envelope & Carton Co., Ltd.; Mr. Smith, A. D. Shoup Co., Ltd.; Messrs. McKay and Owen, York Paper Box Co., Limited; Messrs. Adams and Gutland, Adams Manufacturing Co., Limited; Mr. Prescott, A. E. Long & Co.; Messrs. Collett and Sproule, Collett-Sproule, Limited; Mr. Morrison, Automatic Paper Box Co., Limited; Mr. Young, Regal Paper Box Co., Limited; Mr. S. J. Frame, Secretary-Treasurer Canadian Paper Box Mfrs. Association.

From Hamilton.—Mr. C. T. Reid, Chas. Reid & Company; Mr. Tresidder, Tresidder Bros.; Mr. Morley Eager, Hamilton Paper Box Company; Mr. Slater, Paper Boxes of Canada, Limited.

From Guelph.—Mr. Small, Guelph Paper Box Company.

From Kitchener.—Mr. Boehmer, A. & C. Boehmer, Limited.

From Stratford.—Mr. Whitesides, Stratford Paper Box Company.

From Galt.—Messrs. Turnbull and Hancock, Galt Paper Box Company.

From Brantford.—Mr. Hampel, Hampel Paper Box Company.

From Montreal.—Mr. Art. Harries, Canada Paper Box Co., Ltd.

SOUTHERN PAPER MILLS USE COTTON STALKS

Possibly cotton planters can afford to be more lenient in their ideas of necessary high selling prices for their staple when paper mills are established in the South to make paper and pulp from cotton stalks. One of these mills is already in operation at Greenwood, Mississippi, and is paying $3 a ton for cotton stalks. This mill consumes about 150 tons of stalks a day. It is said that there are approximately 75 million tons of cotton stalks annually in the South, and the sale of these should materially lessen the fixed costs of production now alone absorbed in the sale of the staple and linters.

The man who makes hay while the sun shines doesn't have to borrow an umbrella when it rains.

PULP AND PAPER NEWS

The St. Regis Paper Company have secured two additional American barking drums, one to be used in connection with their Canadian pulpwood limits and the other to be installed at their Carthage, N. Y. mill. A drum has also been secured by the Gulf Pulp & Paper Co., at Clark City, Que., for use in their plant. These were secured through the Toronto office of the Canadian Barking Drum Company. The Chicago office recently placed a drum with the San Rafael Co., with offices in Mexico City, for use in the company's plant in Mexico.

The Belgo Paper Company, Limited, has been granted a federal charter with head office at Montreal, with power to manufacture and deal in lumber and pulpwood in all their branches. According to the official announcement published this week in the Canada Gazette, the authorized capital is $15,000,000. Another Montreal Company which has just received its charter is the Bridge River Timber and Manufacturing Company, Limited, with an authorized capital of $1,200,000. The company will carry on a lumber, timber and pulpwood business.

A meeting of the creditors of the Toronto World was held in Toronto on April 21st, when it was decided to dispose of the estate by either private or public sale. It was stated at the meeting that there were about half a dozen creditors whose claims ranged between $10,000 and $12,000 and some twenty creditors with claims ranging from $1,000 to $10,000. The assignee declared that he had honored all prepaid advertisements and circulation on the grounds that this was essential in order to maintain the value of the good will of the paper, which was the principal asset.

Dunbar H. Hudson, President of the Hudson Paper Co., Winnipeg, was in Toronto this week calling on some of the paper mill representatives. Mr. Hudson states that the same market conditions prevail in the west as exist in Ontario and that there is a marked shortage of all lines of paper. Speaking of land conditions in Manitoba Mr. Hudson said that without any superficial boom, a lot of healthy buying was going on and many incomers to Manitoba were buying their own lots and building homes.

F. K. Douglas, of A. J. Pagel, Inc., Pulp and Paper Manufacturers of New York, was in Toronto on business this week.

A visitor in Toronto this week was J. J. C. Downey, Sales Manager of National Paper Products Co., who spent a day or two with the trade in this city.

Gordon Walter of the Detroit Journal was in Toronto this week checking up the newsprint supply for his paper and endeavoring to accelerate the shipments. During the present difficulties in getting their shipments across the line from the Spanish River Mills, the Detroit Journal and the Detroit Tribune have their consignments shipped to Windsor and from there conveyed across the river in a lighter.

J. B. Beveridge, Vice-President and General Manager of the Dryden Pulp and Paper Company, Ltd., of Dryden, Ont., and W. G. McMahon of W. G. McMahon, bag manufacturers, Winnipeg, were in Toronto this week.

The sympathy of the pulp and paper trade is extended to H. L. Muir, salesman for the Don Valley Paper Co., Ltd., in the death of his mother, Mrs. James H. Muir, which took place at Brantford, Ont., at the age of 55 years.

Charles F. Mansell, of the Toronto office of the Howard Smith Paper Company, Ltd., has returned from a month's trip to Mexico. Mr. Mansell spent several weeks at Peretsburgh, on the Gulf of Mexico, and is back at his desk with his old time vigor after a thorough rest and change.

Representatives of the Master Printers and Bookbinders Association and Typographical Union representatives, met in Toronto on Thursday night and the former organization notified the union that they were prepared, in view of the high cost of living, to make a general advance of 10 per cent bonus on the present weekly scale to go into effect May 1 next. The offer will be presented at a special meeting of the Typographical Union.

Information received by the Pulp and Paper Magazine from the Calder Paper and Timber Company, Limited, of Burt, Ont., is to the effect that the winter has been a bad one for operations in that district, heavy snows having driven the men out of the swamps too early, which means that the cut was considerably short. The rossing plant is not running yet, although the sawmill is in operation. The pulpwood in the district is all sold and the peeling season will begin soon but no contracts have been given out as yet.

Many in the paper trade regretted to learn of the death in Toronto of H. K. Smith, for many years a resident of Belleville and for the past several years connected with the Weatherhead Paper Company of Toronto. Deceased had reached the advanced age of 72 years and was well and favorably known in Canadian paper trade circles.

J. E. Atkinson, Managing Director of the Toronto Star, has been elected a director of the American Newspaper Publishers' Association. The officers of the Association were elected at the annual convention held in New York on April 23rd.

Mr. F. A. Coombe, who was until recently, Chief Engineer for Canada for Babcock and Wilcox Limited, has opened an office at 603 Southam Building, Montreal to practice as a Consulting combustion and steam engineer. Mr. Combe will specialize in power plant design and operation and the utilization of waste heat and steam.

PULP MILL DEAL OFF?

It is understood that the offer of the Howard Smith Co. for the Dominion Pulp Co's properties has been finally rejected, and that the mill will continue to run under present ownership and management. Mr. McCabe, who had arranged to leave, will remain, it is said, in his present position.—Chatham World.

NEWSPRINT BOOSTED; GOES TO $120 A TON

A dispatch appearing in Western papers, dated April 19, states that the Fort Frances Pulp & Paper Co. has notified its Canadian customers that, following the Supreme Court decision in the Price Bros. case, the price of newsprint for Manitoba and Saskatchewan newspapers will be six cents a pound, an increase of 50 per cent, or from $80 per ton to $120 per ton f.o.b. mill.

Even at this price the Fort Frances Company states it is not anxious to do business.

This increase in the price of newsprint will, it is estimated, entail an additional expenditure in the production of Manitoba and Saskatchewan daily newspapers of approximately $660,000 per annum.

PAPER MILL IN NOVA SCOTIA

The Hants Journal publishes editorially a statement that there is located in Hartville, N.S., nine miles from Windsor, a newsprint paper mill, which in years gone by turned out quite a quantity of paper of good quality, and of which the Journal used a supply for some time. This mill for many years has lain dormant, but with a small amount of capital it could be again set in motion, and supply many of the papers of the Province with all they could use. The Journal urges the formation of a company with sufficient capital again to set the mill in motion, and at the present rate the stockholders would reap a good harvest.

The St. Croix Paper Co., which is referred to, has one grinder and one wet machine, with a capacity of 10,000 lbs. of groundwood daily, and a paper mill with four beaters, one refiner and a 60-inch paper machine, capable of making six tons per day.

GOVERNMENT CUTS PAPER WASTE

Ottawa, March 31.—The report of the editorial committee for 1919, which was tabled in the Commons by Sir George Foster this afternoon, shows some remarkable reductions in public printing. Last year was the first complete year of the committee's operation. The members of the committee consist of Fred. Cook, chairman; F. C. T. O'Hara and F. C. C. Lynch.

With regard to departmental reports, the committee passes not only on the number to be printed but upon the text of the manuscripts also. Three years ago the number of departmental reports printed was 325,365; last year the number was 151,425. The number of printed pages in the former year was 210,000,000; last year 56,000,000. Similarly with regard to supplementary reports to Parliament, the number of copies printed has been reduced from 222,000 tto 56,000 and the printed pages from 61,000,000 to 11,000,000. For this class of publicity alone the cost of printing has fallen from $343,301 to $188,966.

The activities of the committee apply to all classes of intended publications, many of which have been refused printing on the recommendation of the committee.

Among the notable achievements has been the bilingualizing of many reports, the saving under this reading on the Auditor-General's report alone being $30,000 per annum. The reduction in the use of illustrations in annual and supplementary reports is remarkable.

9,397,865 to 137,000.

Four years ago the number of plates inserted was 9,397,865; last year 137,000. The committee by a careful scrutiny of all photographs was successful in inducing many departments to withdraw such as were not germane to the text, with the result that only 137,000 plates were inserted in publications.

The use of newsprint has been substituted in the daily routine papers of Parliament, thereby effecting a saving under this item alone of 80 per cent. The committee calls attention to the importance of every department revising its mailing lists periodically, and offers many valuable suggestions for the prevention of waste in the public departments. The use of standard-size envelopes is strongly emphasized, as last year Parliament and the departments called for five million envelopes of special size at materially increased cost.

The committee expresses its grateful appreciation to all branches of the public service for their sympathetic co-operation, and says that much of the friction which was manifested at the outset of the committee's work has now disappeared.

Among the companies recently incorporated are Wilson, Paterson & Clifford, Ltd., merchants and manufacturers, dealers in pulpwood in Montreal, $1,000,000; United Farmers' Guide, Ltd., Winnipeg, $250,000. and Regal Paper Box Co., Ltd., $50,000.

BRIGHT PROSPECTS FOR ABITIBI.

The annual statement of the Abitibi Power and Paper Company, made public last Monday, showing earnings at the rate of 16 per cent on the common stock after the clearing-up of all preferred dividend arrears and generous allowances for depreciation and other reserves, is in line with recent exhibits in the pulp and paper industry. As a big producer of groundwood and sulphite pulp, the company in the early part of 1919 had to contend with unfavorable market conditions, but for the current year, according to the statement of President F. H. Anson, the outlook has materially changed and prospects are exceptionally bright. The excess pulp production for the first five months of the year has been contracted for and the full capacity of the entire groundwood and sulphite products can be advantageously placed during the remainder of 1920.

That the company is fully alive to the splendid opportunities presented is indicated in the fact that three additional newsprint machines, and one for the manufacture of wrapping paper have been contracted for, which, together with other new construction, it is expected, will be complete before the end of the present year.

In his report to the Abitibi shareholders, President Anson states:

"Your directors take pleasure in advising you that they have completed arrangements for the sale of $4,000,000 of consolidated refunding 6 per cent 20-year gold bonds, the proceeds of which will be applied to the retiring of the 7 per cent debenture stock and the 7 per cent convertible mortgage debentures, and the remainder towards the cost of new construction now in progress."

At the end of 1919, the two issues referred to were outstanding to the total of $1,761,400, which retired would leave upwards of $2,000,000 for the extensions and improvements referred to. This is, presumably, the financing of which there have been reports circulated in market quarters in recent weeks and of which definite announcement is expected in the near future

International Number

OF

The Pulp and Paper Magazine of Canada

Early in May, the Pulp & Paper Magazine will issue its first Special Number, which will be called The International Number.

Editorially, this issue will be in charge of Mr. J. N. Stephenson, M.S., Editor of Pulp & Paper Magazine, and Mr. Edward Beck, Manager of Publicity for the Canadian Pulp & Paper Association. It will contain the most complete magazine description of the Pulp and Paper Industry in Canada that has yet been attempted. The object is to show the importance of this industry in the life of the Dominion, the wonderful resources behind it and the unparalleled opportunities ahead, and the part it plays in the paper markets of the world. There will be a brief story of the development of pulp and paper making in Canada, an account of the Canadian Pulp & Paper Association, a description of Canada's forests, water powers, transportation systems, etc.

ADVERTISEMENTS WILL BE ACCEPTED ONLY FROM FIRMS WHOSE ANNOUNCEMENTS APPEAR IN THE REGULAR ISSUES OF PULP & PAPER MAGAZINE.

If you have not already sent copy for the International Number advise us what space to reserve for you. Copy and cuts should be mailed as soon as possible, but not later than May 1st.

Rates are as follows:—Half page, $40. One page, $75. Two pages, $70 each. Four pages, $60 each. Type size of page, 7 x 10 inches. Coated paper will be used.

Pulp and Paper Magazine

GARDEN CITY PRESS

Ste. Anne de Bellevue, Que.

Technical Section

REVIEW OF RECENT LITERATURE.

A-14. Paper-sizing—New method for determining the size-fastness of paper. Fritz Stockigt. Wochenbl. f. Papierf., 1920, p. 39; Paper, **26**, 1-2, (1920). The method consists essentially in floating a tray made of the paper to be tested and contg. some 1 per cent $FeCl_3$ solution., on an NH_4CNS solution, and noting the time taken for complete penetration as shown by the appearance of red specks all over the surface. The number of seconds represents the "absolute number" of size-fastness. This number divided by the grams per sq. meter of paper gives the relative size-fastness. Figures of comparative tests on 20 different papers are given showing that the NH_4CNS method corresponds with Herzberg's inkstroke test so far as irregularity of the inkstrokes permit.—A.P.-C.

A-14. Micro-organisms living in paper; their resistance to the action of heat and that of time... V. Galippe. Comptes rend., **169**, 814-817 (1919). It has been shown that filter paper heated in an autoclave at 120°C. for ½ hr. still contains in its fibre a large number of living bacilli. Examination of samples of paper made in the 18th and 15th centuries, of a sample of Chinese paper made long before the discovery of printing, and of a sample of papyrus dating back to 200 B. C. showed that in every case living bacilli were present in the fibres of the samples.—J.S.

A-15. Cellulose and nitrocellulose; absorbent power for gases, and constitution. B. Oddo. Gazz. Chim. Ital., 1919, 49, ii., 127-139. Cellulose absorbs various gases to extents increasing with the solubilities of the gases in water, and absorption of a second gas is accompanied by partial displacement of a gas already absorbed. Both deca and endeca-nitrated celluloses absorb dry hydrogen chloride and sulphur dioxide. (See also J. Chem. Soc., 1920, i., 16). —J.S.

A-15. Iron oxide and cellulose. K. Haertling. Koll. Zeits., 1919, **25**, 74-79. As the result of an investigation on the cause and method of prevention of the crumbling of old documents written in ink, it has been shown that paper or parchment may be aged artificially by heating at 50 degrees to 60 degrees C. in a current of dry air for 5-6 hours. When paper with a coating of an ink rich in ferric oxide is aged it rapidly becomes brittle and falls to powder. Colloidal ferric oxide placed on paper, or mixed with raw cotton and aged as described above, causes the cellulose to fall to a powder having a microcrystalline structure.—J.S.

A-15. The direct determination of lignin in cellulose through hydrolysis with acids. Ernst Becker. Papierfabrikant, **17**, 1325-27 (1919). The fact that lignin is partly soluble or at least that it splits up into certain groups in 72 per cent H_2SO_4 is made use of by Klason and also by V. Fellenberg for the indirect determination of lignin. Furthermore, 72 per cent H_2SO_4, of all acids, which are used for the direct determination of lignin, is the simplest to manipulate. In this latter method 1 gram of finely disintegrated cellulose is stirred with 10-20 cubic centimeters of 72 per cent H_2SO_4 in a hard glass beaker and as soon as the entire mass has become jellylike, it is made up to 80-100 cubic centimeters with more 72 per cent. acid and allowed to stand for 24 hours. It is then diluted with 1-1½ parts H_2O, and after the residue is filtered through a Gooch crucible, is washed with hot H_2O and dried to constant weight. The crucible is then ignited and again weighed. The difference in weight is the ash-free lignin. The article is accompanied by a table giving the results of lignin determination for various kinds of wood pulps by the above method.—J.S.

A-0. The single deflection method of weighing. Paul H. M.-P. Brinton, Univ. of Arizona. J. Am. Chem. Soc., **41**, 1151-5, (1919) Pulp & Paper, **17**, 756. The method is carried out as follows: The balance is given a permanent overload on the left arm by screwing the adjusting nut on one end of the beam until when the beam and pans are released the pointer will swing out from 3 to 7 scale divisions to the right. The pan-arrests must be so adjusted that there is no lateral vibration of the pans when released. Before determining the zero point, the stability of the pans is assured by moving the pan arrest button in and out a few times. The beam is then freed, and the pans are next released by a gentle, steady motion. The pointer will swing out to the right, and the turning point of this simple excursion is taken as the zero point. To obtain the weight of any object it is only necessary to add weights until the pointer is caused to swing out to the same point on the ivory scale. The method cannot be used with those types of balances in which the beam and the pan-arrests are all released in one operation, as by the turning of one milled head or lever; and it has occasionally been found that a balance of the correct general type has failed to give concordant readings in successive weighings. In nearly every instance it has been found that these balances failed to yield concordant weighings by any other method. With the proper type of balance the method is regarded as suitable to work, of the very highest accuracy, and possesses the advantage of great simplicity and speed.—A.P.-C.

A-0. Analytical weighing. Horace L. Wells. J. Am. Chem. Soc., **42**, 411-9, (1920). A plea for the more general adoption of the short-swing method of weighing instead of the more usual long-swing method, on the grounds that the former is much simpler, giving rise to less calculation and consequently leaving room for fewer errors, is shorter, because fewer readings need be taken, and is fully as accurate as the long-swing method.—A.P.-C.

A-0. A convenient method for the preparation of a hydrochloric solution of cuprous chloride for use in gas analysis. Francis C. Krauskopf and L. H. Purdy, Univ. of Wisconsin, Madison, Wis. J. Ind. and Eng. Chem., **12**, 158-61, (1920). The presence of stannic and stannous chlorides even in relatively large amounts in a HCl solution of Cu_2Cl_2 does not impair the efficiency of the solution for the absorption of CO. A practical and efficient method of preparing a solution of Cu_2Cl_2 for absorbing CO consists in dissolving $CuCl_2$ in concentrated HCl and reducing to Cu_2Cl_2 by the addition of $SnCl_2$. If a slight excess of $SnCl_2$ is added the solution may be transferred from one container to another without oxidation of the Cu Cl_2. A

HCl solution of Cu_2Cl_2, when saturated with CO may be renewed by heating to 60-70°C to drive off the CO. A solution treated in this manner will be as efficient for the absorption of CO as it was originally, and if in renewing the solution in this way a small amount of Cu is oxidised, and the solution is not colorless, a few drops of conc. $SnCl_2$ solution will again reduce it.—A.P.-C.

B-2. What Quebec is doiing to conserve its timber. Can. Lumberman, July 15, 1919, p. 30. A review of the summer meeting of the Woodlands Section of the Canadian Pulp and Paper Association held at Berthierville and Grand'Mere, Quebec. Nursery and planting work of the Quebec Government and of the Laurentide Company; work of the Laval forest school; planting on the shifting sands at Lachute; sale of trees for planting, to pulp and paper companies, railway companies, farmers, etc.; farm forestry; reasons why planting is desirable; discussion of costs and prospective results; slash disposal pro and con.—C.L.

B-2. Securing future forest crops of quality. Can. Lumberman, Aug. 1, 1919, p. 35. A review of report by Dr. C. D. Howe, Commission of Conservation, upon the reproduction of timber species in the Coast region of British Columbia. Discusses the destructive effects of repeated fires upon forest reproduction. The burning of logging slash is recommended, as favoring the reproduction of the more valuable species.—C.L.

L-7. The manufacture of paper threads. J. G. Varlot, papermaking engineer. Papeterie, **42**, 2-15, (Jan. 10, 1920). In the case of pulp thread, owing to the process of manufacture, there is a tendency for the fibres to arrange themselves parallel to the direction of the thread, and the sizing is obtained by hydrating the stuff by beating. This sizing becomes effective on drying the thread, and is practically "irreversible", while the rosin sizing is "reversible", being destroyed by wetting and restored by drying. This explains the difference in strength.—A.P.-C.

N-6. Improved condenser. World's Paper Trade Rev.; Papeterie, **42**, 122 (Feb. 10, 1920). The Wheeler Condenser Engineering Co. is putting out a 4 compartment condenser which can be cleaned while running, 3 compartments taking the whole load while the 4th is being cleaned.—A.P.-C.

P-1. Hand guards on calenders. Eng. patent No 131,616. Mike Teleszky, Jenners, Pa., U. S. A. Paper Maker; Papeterie, **42**, 118, (Feb. 10, 1920) Description of a device which can be used either as a hand-guard or as a doctor.—A.P.-C.

R-1. Pulp mills of the United States. Paper Trade Journal, February 6, 1919, pp. 109-121. Maps showing the locations and relative capacities of the ground wood, sulphite, sulphate and soda pulp mills in the United States originally prepared in connection with certain defense investigations. Prepared by Henry E. Surface and Franklin H. Smith, U. S. Forest Products Laboratory.—C.L.

R-5. Paper and pulp industry during 1919. Paper **25**, 1214-22, (1920). Detailed statistics of production, shipments, exports, imports, and stocks of paper and pulp in the U. S. for 1919 (month by month) compared with 1918.—A.P.-C.

R-7. The 8-hour day law and the French paper industry. Papeterie, **42**, 156-60, (Feb. 25, 1920). A study of the injurious effects of the premature application of the 8-hour day law in French paper mills in the Dauphiné, the principal papermaking district of France.—A.P.-C.

R-12. Papermaking costs 12 years ago. Paper, **25**, 1247, (1920). Estimate furnished in 1908 on the construction and operation of a 20-ton paper mill.—A.P.-C.

R-0. Pulp and paper investigations of the United States Forest Products Laboratory in 1918. Vance P. Edwardes, Engineer in Forest Products. Paper Trade Journal, Feby. 6, 1919, p. 123. During 1918, the forest products laboratory devoted its energies primarily to war work. With the ending of the war an opportunity is afforded to incorporate in the peace program of the laboratory various projects for the further study of certain problems taken up first because of the war.—C.L.

HOW LONG WILL PULPWOOD SUPPLY HOLD OUT?

A cord of pulp wood sold at the mill at $2 and newsprint paper was plentiful and cheap some fifteen years ago. But that was when men could be hired to work in the woods at $30 a month, and glad of the chance, while pork was $15 a barrel and beans $2 a bushel, with everything else in proportion. Also, there were more trees waiting to be cut down and fewer newspapers and magazines and public documents to be printed.

To-day the cord of peeled wood is worth $21 at the mill, because the loggers get $65 to $85 a month and live like fighting cocks regardless of the high cost of food, while everybody else who touches a hand to the forest product, from the first stroke of the axe into the tree until the log comes out of the machine in the form of white paper, gets sky-high wages, and that, with an abnormal and constantly increasing demand, explains why newsprint costs four or five times as much to-day as it did in the dawn of the century.

Forestry experts declare with due solemnity that at the present rate of cutting and waste the supply of softwood timber in the Eastern United States will be exhausted in 1969, while Maine's forests are certain to disappear about the year 1955 or maybe a few years earlier.

It used to be said in the olden days that the log cut was offset by the growth of the forest—the natural increase, but that was before the pulp mills came to help the saw mills eat up the trees, and also before the multiplication of railroads sent fires raging through vast areas of virgin growth and voracious insects spread havoc in the timber. Now it is asserted by the experts that fires, storms and hungry bugs destroy more than the annual growth of timber, so that what is taken by the lumbermen for the supply of saw mills and pulp mills, an ever-increasing toll, is dead loss—a drain upon the total resources that cannot be made up by all the efforts at reforestation in this generation or the next—probably never.

E. G. GEDDES, FORMER CANADIAN, DEAD.

Elbert G. Geddes, 204 W. Clay Ave., secretary of the Central Paper Company for nine years, and with the company since it came to Muskegon, Michigan, in 1899, died at his residence, following a short illness, aged 52 years. Mr. Geddes was born in New Brunswick, Canada. He was married to Miss Annie Robitaille of Three Rivers, Canada, in 1898, and came to Muskegon the following year to supervise the construction of the paper mill.

UNITED STATES NOTES

The new Buckeye oil mill, which started operations last week at Augusta, Georgia, making paper out of cotton linters is, with the exception of a similar plant at Memphis, Tenn., the only place in the world where paper pulp is made out of the lint on the cottonseed hull which heretofore has been wasted. The Memphis plant was erected by the same concern that put up the Augusta mill. When the latter gets going at full capacity it will produce fifty tons of pulp a day if the hopes of the officials are realized. The pulp will be sold to paper manufacturers and will be used in the production of high grade writing paper.

The emergency print paper bill, which was passed by the lower house of Congress March 30, passed the Senate last week without opposition and without amendment. It permits the importation, free of duty, of newsprint paper of a value up to 8 cents a pound. The Underwood law admitted it free up to 5 cents. The recent great increase in price has robbed the old provision of its usefulness and operated to keep out of the country much paper that was originally intended to come in free. So the measure was prepared as passed. The hearings on the bill developed that considerable stocks of paper in Canada would be shipped to the United States were it not for the duty.

C. W. Blakeslee and Son, New Haven, Conn., have been awarded a contract for proposed alterations and improvements on the power plant of the National Folding Box Company at New Haven.

Further purchases by the government of forest lands in the Southern Appalachian and White Mountains to prevent future timber shortage is advocated by the National Forest Reservation Commission, composed of the Secretaries of Agriculture, Interior and War, and four members of Congress. The commission suggests that lands not suitable for agriculture—of which there are 30,000,000 acres in the eastern mountain districts —be used for growing timber. The government already has purchased 1,000,000 acres. An appropriation of $2,000,000 a year for five years was recommended.

Robert E. Magee, who had been experimenting for the last two years in the oil shale fields of Colorado, has discovered Germany's aniline dye secret in the shale which before the war was imported in great quantities from Colorado and Utah by Teuton dye manufacturers. Until Mr. Magee announced the results of his experiments no one seemed to know what the Germans were using this shale for. To a group of expert chemists and Colorado State Officials, Mr. Magee showed his apparatus for distilling oil from the shale. Then he showed the gaseous by-product from which was produced aniline dye of various colors. Articles colored with these anilines stood every test to which they were subjected. According to Mr. Magee, Germany's day as the nation supreme in dye manufacturing is past as Colorado boasts of enough oil shale for dye making to keep the world supplied for the next 500 years.

In the opinion of Dr. Helmer Key, chief editor of the **Svenska Dagbladet** of Stockholm, Sweden, who arrived in New York last week on a tour of North America, the export of newsprint paper from Sweden to the United States and Canada is likely to continue while it can be produced in Sweden at less cost than on this side of the ocean. Dr. Key said that the price of print paper to Swedish publishers has gone up noticeably due to the export trade.

Only Strict Curtailment Will Save Newspapers.

Nearly 400 newspaper publishers from all parts of the United States gathered last week at the Waldorf-Astoria Hotel, New York City, for the annual conventions of the Associated Press and the American Newspaper Publishers' Association. Conservation in the use of newsprint paper, in view of the growing dearth of this product, came in for more discussion than any other topic. Frank P. Glass, retiring president of the publishers' association, devoted much of his valedictory to the discussion of this crisis. He declared that unless there was further economy in the use of print paper the publishers would face a more serious situation next fall and winter than they had in the last six months. Mr. Glass urged the importance of carrying out to the letter recommendations made by this year's convention. He pointed out that the failure of many publishers in living up to last year's recommendations had considerable to do with the soaring prices of newsprint. The elimination of comic and other newspaper features for a while; side-tracking of the vast amount of material sent yearly to newspapers by publicity seekers, and a policy of turning down the advertising of non-essentials, were among the proposals made to meet continued paper famine conditions. The association's bureau of advertising submitted a report which placed the total of newspaper advertising in the nation at $150,000,000. It was estimated that the increase in national advertising among members of the bureau was 70 per cent, and that this was limited only by the scarcity of paper. It was also reported that the departments of the United States Government had spent from $1,675,000 to $2,000,000 in newspaper advertising. Before adjournment was taken the convention adopted a resolution by which the publishers expressed themselves as opposed to the forty-four hour week which some of the mechanical unions insist upon.

It is considered that since a newspaper, as a general proposition, is issued on at least six full days every week, the forty-four hour week is impracticable and unworkable. Immediate negotiations are to be entered into with union labor for the purpose of arriving at a settlement of all problems affecting newspapers. In another proposal it was resolved to request that when the Commission on Reforestation is appointed at Washington, with a personnel of five, its membership consist of one man from New England, one from New York, one from the South and one each from the central West and far West. T. R. Williams of the Pittsburg **Press**, was chosen president of the publishers' association to succeed Mr. Glass, and Frank B. Noyes of the Washington **Star** was re-elected president of the Associated Press.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, April 24.—The somewhat chaotic condition of the pulp and paper trade remains unchanged and although general prosperity marks every department there is still a wide gap between supply and demand to be bridged before the situation is restored to its normal status. The trade generally is yearning for a return to stable conditions where it will not be necessary to live from hand to mouth and where a jobber or a printer will not have to watch himself growing hoary with age, waiting for a shipment. At the present moment some paper users, realizing the futility of getting shipments within a month or two, are basing their orders on what they think will be their requirements three or four months hence, and, under the circumstances are well content to get their supplies then—which they may or may not. In the opinion of some, this mortgaging of the future has created an exaggerated impression of the actual shortage, but most of the dealers can point to depleted warehouses and urgent correspondence from customers in substantiation of their statement that there is nothing fictitious about the prevailing scarcity of practically all lines of paper.

There is no question that the raw stock situation presents an aspect in which shortage is a real and seemingly ever-present factor. For weeks past the paper mills have been under a heavy handicap for lack of material with which to keep their tonnage of output anywhere near up to the requirements. As a matter of fact at the present time the mills can't get quotations on raw material and what is procurable is taken into the mills at ever ascending prices. The first of next month, it is stated, will see all prices for the paper mill products withdrawn again and in the meantime very few shipments are being made at a pre-arranged price. It is pointed out that the Canadian pulp and paper mills and the Canadian forests have been cut off from a hitherto very acceptable auxiliary supply of raw material from abroad and that the elimination of the Scandinavian imports of pulp has imposed a burden on the Canadian pulp and paper industry that has been a leading factor in the present era of shortage from which the trade is suffering. As far as can be learned from the mill representatives in Toronto the resumption of import shipments from abroad need not be looked for for a long time to come.

In the meantime no transactions in pulp are being made except under contract for the reason that no one has anything to sell. Groundwood production both in Canada and the States is not anywhere near meeting the demand of the mills and the mill operators are in a state of perturbation at the ever-ascending prices they are being called upon to pay for their raw stock.

There have been no signs during the past week of a let-up in the shortage of paper whether for the use of the publishers, the job printers or the stationery and blankbook manufacturers. All declare that they have to deny themselves business through inability to get stock. There is still a great shortage of bookpapers and kindred lines, while box board users and stationery manufacturers are being badly handicapped in production owing to the prevailing shortage. It is quite apparent that the production of boards has not kept pace with the rather remarkable development of the paper box manufacturing business, possibly owing to the difficulty in getting raw material. As an illustration of the expansion of the paper container industry, a Toronto manufacturer pointed out that whereas a couple of years ago he used to send out a docket for the making of three or four thousand of a certain line of papeterie with the consciousness of taking a big plunge, now it is a common thing for the factory workers to be turning out fifteen thousand or more on instructions from the business office. The same factory will take you to an elaborately fitted up show-room where no less than 194 different lines of papeteries are on display and which the company's salesmen are now selling for next Christmas trade, in addition to the regular standard lines for use between the gift seasons. These facts shed some light on the great development the box board industry has undergone and they are more easily understandable when it is considered that the days are fast dying away when one went into a stationery store and asked for a quire of note paper. The bulk trade has almost entirely been supplanted by the papeteries or writing pads and Miss Shopper now selects her paper and

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envelopes with a view to having a neat handkerchief or glove box on her dresser after she has used the contents of the elaborately designed box.

While all paper dealers are extremely busy and are hampered by inability to get stock, Toronto paper houses have been affected this week to some extent by a threatened printers' strike. Job printing establishments were timid in their buying as a result of the unsettled conditions, although paper houses do not consider these conditions an unmixed evil, for it gives them an opportunity to fill some long-standing outside orders.

Business keeps up in all lines of Kraft, Manilas, tissues and kindred lines and although the same prices prevail as last week, further advances are looked for in some lines. Stocks in the warehouses are very low and in nearly all cases there are more orders in than can be filled.

In the waste paper market all grades of paper are in great demand but shipments have been held up on account of the embargo and the same may be said of the rag stock situation, although in regard to the latter class, as collections are not plentiful, the mills are still buying in considerable quantities.

Rag and Paper Stock Prices.

F.O.B. Toronto.

No. 1 shirt cuttings			19c
No. 1 unbleached cotton cuttings			16c
No. 1 fancy shirt cuttings			13½c
No. blue overall cuttings			13½c
Bleached shoe clip			15c
White cotton hosiery cuttings			17½
Light colored hosiery cuttings			13½
New light flannellette cuttings			13½
No. 2 white shirt cuttings			13c
City thirds and blues (repacked), No. 15			5¼
Flocks and satinettes			$3.75
Tailor rags			$3.75
Gunny bagging			4c
Manila rope			8c
No. 1 white envelope cuttings		$5.75	$5.25
No. 1 soft white shavings		$5.50	$5.00
White Blanks		$3.50	$3.25
Heavy Ledger Stock	$3.80	$3.90	$3.75
No. 1 magazine	$3.50	$3.27	$3.50
No. 1 book stock		$2.80	$2.50
No. 1 Manilas			$3.25
No. 1 print Manila			$2.00
Folded news		$2.00	$1.90
Over issue, news			$2.25
Kraft			$3.75
No. 1 clean mixed papers	$1.70	$1.65	$1.60

NEW YORK MARKETS

New York, April 24.—Only slight improvement has developed in the railroad situation this week and the local paper market continues to be characterised by an exceedingly tight supply condition. Jobbers and dealers are practically sold out, and, experiencing delays in receiving fresh shipments from mills, have little or nothing to offer to the trade. Buyers in consequence are up against a stiff proposition in covering their needs. The fact is most of them simply cannot get paper, because it isn't to be had in this market. Possibly never before have stocks of all varieties of paper been at the low level they now are in New York Scarcely any supplies have come in from manufacturing centres for two weeks, and in that time paper houses have disposed of virtually all the surplus lots that they were fortunate enough to have on hand. Now a virtual famine exists, and judging from the congested condition of railways, it seems hardly likely that any appreciable shipments will be coming forward from mills for some time, notwithstanding that the strike of railroad workers is believed to be at an end.

Only in one instance has the supply situation been relieved to even the slightest degree and that is as regards newsprint. Once railroads were enabled to resume the moving of freight they gave preference to newsprint, along with perishable products, with the result that local publishers of daily papers have received large enough shipments of print paper to permit them to issue papers of the same size as they were publishing prior to the transportation tie-up. At the same time, local stocks of newsprint are at a dangerously low level and publishers are feeling their way carefully and are conserving paper in every possible manner. It is not uncommon these days to be unable to buy certain papers at different periods of the day on the newsstands because of the fact that publishers are limiting the number of copies issued, with the result that there are not enough to supply all readers.

A significant development in connection with the newsprint situation was the resolution adopted by members of the American Newspaper Publishers' Association at their annual convention in this city this week to the effect that they would not consume any more print paper during the remainder of this year than they did during the same period of last year. This action would indicate that newspaper publishers are well aware of the serious shortage of newsprint and that they fully realize that the only way in which the present tight supply situation can be relieved is by bringing consumption and production more within reach of each other. The paper situation was accorded much attention at the gathering of publishers, and the retiring president of the association, Frank P. Glass, in his valedictory warned them that unless paper supplies were conserved to the strictest letter, the paper shortage would become infinitely worse than at present.

Under prevailing conditions, it is next to impossible to obtain definite prices on any kind of paper. Transactions in the open market are few and far between, and jobbers and mill agents frankly say they do not know what market values are because of the fact that they haven't available lots of paper with which to test out the market. Indications are that any figures within reason can be obtained for all grades, so anxious are buyers to get supplies. Sales of spot lots of newsprint in standard rolls have been recorded at 14 and 15 cents a pound, and there is talk now of news fetching as high as 18 cents. The situation is such that transient buyers are paying all manner of prices to cover their wants.

Mills have been seriously handicapped during the railroad strike, and few of them have been able to run at full capacity. Raw material shipments have been held up and outgoing shipments also delayed, with the result that the average manufacturer has been obliged to curtail operations at least to an extent. The loss of production incurred obviously is not going to help relieve matters as regards the shortage of paper, and buyers, evidently realizing this, are redoubling their efforts to cover themselves by getting orders on file with dealers or manufacturers. This makes for a very

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GROUND WOOD.—Demand for mechanical wood pulp is strong and is still fair in excess of afforded supplies. Consumers are searching in every direction for available supplies and are ignoring matters of prices when finding lots to be had. No sales have thus far been actually recorded at better than the high water mark of $110 per ton reached by prices last week, but there have been rumors of still higher figures having been paid, and in view of existing circumstances, anything in the way of prices seems not only possible but probable. With spring well on the way, when grinding operations automactically increase, there should be some relief afforded consumers in the form of a larger output of groundwood, but as yet there are no visible signs of any let-up in demand or of any softening of quotations. In fact, little or no pulp whatever is being offered in the open market, either for prompt or forward shipment, which would indicate that grinders are sold well ahead and are not in a position as yet to take on additional business.

CHEMICAL PULP.—The markst for chemical pulp is extremely firm and prices are gradually climbing to higher levels under a large demand, a good part of which is going unfilled. Dealers and importers in general tell of having practically no pulp to offer and such spot lots as find their way into the market are selling at record-breaking prices. Arrivals of Scandinavian pulps here are more or less of a negligible quantity and virtually all of it is sold before it is landed. Importers say that prices on the other side are at such high levels that they do not dare bring in supplies on their own behalf, and that even when they seek to buy for the account of paper manufacturers in this country the figures asked by Swedish and Norwegian producers are almost prohibitive. The Baltic is reported open for navigation and this should result in shipments to America increasing to some extent during the next couple of months. The probabilities are, however, that any added supplies that may come from this source will not be of sufficient volume to have influence on the market here because it is no hidden secret that consumers in the United States have bought far less pulp for spring shipment than they ordinarily do. Sales of domestic unbleached sulphite of newsprint quality have again been reported this week at 7 cents a pound at pulp mills, while domestic easy bleaching sulphite has sold at 8.25 cents, domestic kraft pulp at 6.50 cents and Scandinavian kraft on the spot here at 7 cents.

RAGS.—Trading in papermaking rags has been materially hampered by the difficulties in effecting shipments to mills, but despite the slow movement of supplies into consuming channels prices are well maintained and there is little selling pressure in evidence. Dealers as a rule are of the opinion that paper manufacturers, having used up most of their stocks during the railroad tie-up in the last several weeks, will come actively into the market when transportation conditions clear up, and are accordingly holding accumulations at firm prices. Some, of course, as would be expected under prevailing circumstances, are shading quotations in an effort to dispose of stocks, but this is more the exception than the rule, and prices have undergone but little, if any, actual change. No. 1 white shirt cuttings are quotable at between 18.50 and 19 cents a pound f.o.b. shipping points, No. 1 old repacked whites at from 12 cents upward, repacked thirds and blues at 4.50 to 4.75 cents and roofing rags at around 3.50 cents. Indications are that most packing firms have a good volume of unfilled orders from mills on their books, and if there is to be any decline in price it is unlikely it will develop until after these commitments have been supplied.

PAPER STOCK.—The waste paper market is possessed of a steady tone notwithstanding a slow movement of material toward mills at the moment. Local dealers and packers are managing to make shipments to nearby consuming plants but the aggregate movement of supplies is decidedly light, and, under different conditions than now prevail, would be inadequate to sustain values. Packers, however, are accumulating stock in the firm belief that a heavy demand for all grades will arise once the transportation situation clears, and are reluctant to enter into commitments covering future deliveries, presumably in the belief that higher prices will rule when they are able to ship. No. 1 hard white shavings are quoted at 6.25 to 6.50 cents a pound f.o.b. New York and No. 1 soft white shavings at 5.25 to 5.50 cents. No 1 heavy books and magazines are held at 3.25 to 3.50 cents, folded newspapers are around 1.75 cents and No. 1 mixed paper at 1.50 cents. Krafts and manilas are quotably steady.

OLD ROPE AND BAGGING.—There is a steady demand for old rope and No. 1 Manila rope is selling freely at 8.50 to 9 cents per pound at shipping points. There appears to be a large volume of mill orders in the market to be filled and consumers continue to inquire actively for additional supplies. Old bagging is in slack demand and prices are easy at a basis of around 3.25 cents a pound for No. 1 scrap bagging.

TURPENTINE

Turpentine is useful for thinning varnishes and paints, for removing paint from clothing and the skin, for cleaning floors.

It is not a reliable antiseptic and has no healing power.

Iodine is much better.

Don't use turpentine on wounds.—National Safety Council Health Service Section.

THE FIRST CHRISTMAS CARDS

The honor of the Christmas card is ascribed frequently to the late W. C. T. Dobson, an English painter, says an exchange. In December, 1844, a date earlier than that given to any other claim, he was anxious to send some more novel Christmas greeting than a letter to a friend, and the idea occurred to him to make a little sketch symbolizing the spirit of the season. The sketch depicted in its centre a family gathered around the Christmas dinner table raising glasses to the health of absent friends. Underneath were the words, "A Merry Christmas and a Happy New Year to You," while on each side was a smaller sketch representing an act of benevolence. Mr. Dobson's card so pleased its recipient that the following year he designed another card, of which he sent lithographed copies to a large circle of friends. Other artists followed his example, and the circle sending out Christmas cards grew wider and wider until an enterprising printer saw there was money in the business, and within a few years from its birth the Christmas card was to be seen in hundreds of shop windows.



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" " " 2170

CORRESPONDENCE SOLICITED.

HOW CHILDREN MAY HELP TO AVOID MOTOR ACCIDENTS.

Helen Hagarty, age 12 years, won the second prize in the younger children's class in the contest conducted by the Ontario Safety League. Her essay is in verse, as follows:

Stop, before you cross the street.
To and from the school,
On your way remember this,
Precious, golden rule.

Look up, then down,
On left and right,
One careless run
Kills many outright.

Listen for the motor,
In the night or morning,
Stop, and listen for its horn,
Take heed unto its warning,
Even when you're in a hurry,
Never cross streets in a flurry.

One is never too young or too old to begin thinking about being careful.

THE LOST MAN

Man is not a machine—at least, the American is not. All but the most stolid respond quickly to appreciation, and become discouraged if good work is not appreciated and if others, less experienced or less competent, are passed over them. The good foreman knows this and uses his knowledge to get the best work from his men.

Col Walter D. Scott, who developed the system used by the United States Army in selecting and placing officers and drafted men, states forcefully that "A lost man in industry today is a tragedy." A lost man is one who is not so placed that he can give his best efforts to his employer. Incidentally, misplaced men are more liable to accident injury and are a potential hazard instead of an asset. The sooner lost men are properly placed, the greater the efficiency of your organization both in production and in accident prevention.

Nothing tests a man more than his bearing toward his former friends after he has gained great honor and prosperity.

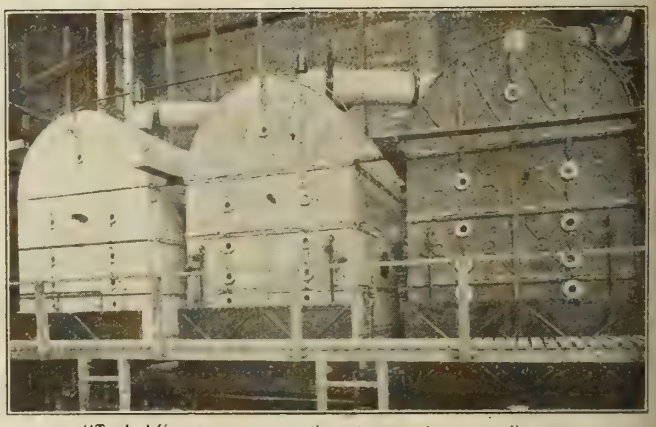
Circumstances are beyond the control of man, but his conduct is in his own power.—Disraeli.

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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Q., May 6, 1920. No. 19

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-:- EDITORIAL -:-

MILLS RETURN U.S. COAL AS PAPER.

In view of the suggestion of reprisals by the United States in the form of possible embargoes on coal and sulphur and oil to pay the provinces back for keeping at home the pulpwood cut on Crown lands, a few facts may be of interest. In 1917, according to the latest census of the pulp and paper industry in Canada that has been published, it is noted that approximately 16 per cent of the value of the fuel used in the pulp and paper industry in Canada was domestic production. About 875,000 tons of American coal were burned and with this coal there were produced 684,000 tons of newsprint, 115,000 tons of other papers, and something over 540,000 tons of chemical pulp, practically the only kind requiring fuel. Part of this pulp, about 200,000 tons, was made for consumption by the producer and is consequently included in the paper turned out, so that we get a net amount of pulp and paper requiring fuel of approximately 1,000,000 tons. This gives us the figure of just about a ton of coal per ton of product, since Canadian mines provided about 120,000 tons of coal. The seven-eighths of the coal consumption provided by American mines is therefore approximately the proportion of Canadian pulp and paper that went into the United States so we see that in a sense the coal imported from the United States went back again.

This is also true for a large part of the sulphur which is imported as well as the oil since Canada produces about 15 per cent of the oil consumed by her paper mills and some of the sulphur is imported from Japan. In view of these facts it would seem that it is not the part of wisdom for Congress to make it unduly difficult for the Canadian mills to supply American consumers of newsprint from the only available source of supply. The American people have shown unexampled resourcefulness in finding supplies at home to take the place of a potash, formerly obtained from Germany, saltpeter from Chile, and many other materials for which they thought they were at one time dependent upon other nations. They could have made themselves similarly independent of Canadian sources of pulp and paper had they chosen to take the obvious and logical measures.

A very commendable movement is in progress in the States for the release by large publishers of a part of their contract paper so that small papers that are on rock bottom may have enough to keep them going. It is a real sacrifice thus to play the Good Samaritan.

CUTTING MELONS AND SQUEEZING LEMONS.

Paper manufacturers were never in a better position to cut melons than at the present time and the prospects are that there will be a large and juicy crop for at least the current year. Another fruit, however, should be considered in this connection, and that is the humble lemon. There is no doubt about the sourness of disposition of many of the customers of the paper mills and the events of current times cannot be said to have a very sweetening effect. Up to a certain point the melon represents a fair exchange of useful commodities in a rather round-about way through a number of intermediaries. It happens at the present time that the large publisher is growing just as sweet and juicy a melon as is the paper maker from whom he gets his supply. There are, however, a rather large number, an unfortunately large number, of publishers who will gather lemons.

The paper manufacturer will usually admit that in spite of the hazards and difficulties of doing business at the present time he is able to make a fair profit. Most publishers undoubtedly are able to purchase supplies at a price which will continue to give the paper-maker a fair profit. Some of the larger publishers, however, find themselves in a position to profit handsomely by virtue of their opportunities for very greatly increasing the amount of advertising that is offered to them. In order to accept it they must have paper to print it on. There is not enough paper produced to supply the ordinary needs of the small publishers and the inordinate demands of the large ones, and the latter do not hesitate to corner all the print paper they can obtain whether actually needed for current use or considered necessary for possible future needs. The result is that the small publisher is gradually being forced to pay the price of the spot sales to the large publisher or go out of business. In some cases he is able to increase revenue slightly by increasing advertising and subscription rates. In Canada it appears that the government does not appreciate the value of the small paper, as the city papers are so subsidized by virtue of a ridiculously low postal rate that the big paper goes far beyond its natural field and threatens to exterminate the small local paper. It may be that some portions of the large daily are properly carried at low rates over a certain area, but it is preposterous to suppose that a merchant advertising in such a paper and doing a purely local business derives any advantage by having his announcement read one

hundred or two hundred miles away, although he is led to believe that he is benefiting by the large circulation claimed by the paper. It is shown that seven large dailies in Ontario have an outside mail circulation very greatly in excess of the number of papers distributed in the city. Further than this they sell these papers for very much less than the charge to local readers, which, of course, is not only a ridiculous situation but is an unfair practice tending to monopolize a field and put the small competitor out of business. The large daily is putting the small paper out of business, not only by means of employing the postal service but by cornering the supply of print paper.

The paper manufacturer is not simply an interested spectator of this affair but should be an active participant. Unfortunately, perhaps, he must take both sides. In the first place the big publisher is his best customer not only in regard to quantity consumed but in the ability to pay well and promptly. On the other hand there is an obligation which apparently most of our paper makers recognize, to see that the small paper gets necessary supplies. Clippings received by the editor state that there are cases where the manufacturer has expressed himself as not caring whether a publisher stays in business or not because he can sell his paper at a much better price across the line than the Canadian can pay for it. It is, of course, possible that there are some people of this character among the many mills of the Dominion but we are sure their attitude is not typical of the industry in Canada. It is exceedingly unfortunate that any of them should be guilty of such an expression as it reflects unfavorably on the many generously inclined manufacturers who have no desire whatever to see any Canadian publisher lack for paper. We believe that publishers themselves will admit that many of them have not been generous or even considerate in their attitude toward the manufacturers but the latter seem inclined to forget those times and do the best they can for their neighbors and their permanent customers.

The paper manufacturer of Canada, owing to the early removal of irksome restrictions on their business, will be in a position to dictate absolutely the terms on which they will do business. At present it seems that they will even be in a position to say whether and with whom they will do business. It will behoove them to act circumspectly and to endeavor, even at some temporary sacrifice to accomodate the Canadian publisher. Most of the manufacturers are apparently of this attitude, and it will be unfortunate if any useful Canadian paper shall have occasion to point to a papermaker and say, "He put me out of business by refusing to sell newsprint to me, preferring to have it wasted by the larger publisher across the line."

Some people get cold feet when they get into hot water.

THE TECHNICAL MAN'S AUTHORITY.

A recent letter to the editor, which was published in the Pulp and Paper Magazine for April 1st suggests rather pointedly the need of the technical man and the fact that his department is not so much one of administration as of direction and advice. There are some who do not agree with this but believe that the technical department is a higher grade in the organization of the mill than the operating department and that the pill rolled in the laboratory should be swallowed without question by the beater man, cook or machine tender. We personally believe that these departments are co-ordinate and should be joined in mutual understanding and co-operation through the administration end. A frank discussion would benefit the industry. Send in your views on this matter. Names will be withheld if desired.

COBWEBS.

May day was a pleasant surprise to many who had anticipated a "Red" sunrise and a storming day. Perhaps it was the rain that dampered their spirits, but we are inclined to think the lack of revolutionary demonstrations was rather an expression of the common sense of the common people.

We are glad to see that the office of the Canadian Pulp and Paper Association has taken the hint and changed the abbreviation of manufacturers from the old style 'mfgs' to the more modern 'mfrs.'

Among the cabbages and cats sent in, we occasionally find a bouquet. It was gratifying to get the following from a correspondent in Belgium to a friend of ours:

"Judging from articles which I have seen reproduced from the Pulp and Paper Magazine in England and Continental reviews, this magazine seems to be one of the most interesting of its kind."

England's quartette, representing Cambridge and Oxford Universities won the two-mile intercollege relay race at Philadelphia last week, setting a world's record of 7.50 2-5. Our hat is off to Messrs. Tatham, Stallard, Mulligan, and Rudd. Rudd was anchor man and ran the half mile in 1.54 2-5. We did it in 2.13 once.

Speaking of sports, that 26-inning game at Boston gave the fans their money's worth.

If Senator Underwood will come north with the commission his Resolution calls for, he will learn a few things he should know about the relative authority of Dominion and Provincial governments. He will also learn that Newfoundland is **not** a province of Canada. Another of his vague conceptions, as shown by remarks at the hearing last week, is that pulp wood and wood pulp are synonimous.

Underwood Resolution Generally Supported in U.S.

(Special report to the Pulp and Paper Magazine).

THE UNDERWOOD RESOLUTION.

Committee Hearing.

Washington, D. C., April 27, 1920.—The House Committee on Foreign Affairs gave a lengthy hearing yesterday and today to a number of persons interested in securing favorable action by the House upon a resolution dealing with Canadian pulpwood, introduced in the Senate by Senator O. W. Underwood of Alabama, and already pased by that body. It has since been favorably reported by the Committee to the House. The resolution reads as follows:

Senate Joint Resolution 152.

Introduced February 2, 1920, by Senator Underwood, of Alabama.

Referred to the Committee on Rules.

Authorizing the appointment of a commission to confer with the Dominion Government or the Provincial Governments of Quebec, Ontario, and New Brunswick relative to the claims of the American interests now holding leases of Crown lands acquired prior to the passage of restrictive orders-in-council of the said Provinces.

Whereas, newsprint paper is a commodity of universal use and is indispensable in the educational process of modern civilization, and the paramount importance of a sufficient production of newsprint to supply the needs of the press of the United States is a self-evident proposition; and

Whereas, practically the whole content of newsprint is composed of mechanical and chemical products of pulp wood, the supply of which in the eastern part of the United States is being rapidly exhausted by the growing demand, and the price of which is being advanced to unprecedented levels; and

Whereas, the existing scarcity of pulp wood and its threatened total exhaustion in the United States has become a matter of such grave concern to the paper industry, the users and the manufacturers of forest products, the Federal Government and the general public, that the Forest Service, the lumber and pulp and paper associations and the forestry authorities of the country are now formulating a broad and comprehensive national forest conservation and reforestation plan for early adoption; and

Whereas, prior to the year 1910 American paper producers purchased and acquired leases of Crown lands in Canada for the purpose, with the knowledge and consent of the respective Governments of these wood-land provinces, of cutting the wood on said leased limits and shipping it to their paper mills in the United States; and

Whereas, said leases by statutory provision conveyed to the lessees " all rights of property" to the wood cut on said limits, and American interests, confident of their rights so conveyed to them, did invest large sums of money in building piers, dams, and booms in the rivers flowing through their limits and in the erection of taking-out, wood-preparing, and shipping plants, and for many years, to wit, from about 1890 to 1910, particularly in the Province of Quebec, did cut the wood on said limits and ship it to their mills in the United States in large quantities, with full knowledge and free consent of the Provincial Government, and in strict accordance with "all rights of property" to them by statute conveyed, and during the same period did pay to the Provincial Government all prescribed fees and rentals; and

"Whereas, in the year 1910, the Lieutenant-Governor of Quebec in council did issue an order prohibiting the exportation of pulp wood cut from Crown lands unless manufactured into lumber, pulp, or paper, thereby invalidating the rights of property by statute conveyed, and doing grievous and irreparable injury to said American interessts by making valueless their large investments in river improvements and wood-preparing and shipping plants, and by depriving said American interests of the wood to which they had been conveyed all property rights; and

"Whereas, said American interests did acquire and now hold leases of approximately ten thousand square miles of Crown lands in the Province of Quebec, being but 6 per centum of the wooded area of said Province, on which they have regularly paid all prescribed fees and rentals, which said area contains standing pulp wood estimated to aggregate about thirty-two million cords, the annual growth and increment of which is estimated to amount to about one million two hundred and eighty thousand cords, or, if available for the use of American interests which own the leases of said ten thousand square miles of woodlands, sufficient in annual yield to relieve the present scarcity and prevent threatened exhaustion of pulp wood in the eastern part of the United States, to lower the cost of the raw material of the American newsprint industry, and to stabilize the price of newsprint paper to the consumer, besides assuring an additional supply of raw material that would justify investments for increased production and affording the relief needed while awaiting the results of a national policy of forest conservation and reforestation; and

"Whereas, the press of the United States, through its national organization, the American Newspaper Publishers' Association has adopted resolutions urging such action by Congress as will restore the property rights of American interests to the wood on their leased limits in Canada and particularly on the ten thousand square miles of Crown land limits in Quebec, by them leased, and thus provide the raw material needed by American mills; and.

Whereas, similar restrictive orders in council are in effect in the Provinces of Ontario and New Brunswick.

Now, therefore, be it

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled. That the President of the United States be, and he is hereby, requested to appoint a commission of five, and by appropriate authority, to confer on this commission the right, on behalf of the Administration and the Congress to present to the Dominion Government or the Provincial Governments of Quebec, Ontario, and New Brunswick, as may be proper, the claims of the American interests now holding leases of Crown lands acquired prior to the passage of the several restrictive orders in council of the three Provinces aforesaid, and to negotiate with said Dominion Government, or with said Provincial Governments, the cancellation of said restrictive orders in council as they apply to Crown land leases acquired by American interests prior to the passage of said restrictive orders.

Sec. 2. That in the event the cancellation of said restrictive orders in council can not be agreed to by mutual arrangement of the Governments of the United States of America and the Dominion of Canada, that said commission shall investigate, consider, and report to the Congress what action should be taken by the Congress that will aid in securing the cancellation of said restrictive orders in council, or their modification so that they may not continue to militate against the interests of the people of the United States who are now affected by them.

Sec. 3. That for the necessary expenses of said commission the sum of $50,000 be, and it is hereby, appropriated from the moneys in the Treasury of the United States not otherwise appropriated.

The hearing was attended by some 50 or more representatives of American pulp and paper companies, as well as by committees representing the American Newspaper Publishers' Association, the National Association of Periodical Publishers, the Inland Press Association and various other kindred organizations.

Among the paper manufacturers who had representatives present were the following:—

New York and Pennsylvania Co., West Virginia Pulp and Paper Co., Oxford Paper Co., Crocker, Burbank and Company Association, S. D. Warren Co., Kimberley-Clark Company, Highland Paper Company, Fitchburg Paper Company, Imperial Wall Paper Company, William Campbell Paper Company, Hobbs Paper Company, Lincrusta Company, Imperial Paper and Color Corporation, Underwood Paper Co., American Writing Paper Company, Finch Pduyn Company. Consolidated tal Paper Bag Company, Taggarts Paper Company, Union Bag and Paper Company, St. Regis Paper Company, Racquet River Paper Company, Newton Falls Paper Company, Finch Pruyn Company, Consolidated Water Power and Paper Company, Bedford Pulp and

Paper Company, York Haven Paper Company, International Paper Company.

A great deal of acrimony was displayed throughout the hearing towards the Dominion of Canada and the Canadian paper manufacturers. It was asserted, in all seriousness, by representatives of the American paper manufacturers that the sole object actuating the provinces of Ontario, Quebec and New Brunswick in placing restrictions upon the export of pulpwood cut from Crown lands in those provinces was **to injure and destroy the United States paper making industry** and that it had been inspired by "a group of Canadian manufacturers interested in maintaining a high level of manufacturing costs in the paper mills of the United States."

It was argued throughout the hearing that the removal of restrictions from the use of pulpwood cut on Crown Lands in Canada would result in cheaper and more abundant paper for the publishers of the United States, and that during the proposed process of stripping Canadian Crown lands of their pulpwood for the benefit of the American paper manufacturer and newspaper publishers Canada would derive an immense benefit therefrom through "the improvement of the rivers, the building of camps, the constructing of taking-out and wood preparing plants and the recruiting and employment of lumbering crews" which, it was asserted, "would yield so great a harvest to labor that the provinces would begin an era of unending prosperity"! "Moreover," it was asserted, "the army of men that would be employed in the bush would provide **at all times** effective forces for fighting forest fires," the fact apparently being overlooked that the cutting season and the fire season in Canada do not synchronise.

The Committee accepted what was offered without dispute. They did not enquire into the truth of the claims set before them. They asked no questions as to relative conversion costs of making paper in the two countries, nor did they bring out any evidence showing how it is proposed to **cheapen** the price of newsprint paper by taking the raw material from the country best adapted to its manufacture to a country where, the American authorities themselves claim, conversion costs are very much higher.

The Committee gave some consideration to the legal aspects involved, particularly in respect of the jurisdiction of the Dominion Government over tariff matters and of that of the provinces to control their own natural resources, and expressed some doubt as to the power of the proposed Commission to deal directly with the several provinces. A queston was also raised as to whether the State Department of the United States was not fully competent to deal with the subject and whether the dispute was not one coming solely within the province of that department to deal with. Nevertheless, **the attitude of the committee was palpably on the side of the petitioners,** and while no announcement was made the implication was plain that the committee, if convinced that no legal obstacles intervene, is strongly inclined to report favorably upon the resolution and will probably do so. (A later report confirms this). Some of its members expressed doubt that the President would appoint such a commission even if the House concurred with the Senate, in passing the resolution.

Meanwhile, it was announced, a committee to represent the various interests present at the hearing in carrying on further proceedings to bring about the desired action was named. This Committee is comprised as follows: P. T. Dodge, W. E. Haskell, T. R. Williams, H. C. Hotaling, A. J. Baldwin, W. E. Carpenter, J. S. Parker and Samuel Williams, with Joy Maurice as secretary.

This committee was accorded an interview with the Hon. Bainbridge Colby, Secretary of State, who will be recalled as having been employed as special counsel to prosecute certain Canadian and American papermakers in 1917 on a charge of violating the Sherman Anti-Trust law. The Washington Post of April 26th reports this interview as follows:—

"Secretary of State Colby found himself yesterday confronted with the so-called Canadian trade question, which bids fair to call for unusual diplomatic tact, and will undoubtedly necessitate the most painstaking and thorough work before it is settled. The immediate pressing question concerns the embargo which Canada has placed upon the United States. These restrictions spell possible acute shortage of newsprint paper and consequently are of interest to every newspaper and every book or magazine publisher in the country.

"Representative Stephen G. Porter, chairman of the foreign affairs committee of the House, with a delegation interested in keeping up the paper supply, had a long conference with Secretary Colby yesterday afternoon. They pointed out the seriousness of the matter, and Mr. Colby told them they could count upon the State Department to take cognizance of the situation.

"Mr. Colby said later he was not in a position to discuss the matter, as it was in the process of negotiation. It was learned, however, that Canada's attitude on the wood pulp question may not be easily changed. The difficulty only serves to emphasize at this time the very unsatisfactory trade relationship now existing between Canada and the United States.

"It is probable that this paper question may be taken up in conjunction with a more general adjustment of commercial relations between the Dominion and the United States. There are some products from the United States which Canada desires to procure under favorable conditions, and it may be that adjustment of the pulpwood embargo will be conditioned upon concessions made along other lines. Anyway it seems that too much time must not be lost and direct negotiations between the United States and Canada may be carried on."

The proceeding before the House Committee on Foreign Affairs opened with a statement by Senator Underwood, father of the resolution, who accused Canada of bad faith in connection with the reciprocity proposals of 1911. The senator told the committee that the life of the American paper-making industry and the welfare of the American newspapers depended upon the removal of the restrictions on pulp wood cut from Crown lands in Canada He said of Canada "She wants to take all we will give her and give us nothing." The senator was perfectly frank in interpreting the meaning of the second clause in his resolution.

"The Commission," he said, "is to find the most effective 'big stick' we can lay on their necks in case they refuse."

The Senator made frequent references to the employment of "the big stick" and said he favored "strong-arm methods" in dealing with Canada, and also that, "unless we use the strong arm nothing would be accomplished."

"The 'big stick' is the real thing in this resolution," insisted the Senator and in this he was backed up later by Congressman Treadwell and others.

Col. W. E. Haskell, of the International Paper Company, endorsed this view to the extent of saying that "with a group of Canadian manufacturers interested in keeping a high level of manufacturing costs in this country a stick behind the back is a good thing to have." When some one suggested approaching Canada in a conciliatory spirit, a member of the com-

mittee replied, "Be conciliatory, but carry a club."

Several of those in attendance made suggestions of cutting off Canada's imports of coal, oil, sulphur and other commodities, while members of the Committee talked in a general way of the adoption of a "retaliatory tariff" as a "coercive measure." One favorite suggestion was to place a prohibitory duty upon eggs and other Canadian "farm truck".

Arthur J. Baldwin, representing the National Periodical Publishers of the United States, approved strongly of the "penalty clause" in the Underwood resolution and proposed that Congress bring "economic pressure" to bear upon the Dominion in order to bring Canadians to their senses in the matter of pulp wood. (A casual attendant at the hearing who didn't know that Canada was under discussion could easily have gained the impression that the Committee was dealing with some country with whom the United States had recently been at war.)

It was Mr. Baldwin, too, who advanced the somewhat unique economic argument. "We don't need Canadian dollars," (overlooking the fact that "we" are now getting Canadian dollars at the rate of approximately $800,000,000 a year and giving in exchange for each of them goods of a value of only 90 cents or less), "and that if Americans were allowed free access to Canadian pulp wood it would enable Canada to overcome its unfavorable trade balance with the United States!"

Mr. Baldwin and some of the other speakers told the Committee that they would be willing to see the American market made as free to every grade of paper and pulp made in Canada in exchange for the unrestricted right to import pulp wood as it is now to newsprint.

Col. W. E. Haskell, of the International Paper Company, read a prepared statement, printed copies of which were circulated about the room. It was entitled "The Underwood Resolution—a Measure to Supply Raw Material for American Newsprint Mills, to Increase Production, and Lower and Stabilize the Price to the Consumer." The statement is lengthy and will have to wait till the next issue of the Pulp and Paper Magazine.

In answer to questions, Col. Haskell told the Committee that the restrictions upon pulp wood in Canada were imposed at the behest of manufacturers who wanted to keep the selling price high. He said that **no legal remedy** had been found but that, "we can refuse Canada coal and sulphur," and that Canadian paper manufacturers also got their supply of China clay from the States. He said that the imposition of the restrictions upon the exportation of pulp wood from the Crown lands of Quebec had caused an immediate loss to the American paper manufacturers of between two and three million dollars.

During a discussion of the legal issues involved, Chairman Porter of the Committee asked Col. Haskell to have a brief prepared for the Committee dealing with the power of the proposed commission to negatiate with the individual Canadian provinces.

Col. Haskell gave the committee information as to the extent of the pulp wood now being imported into the United States from freehold and other land in Canada, which he placed at $1,000,000 cords a year.

He referred to various editorial articles in a number of American newspapers urging "tariff retaliation" against Canada on account of the provincial Crown lands regulations and said, "I believe in that kind of retaliation."

The question arose as to whether Canada, by permitting the exportation of wood pulp, did not reasonably meet the situation, and also as to whether the importation of paper stock into the States in the form of ground wood rather than in the form of logs was not the more advantageous The Committee were informed that the importation of pulp did not meet the situation owing to its present high price It was also contended that logs could be transported cheaper than pulp. The fear was also expressed that Canada might at any time extend the "embargo" to take in pulp as well as logs.

A number of publishers' representatives were called upon. All of them said they supported the resolution in the belief that if pulp wood were freely imported into the United States from Canada newsprint and other paper would be cheaper and more abundant.

A very long discussion followed upon the reasons for the present inadequate supply of newsprint paper and its alleged excessive price, particularly in the "spot market."

The publishers all admitted that the present inadequacy of newsprint supply **is due solely to the excessive demand for advertising space in the newspapers.** Some of them traced this excessive demand to the operations of the excess profits tax law; others admitted that this feature had a bearing but denied that it was solely or even considerably responsible. People just wanted to advertise, that's all, and **were willing to pay almost any price for the privilege.**

One publisher said that his efforts to restrict the consumption of newsprint by increasing the selling price of the newspaper had had a contrary effect to the one sought in that the **circulation went up with every increase in price.**

Considerable attention was devoted to the situation of the smaller publishers who are said to be obliged to obtain their supplies through jobbers in the open market. It was stated that the open market price had risen lately to as high as from 15 to 18 cents a pound.

Unsuccessful efforts were made by the Committee to trace the source of this high-priced paper.

One publisher said that in his opinion the high "spot market" price was due to the fact that certain big publishers overran their contract commitments and went into the market to buy their additional requirements, offering to pay any price at all for any available paper, thereby making it impossible for small consumers to buy at a reasonable price.

Various other explanations were also given.

The chairman having stated that he had received an anonymous communication to the effect that part of the high-priced "spot" paper had come from the International Paper Company's Mills, Mr. Dodge put in a vigorous disclaimer for that company and denied that any of its paper was being delivered to "profiteering jobbers."

Mr. William J. Pape, a newspaper publisher from Waterbury, Conn., submitted to the Committee a letter he had received from the jobbing house of the O'Mera Company of New York offering various lots of paper for immediate or May delivery, amounting to approximately 800 tons, at from 14½ to 14¾ cents net f.o.b. mill. Another publishers' representative said he could supply at least a score of similar letters and gave the Committee a long list of names of jobbers who were said to be offering newsprint at extremely high prices.

Mr. John D. Hurlz, who said he represented a group of Wisconsin mills who got their wool supplies from Wisconsin, Upper Michigan and Minnesota declared that many mills in that part of the country had ceased to make newsprint because of the scarcity of raw material. Subsequently he gave figures showing that several of these mills had been diverted to making book, wrapping, writing and other grades of paper, on which the returns, up till recently, had been more adequate.

In reply to a question of the chairman as to why the paper manufacturers had waited ten years before protesting the Canadian wood-cutting regulations this witness admitted that the present agitation was due to **the depletion of American supplies of pulp wood and the dwindling supply at present available from freehold lands in Canada.**

During the hearing, Chairman Porter of the Committee read into the record part of a statement which he said had been furnished by the State Department, based upon consular reports from Canada, said to indicate the Canadian attitude towards the pulpwood question. He said he did it especially to direct attention to the fact that there is talk in Canada of extending pulp wood restrictions to freehold as well as Crown lands. None of the statements so read had any official status so far as Canada or any of the provinces are concerned. E.B.

COST ASSOCIATION CONVENTION.

The Convention of the Cost Association of the Paper Industry will be held at the Hotel Cleveland, Ohio, May 17th and 18th, 1920. This Convention is of special importance to the Executive of the Paper Industry.

Their personal interest and active support is urged in order that they may profit by the work of the Association and enable it to obtain maximum results, which can only be obtained through them. The meeting is not limited to members of the Association but is open to all interested in the Paper Industry.

The complete cost accounting systems of the American Writing Paper Company, Chemical Paper Mfg. Co, and The Eastern Mfg. Co. will be on exhibition during the convention, and each of these systems will be in charge of competent persons to explain any and all details in connection therewith.

There will be during the convention several addresses by capable and experienced men. These addresses will be very entertaining and will cover problems of vital interest to the Industry. Discussion of all questions from those in attendance will be one of the features of the convention.

Representatives of the Board, Book, Cover, Tissue, Wrapping, Writing, Toilet Paper, Binder Board, and other branches of the Manufacturing Industry, as well as Converters of paper, will conduct separate group meetings for the purpose of discussing problems peculiar to their respective lines.

There will be a dinner on the evening of May 18th. This will be an informal affair and the charge will be $5.00 per cover. Please be sure to notify, as soon as possible, J. M. Allen, Sec'y-Treas., Cost Association of the Paper Industry, 18 East 41st St., New York City, as to the number of reservations desired.

Mr. Henry E. Surface, Valuation Engineer, U. S. Bureau of Internal Revenue, will address the convention on the questionnaire recently issued to the Paper Industry.

AN ALLOWANCE ON CARLOADS OF WET PULP

Mr. G. P. Ruickbie, Freight Rates Department, C.M.A., has sent the following letter to members of the Canadian Pulp and Paper Association:

Dear Sirs:—For a number of years past, the Eastern Canadian railways have made provision in their tariffs, that carload shipments of Wet Woodpulp would be given an allowance of 1,000 lbs. per car, from the actual weight to cover variations, caused by absorbtion of moisture, etc. Tariffs cancelling this and other allowances, were filed by the railways, to become effective May 1st, 1911, but on complaint from the Canadian Manufacturers' Association and others, the tariffs were disallowed by the Board of Railway Commissioners. Subsequently exhaustive hearings were held and voluminous evidence presented by both sides resulting in the old tariffs remaining in effect up to the present time.

The railways, however, have been pressing the Board of Railway Commissioners for a revision of their track scale allowances, and the Board finally issued their General Order 283, on February, 1920. The effect of this order has been to give the railways power to cancel some of the allowances mentioned, among others, that of 10,000 lbs. for Wet Woodpulp.

The tariffs of the different lines in Eastern Canada have been amalgamated into one issue, which is publised by Mr. G. C. Ransom, Chairman, Canadian Freight Association, his tariff No. 14, issued April 20th, effective May 25th. Under this tariff the allowance above referred to will be discontinued on the date mentioned, and carload shipments of woodpulp will be charged the actual weight at time of scaling, except that foreign matter, not part of the lading, such as snow, ice, manure or refuse, which may be in or on the cars, at the time of weighing should be made allowance for by the weighman.

Members interested, should make application to Mr. G. C. Ransom, Chairman, Canadian Freight Association, Montreal for a copy of the new tariff, as in addition to eliminating the previous regulations governing track scale weights.

PAPER LOWER IN CANADA, HIGHER IN U. S.

Boston, May 1.—New high prices were paid for newsprint during the month of March, the contract average on business involving more than 1,000,000 tons yearly, being 4.577 cents a pound as compared with 4.533 cents in February. This applied to domestic business. The Canadian average on the other hand, dropped from an average contract price of 4.569 cents in February to 4.556 cents in March. This price applied to contracts calling for delivery of more than 300,000 tons annually.

Standard news rolls sold much higher than the contract price, however, on outside business involving the domestic purchase of more than 8,000 tons. This business averaged 8.797 cents last month against 7.997 cents in February.

Newsprint production has been increased as much as possible in an effort to meet the requirements of the country's newspapers. This has resulted in an output of 371,745 tons of newsprint during the first quarter against 334,148 tons in the same period last year. Standard news production also rose, the three month's total being 339,451 tons against 304,723 tons last year.

"Don't run your engine in a closed garage. Open the doors," says the Safety League.

Building a Payroll of Capitalists

Where Paper-Makers Own Stock in the Mill.

By F. H. MACPHERSON.
(President, Detroit Sulphite Pulp and Paper Company)

When so much is seen in print, these days, of bonus systems, profit-sharing, and other schemes from candy to steel, it is a simple pleasure and satisfaction to have such an assortment as this from a firm in the pulp and paper industry that has accomplished a considerable degree of well-earned success in "making men better their jobs," as R. B. Wolf expressed it

Here is our situation: we are tucked away in the heart of Detroit manufacturing district. A mile distant are Henry Ford's blast furnaces. Down the street is a giant shipbuilding plant. Other big factories lie to the right and left of us and up and down the street. Jobs are plentiful. Wages are high. Men are comparatively scarce. The men we employ for many of our jobs are foreign born, and, normally are as uncertain from the standpoint of dependability as any body of workers picked for any kind of industry anywhere in the country.

Under these circumstances I think you will agree that a high labor turnover, deficient production, and constant labor dissensions would logically be expected in our business. Such is not the case. Our labor turnover is rapidly decreasing. Two years ago it fluctuated around 200 per cent. In the last six months of 1919 it was 90 per cent for our entire plant, and 3½ per cent for a group comprising between 55 per cent and 60 per cent of our employees. Production is higher than ever before, the output of a paper mill is spoken of in terms of tons; we have never been considered a 60-ton-a-day mill, but recently for an entire week the men maintained an average daily production of 62½ tons. As for labor dissensions, they do not exist.

All of these results I attribute to a plan which I am going to describe—not because I consider it in any sort of way as a panacea, for that would be foolish, but because it has developed so successfully in our plant that I think the idea or principle on which it is based must be fundamentally right.

The principle is simple. It is really a fact in human nature; other things being equal, the man who owns property is a better citizen than the man who does not; correlatively, the man who owns property in the business where he works is a better employee than the man who does not.

Our thought therefore hinges around building a payroll of capitalists. For years I have given much thought to bringing about a better understanding between the employer and the worker. And we have not arrived at our present plan without difficulties. I have tried other plans and let them fail outright. We have had a strike—but that is fortunately forgotten. There was a time, and not too remotely in the past, when the air used to be charged with antagonism—if one foreman wanted something from another foreman, he was probably told on broaching the subject to "get the hell out—I'm running this department!" The same attitude was retained for the management. It used to be that when I walked through the plant, the men turned the other way if I looked as though I intended to speak.

When I first began talking to the men in groups, as I occasionally did, there was no handclapping when I finished.

A Plan That is Bringing the Best of Results

All that is changed, due to patient work extending over a considerable period. I do not presume to set up a hurdle that another employer can jump over and thereby instantly arrive at a solution of his industrial problems. The management's plan and the manager must both be fitted to the job. Personality has a good deal to do with the success of any plan, I am convinced. But personality cannot carry through alone. There must also be an adequate plan.

This brings me specifically to what we have worked out. In August, 1917, we amended our articles of association and provided for $500,000 of employee's participitating preferred stock, in addition to our $2,000,000 of common stock. At the stockholder's meeting at which this was done every share of common stock was represented, and every share voted in favor of the new stock issue. At that time our common stock was $100 per share. We reduced the par value to $10 so that the employees' stock could be issued in $10 units.

There was a bit of psychology involved in doing all this. An employee who would tell his neighbor that he owned a share of stock in the company he worked for would perhaps arouse the comment, "Shuchs! you don't amount to anything in that business." But he is a bigger pumpkin if he owns ten shares.

The fundamentals upon which our plan is predicated are:

1. That the employee shall share equally with the employer, financial responsibility, above the 6 per cent cumulative dividend upon his investment.
2. That the employee shall pay in full for his stock just as does the employer.
3. That further participating dividends will be paid to a holder of employee's stock, dependent upon the earnings of the company on its invested capital; that is, capital and surplus.
4. That the dividends which the employee receives shall be at all times at least equal to the dividends paid to holders of common stock.
5. That length of service merits special consideration, which it receives under the plan here in effect.
6. That the holder of employee's stock shall be assured of a ready market for his stock at a price which will guarantee him against loss on liquidation, if for any reason he sees fit to quit the employment of the company or is dismissed.
7. That such stock ownersip shall at all times be confined to employees of the company.
8. That the plan shall be sufficiently broad to cover every employee who may after a short probational period, wish to take advantage of it.
9. That an employee reaching the age of 60 years

*From System, 1920.

and who has been twenty-five years in the service of the company may have the equivalent of a pension, which shall be derived from his stock ownership, but which is in fact, the result of thrift and unbroken service.

It goes without saying that any plan of this kind must be predicated upon the payment of a fair day's wage for a fair day's work.

Now, mark you, the employee pays 100 cents on the dollar for every share of stock subscribed. The payment may be arranged on an instalment plan satisfactory to the subscriber, and he is allowed interest on his partial payments.

Once, in a previous business I decided to pay every employee at the end of the year a 10 per cent bonus of his year's salary if conditions warranted it. The first year every man-jack came in and thanked me for the welcome addition to his worldly goods. Along towards the middle of the second year the people began to inquire whether they would get their bonus when the year was up. Naturally, I could not give them any assurance that they would, and a certain amount of dissatisfaction resulted. At the end of that year when we did declare the bonus, only six people thanked me. The third year only two thanked me!

I do not mean to imply that I thought I should be thanked. In my thoughts I had put the bonus payment strictly on a basis of giving something as an incentive to get an adequate return. The point I am making is that after the novelty had worn off, the incentive value ceased. The employees came to accept the bonus as something they were fully entitled to on the basis of present efforts. They spent the money before they got it. I gave that experiment up as a bad job after three years' time. Out of this and similar experiences has grown my belief in and dissatisfaction with all types of payment to employees not springing directly out of what they have earned through their labor, or have paid for out of their own pockets.

Between October 1, 1917, when our present plan went into effect, and October 1, 1919, with an everage of about 400 employees, over 50 per cent of the employees became stockholders. At the present time the number is between 55 per cent and 69 per cent; and I see every reason to believe that in time we shall enroll between 80 per cent and 90 per cent of all employees as partners and part owners of our business. Little need to point out how desirable this will be.

Is it not logical and desirable that something like this should take place? Taking their holdings dollar for dollar, the employee stockholder is more of an asset to the business than the outsider. The former has a double interest in the welfare of the business—his salary and his dividends; the latter is interested only in dividends.

To date dividends have been paid ranging from 10 per cent to 15 per cent, dependent upon the net earnings of the business and the length of service of each stockholder. These dividends are paid by check every two months. The employee has thus a constant reminder of the benefits of stock ownership, and, the use of the income. The employees tend to become pretty good salesmen of the plan among their fellow-workers. Each stockholder is likely to show his dividend checks around, and to comment on his advantage from being one of the owners.

No employee can become a shareholder until he has been at least six months with the company. By that time he knows whether ours is the sort of company he wants to tie up with permanently—and we, in turn, have had time to decide if he is the right kind of employee to have as a permanent partner.

The maximum of stock for which an employee may subscribe is 20 per cent of his annual earnings; but he may subscribe up to 20 per cent each year. This percentage is more or less arbitrary, having been based upon the idea that the remaining 80 per cent should be devoted to the support of the family or other home purposes.

Provision is also made so that stock ownership acts in part as a pension in cases where the employees have reached the age of 60 years, and have put in 25 years of service with the company.

A natural inquiry at this point will be, why should the holder of employee's stock be assured a ready market at a price that would guarantee him against loss should he leave the employ of the company or be dismissed? My answer is:

1. The class of stock does not carry with it the privilege which common stock possesses: namely, the advantage arising through increase in market or sale price growing out of unusual earnings, or for other reasons;

2. The privilege of public disposal is denied;

3. Lastly, and most important, "fear of loss," which would have the effect of reducing efficiency of service, is removed.

There is no reason in my mind but that the time will come, after complete confidence between management and worker has been fully restored, that the worker will be quite satisfied to buy common stock. Meanwhile it is important that special recognition be given to this question of guarantee.

The stock is non-negotiable and non-transferable. For this reason and because of the further fact that it would be unfair to restrict the use of the stock for borrowing purposes, without providing a means of financial assistance should it be needed, the company undertakes if, on account of illness, death in the family, or for other sufficient reason, a holder of this stock finds himself in need of a temporary loan, to arrange the loan upon application to the treasurer of the company. The stock is pledged as security. Interest is charged at the current bank rate and the loan is paid off in instalments as may be agreed. Whatever dividends are earned by the stock during the period of the loan are regularly paid to the owner. This plan makes the stock readily available, and relieves the preferred stock owner of paying exorbitant interest.

The company reserves the right, at the option of the board of directors, to redeem any or all of the preferred stock, and to select the specific shares for redemption at $13 per share, if the holder of the shares to be redeemed is then living, is over 60 years of age, and has retired after 25 years' service; at $11 per share if the holder is then an employee of the company, or if his employment has been terminated by his natural or accidental death; and at $10.00 per share in every other instance. Thus an employee's stock, in case of his leaving, or being discharged, is "called" promptly and retired at $10.10 per share, plus dividends accrued to the date of the call.

When the aggregate amount of stock subscribed by employees reaches a reasonable sum we intend to have the employees select one of their number to represent them upon the board of directors.

Following the annual meeting of the company, a meeting of the employees holding participating preferred stock is called, a statement made to them of the year's operations—and the disposition of the eanrings. with the reasons for such disposition. At the last annual meeting of employee stockholders, I prepared my address more carefully, and went into greater detail about the operation of the business and its financial condition than I did at our annual meeting of holders of common stock. I said in part:

"The rates of wages generally paid in this mill are higher than any other like mills thoughout the country and higher also than the union scale. There are two principal reasons for this. First, the production you are getting—and are working hard to get— enables us to keep the cost down lower than if we had less production.

We are therefore able to pay higher wages, keep our cost on a level with the other mills and get our fair share of business in competition with other mills.

"Remember always, that even though we may like to see our wages increased from time to time, there is a point past which we cannot go—because if we do, the cost of our product will be so much higher than our competitors' that we will not get our share of orders. If the orders cease then we cannot run the plant efficiently, in any event, we cannot run at a profit.

"No matter what anyone else may try to tell you, just keep it clearly in your mind that there is only one way to keep wages up—and that is to keep production up.

"The more paper we can produce, the less the cost per pound, and the greater the profit. What share of the earnings we do not get in our pay envelopes, we will get in our dividend checks—and since we are going to share and share alike in the profits according to our stock holdings, it is up to each one of us, by thrift and saving, to accumulate as much stock as we each of us can.

"The second reason why the wage rate is higher than in other paper mills, is on account of the fact that wages generally in Detroit are higher than most anywhere else, and we have to try to keep up with the procession. Just on this point it may be worth while to suggest that sufficient consideration is not perhaps given to the fact that where in some cases wages may be higher here in Detroit than we pay, the life of the job is frequently shorter—perhaps it lasts only for a few weeks or months, while here the jobs are steady, and that fact ought to count for something, and I know that it does with most of us.

"You will notice I am using the words 'we' and 'us' a good deal. We are all employees—all workers. I am no different from the rest of you. I, too, am an employee; so are the directors of the company. The stockholders employ the directors to look after their interests, the directors employ Mr. Dunn, Mr. Behnke, Mr. Ward, Mr. Allan, Mr. Hulbert, and myself to assist in directing and running the business along with the rest of you. Some of us use our brains only, while others of us use both brains and hands—all are necessary to the sucess of the business. Now, I couldn't do the work you men are doing very well—nor you women either. I'd make a mess of most of it, and you probably would have trouble doing some of things that I undertake to handle in the front office. Each of us must do the work that our training and experience best fits us for, but we must have teamwork or we will not be successful.

"You all know that it takes a lot of money to build and operate a paper mill, and that there is always the risk that the enterprise will not be a success. Some of you men who have been here for the past 15 to 20 years know of the state this plant was in away back in 1903-4-5. You know of the fire, and you know how the management was up against it for money to put the plant in shape and to meet the payrolls—and yet the payrolls were always met somehow.

"Did you ever stop to consider just that one point? When a company is hard up—and short of money—the biggest thing in the minds of the people in the front office is how to keep the plant going and find the money to meet the payroll.

"The common stockholders of this company have borne the burden of financing and carrying on this company for years and they waited patiently for the day to come when they might get back a fair return on their investment.

"I am sure that there is not a single person in this meeting who does not know and understand that all of the net earnings of the business cannot be paid out in cash dividends. The machinery and equipment is wearing out all the time—every minute—whether the plant is running or not. It is deprecating, rusting, or being eaten up by acids in some parts of the plant. When replacements have to be made, it takes money —lots of it—twice as much to-day as it took in 1913—and that money must come from some place. Now there are only two places that money can come from; the stockholders would have to put it up; or else it must come out of the earnings of the company—that is, the price charged for the product which we sell must be enough more than will return a fair cash dividend on the stock to provide the money to make these repairs and replacements.

An Illustration out of a Known Instance

"To illustrate: the acid tower which has just been abandoned has been in use for 16 years, and had reached its end. Some of us have wondered that it has not fallen down long ago. It has been getting worse each year. So this last year we built the new cement towers. The old towers, when they were built, were modern —about the best that were known at that time. Since then there have been great advances in the methods of acid making. Cement has come into use for construction purposes, with the result that these new towers will last very much longer than the old ones—and the cost of upkeep and repairs will be much less. There is going to be a saving in sulphur and in the cost of operating—all of which should have the effect of enabling the mill to make, first, a better product, and second, more profit. Now, since you are all stockholders and know that you are each one of you going to participate in that profit, you are all interested in making as much as profit as possible.

"This brings us to the question of stock dividends. One of the criticisms which the worker has often been heard to express is that the common stockholders, in addition to the cash dividends which they receive, get, every little while, a stock dividend, upon which later they receive cash dividends. Now it may be worth while to discuss for a moment how these stock dividends come about—why the declaration of stock dividends is possible.

"I have just told you how some portion of the money

earned each year must be put back into the plant to keep it up to 100 per cent efficiency. This extra money is shown on the books of the company in the profit and loss account, or in the surplus account, as it is called. Both terms mean the same thing—money that has been earned in the business, which has been put back into the plant in some form or other. That surplus, or balance of profit, belongs to the stockholders, and whenever it reaches an amount to make it worth while a stock dividend is declared—or as some put it, a melon is cut—and distributed to the stockholders according to the number of shares held by each.

"Under our plan here, it is proposed—and the directors have gone on record unanimously approving the action—that whenever a stock dividend is declared in the future all stockholders, common and preferred, will share in it equally, each according to his holdings in his kind of stock.

"The directors felt that inasmuch as the employee stockholders were paying 100 cents on the dollar for their stock and since their money was just as good as the money of the common stockholder, they were entitled to exactly the same consideration when it came to the question of distributing a stock dividend.

The Wherefore of the Redemption Clause

"You will therefore understand that whenever a stock dividend is declared you will each of you receive your proper proportion of it.

"A little while ago I asked one of you how the boys generally regarded this plan of ours—and he replied that a good many of you thought it was 'too good to last'—I think these were his very words. He also referred to the clause in the stock certificate which provided that all stock might be called at any time by the directors at $11 per share, as indicating that the company had kept a string on the stock, so that it could be called—by called, I mean, of course, redeemed by paying back to the shareholder the original which he paid and a premium of 10 per cent or $1 per share.

"I should like to explain just here—not only about that point, but also about the provision which is in the stock certificate that all of the preferred stock shall be redeemed on December 31st, 1934.

Under the law of the State of Michigan, corporations are given permission to do business for a certain number of years—30 years in our case—and provision is made as a natural consequence for the redemption of preferred stock just before the expiration of the charter. Provision is likewise made for the renewal of the right to do business as a corporation, at the expiration of each company's charter. It so happens that this company's charter was taken out on the 25th day of February, 1905, and expires on the 25th day of February, 1935. In applying for the amendment to the charter, or articles of association as it is called in this state, provision had to be included for the redemption of the preferred stock at a date just a little before the expiration of the charter.

"In the natural order of things, early in 1934 application will be made to the state of Michigan for a renewal of the company's charter for another 30 years, and the life of the employees participating preferred stock will be renewed for a further 30 years at the same time.

"Now with regard to the provision that the stock may be called at any time. When this plan was being worked out, it was not known whether it would be a success; whether the employees would accept the opportunity which was offered them in the spirit in which it was being offered, and it was therefore just ordinary common business prudence—horse sense—to include in the charter a provision for redeeming the little stock that might have been taken, so that the decks could be cleared to try out some other plan, if one could be devised that would be more acceptable.

"The splendid way in which the plan has been received is evidence to the directors that their judgment in adopting this plan was right. I believe I speak the mind of every common stockholder when I tell you that provision will never be exercised unless the stockholding employees themselves by some unfriendly act shall make it necessary.

"I want to say further, that it will be a great satisfaction to the directors of this company, if each and every employee can each and every year take up the full proportion of stock which is available for his subscription—20 per cent of his or her annual earnings in each year.

The Old Employees Convert the New Ones

"There will be plenty of stock available for everybody who wants it, and who is entitled to it. I say this because I believe that if each and every present stockholder understands this thoroughly, you will each feel the more free to explain the advantages of stock ownership to the newcomers in the plant; the newcomers will the more readily subscribe for the stock if it is recommended by fellow workers. It will be well to keep clearly in mind the fact that it is to your own selfish interest to have as many employees interested as stockholders as possible. The greater the interest of each, the greater the profit for all. Someone may say: the more money we make, the more profit there will be for the common stockholders. That is true—but since every employee stockholder knows that he will get just as great percentage of the profits that are available for distribution as does the common stockholder, is any employee going to be so blind to his own interests as to refuse to help himself because he is going to help someone else at the same time? I do not believe it.

"Now there is another thing to which I want to call your attention, and that is, that, except as there may be stock dividends from time to time (in which you will all share) the common stock of the company will not likely be increased. In other words, no new stock will be issued and sold to common stockholders. Unless we were to decide to increase very largely the mill capacity, there will be no necessity for any further increase of common stock and there is no thought of any increased capacity at this time that cannot be taken care of out of the earnings.

"As I have said, the common stock is therefore not likely to be increased, while the stockholdings of the employees will increase each year—so that while your interests will be building up and growing all the time, the interests of the common stockholders will remain stationary.

The Mutual Value of Employees and Stockholders

"As I have told you on previous occasions, the amount of employees' participating preferred stock has been fixed for the time being at $500,000—but when that amount has been subscribed and paid for, the charter can be amended to provide for a further lot of stock. I am very well satisfied that there will be no limit to the opportunity which is before each one of you to become, as time goes on, more and more

interested as a partner in this business. If it is good for the common stockholders to have you as partners —it is equally good for you to have the common stockholders as your partners. Remember always that if it had not been for the willingness of the common stockholders to risk their money in this enterprise in the early days, receiving no dividends, the business would not be upon the solid financial foundation on which it rests today—and you have not been asked to take that risk—you were not invited to come in until the risk was passed. You are investing your money in a business that has already been put upon a sound profit-earning basis, and your responsibility and mine is, simply by strict attention each of us in his own particular job, to keep this business in the front ranks of industry as a good profit-making concern.

"We can do this by team-work, by having as little waste as possible, by getting all the production possible, and by seeing to it that the quality is always maintained at the highest standard. By setting a standard for yourselves that will produce the above results, you will by your diligence and attention, each to your job, be setting the pace for those who have not yet become interested as stockholders."

Following this talk, I presented the annual statement for 1919 showing sales, cost of sales, net earnings, and the way the net earnings had been used, the amount paid out in dividends, the amount put back into the plant in the form of improvements and renewals, and the balance available for improvements authorized and then under way. You will see that I have withheld nothing. Frankness is essential to the plan's success.

Citizenship has not been made a pre-requisite to stock ownership. In working out the plan, careful consideration was given to this question and the decision arrived at that the bars should be left down, so that any employee, regardless of nationality, who had put in the probational period of service should be permitted to buy stock. We figured that if we could obtain the interest of the foreign-born unnaturalized employee, by taking him into partnership, then in the great majority of cases the matter of citizenship would take care of itself. And it is working out just as anticipated. Some men who had planned on going to their families in Europe are now sendiing for their families to come to America, and others who were going back are now debating as to what they had best do. If they stay here they will become American citizens and they will be the right kind, because they have a "stake" in the country of their adoption—they are capitalists.

There are some straws showing which way the wind is blowing in our plant, and I think you may be interested in them as corroborative evidence. For instance, during the war we were short handed as nearly everybody else was. Our superintendent did not believe we could get out the work. But the men turned in with a will, doubled up on jobs in some cases, and kept up production.

No Question Now that Suggestions Will be Made.

Again, our master blacksmith had three helpers. Of his own volition he said to the superintendent one day:

"You buy me a steam hammer. I'll get along with one less man."

We bought him the hammer at a cost of $700, and we were able to dispense with the cost of a man drawing about $1,500 a year. Ordinarily, the incentive would be lacking for such a suggestion. But this man knew that it was to his interest to help the company save.

Another little incident came to my attention not long ago. It used to be that a man, if he wanted to take a day or so off, would say nothing to anybody. His absence might cripple production in his department, and perhaps slow up the whole plant. We were more or less accustomed to this sort of thing under the old order.

On the occasion I am speaking of two or three of the men wanted to go off on a hunting trip together. But instead of just going and leaving us in a hole, they fixed it up among themselves to have some of the men on the other shifts double up and handle their work while they were away.

Another little thing that pleased me immensely, and is, I think, indicative of a new spirit in the plant was this. After I had finished discussing the condition of the business at the meeting of employees mentioned ealier, one of the men got up and asked permission to present a resolution. It appears that several of the men had got together in advance and prepared it. It was very short, and I will quote it:

"Resolved, that we, the preferred stockholding employees of the Detroit Sulphite Pulp and Paper Company extend a vote of thanks to our president, Mr. MacPherson, and the board of directors of the Detroit Sulphite and Paper Co.:

"First—for having given us the opportunity of becoming partners in the business; and

"Second—for the frankness with which they have made known to us the business affairs of the company.

"We wish to assure the management that we appreciate to the fullest extent the spirit which prompted them to take us into their confidence."

I have already mentioned the friction that used to exist between foremen. That has vanished. Now, every working day at noon, all our formen sit down at dinner together. At this time their interdepartmental difficulties are threshed out. The superintendent and myself sit down to dinner with them whenever possible; a spirit of co-operation and camaraderie has developed, as a result of which problems are openly discussed and the good of the business as a whole, rather than in its parts, is looked after.

Proof of the Plan's Value—in Terms of Results

It is outside the realm of possibility at this time to determine all of the advantages that are likely to accrue from the adoption of this plan—the good feeling, the friendship, the confidence which is being created. Some of the benefits already seen are:

(a) Greater interest and satisfaction of employees in their work;

(b) Material reduction in the total labor turnover;

(c) An almost negligible labor turnover among stockholding employees;

(d) A substantial difference in the percentage of accidents as between stockholding and non-stockholding employees, some part of which at least can be credited to the plan now in effect: stock interest naturally creates self-interest, and makes the employee more careful;

(e) All of which is having, and is bound to continue to have, a beneficial effect on production with results that are beneficial to everyone concerned.

You may ask whether we have discovered any ad-

vantages. The answer is: no, not up to this time, and we can see no evidence that there may be any.

The impression must not be left with you that we have been relieved of all our business worries and troubles. That can never happen. But in the matter herein considered, they are growing less as the days go by. And we feel reasonably satisfied that eventually they will be reduced to negligible proportions—just enough to add zest to doing business.

I can fancy that some of you are debating in your own minds how this plan will work when hard times come—when dividends may be cut down or discontinued altogether for the moment—when wages may be required to be reduced—as in the course of events may happen.

As I see it, the plant in which a plan such as this is in operation is going to be one of the very last to be affected—"community of interest" will mean more economical production and economical production will, in turn, enable the concern to stay in the market and obtain its share of such business as is to be had, longer than can other concerns.

No man of firm or corporation that is thinking of adopting this or any similar plan, can possibly hope for success unless prepared to approach the subject in a broad, wholehearted spirit, dealing with it in an absolutely honest, open, broadminded manner. The worker must be made to believe in the sincerity of the principle, else the plan will not be a success. With absolute confidence established there can in my judgment be no question as to the result.

SPANISH RIVER TO PAY ARREARS OF DIVIDENDS.

According to action taken at a meeting in Toronto on Thursday of last week of the directors of the Spanish River Pulp and Paper Mills, Ltd., the company's prefered arrears are to be paid by the issuance of a preferred stock dividend, subject to the approval of the shareholders, but no action is contemplated for the present as to a dividend on the common stock. The general arrears are 42 per cent, to which will be added, in the case of some shareholders, another seven per cent covering the voucher issued last year for one year's dividend on the original issue of $3,000,000 of preference stock. The company's plant is at the present time operating to full capacity and has an output of from 550 to 575 tons of paper per day. At the close of the meeting Col. Thomas Gibson, Secretary of the Company handed the following official statement concerning the outcome of the meeting to the Pulp and Paper Magazine:

"At a meeting of the Directors of the Spanish River Pulp and Paper Mills, Limited, held here today a plan was agreed upon for taking care of the arrears of dividend on the Company's Preference Stock. Under the terms of the proposal a stock dividend is to be declared in an amount sufficient to pay the total arrears of accumulated dividends on the Preference Stock, including the voucher issued last year respecting the one year's dividend on the original issue of $3,000,000 of Preference shares. A formal letter setting out the full details of the proposed scheme will be sent to all shoreholders on Tuesday of next week, and a meeting of shareholders will be called in the near future to approve of the plan.

"The directors feel justified in stating that the payment in cash of regular quarterly dividends on the Preference stock at the rate of 7 per cent per annum, accruing from July 1st, 1920, will hereafter be made.

"No discussion took place as to the payment of a common stock dividend."

SHORTSIGHTEDNESS OF PAPER MANUFACTURERS.

Complaints made by paper manufacturers regarding the delays and difficulties experienced in securing ample supplies of raw material and anent the poor quality of packing of rags and waste paper obtained in some quarters, again prompts us to bring up a subject that has been discussed in The Daily Mill Stock Reporter at various intervals in the past. As a rule, it is to be found that such complaints emanate from those mills which believe in scattering their buying of raw material and in patronizing innumerable irresponsible dealers and packers and placing orders only for small tonnages at a time while laboring under the impression that such a policy enables them to acquire rags and waste paper at cheaper figures than if they centralized their purchasing. Presumably it is the belief of these manufacturers that by creating competition among producers of paper-making material they effect a saving for themselves. Our answer to this is little do these paper makers know of the waste material industry.

Why is it that paper manufacturers with very few exceptions, deem it good business to have their entire output of finisher product handled or distributed by a small number of concerns, more often by a single firm, in the different consuming sections of the country. and, on the other hand, pursue just an opposite policy in obtaining their needed supplies of raw material? If better results can be secured by confining the distribution of finished paper through several responsible, well organized jobbing concerns or mill agents than by selling through every Tom, Dick or Harry that happens to enquire for paper, why shouldn't as good results be secured by applying the same methods to acquiring raw stock? By concentrating at least the bulk of their buying of rags, waste paper and other raw materiaal in a limited number of directions, by patronizing to a greater extent those concerns which are, because of their having the necessary facilities, in a position to handle orders for large tonnage of material, paper manufacturers could eliminate many of their raw material problems and many of the unpleasantness they are constantly encountering in their dealings with those who handle the raw stock they use.

Responsible, worthy and dependable dealers in and packers of paper-making materials in the United States are legion. It only remains for paper manufacturers to recognize this fact and to appreciate that centralized buying is the proper road to cheaper material. When they begin to follow such a course, as they undoubtedly ultimately will do, instead of endeavoring to usurp the legitimate position of the reliable paper stock dealer, then there will be no cause for the many complaints that have been recently registered.—Mill Stock Reporter.

BELGIAN COAL OUTPUT

Brussels, May 1.—The Belgian production during March was five per cent higher than in March 1913.

Clifford Wells, treasurer, of Bennett, Ltd., Chambly Canton, Que., is leaving shortly for England for what appears to be a permanent position.

Conservation of Men, Keynote of 1920

DAVID HAROLD COLCORD, SQUARE D. CO., Detroit

"I am more powerful than the combined armies of the world. I have destroyed more men than all the wars of the world. I am more deadly than bullets, and I have wrecked more homes than the seige of mighty guns. I steal in the United States alone, over $300,000,000 each year. I spare no one and I find my victims among the rich and poor alike; the young and the old; the strong and the weak; widows and orphans know me. I loom up to such proportions that I cast my shadow over every field of labour, from the turning of a grindstone to the moving of every railroad train. I lurk in unseen places, and do most of my work silently. You are warned against me but you heed not. I am relentless. I am everywhere; in the home, on the streets; in the factory, at railroad crossings, and on the sea. I bring sickness, degradation and death, and yet few seek to avoid me. I destroy, crush, maim, take all and give nothing, I am your worst enemy. I am CARELESSNESS"

Thus spoke the El Paso and Southwestern Railway System to its employees and patrons in its effort to protect human carelessness against itself. The appeal is typical of a thousand industrials today that are scientifically studying and teaching men and women to be careful. Cognizant of the terrible material and human cost of preventable accidents and conflagrations, industry in the last decade has added a new and growing department to the process of production. The safety engineer and his staff of trained lieutenants has come to occupy a position in factory management equal to if not greater than the production manager himself. Executives in the light of the new industrial relations are coming to guard man-power more jealously than material. It is more costly; it is less available and it is infinitely precious. An employer who knowingly permits the man who fashions his products, who makes his profits possible, to labor in the presence of danger, is to-day considered guilty of criminal negligence.

What has awakened us? The answer is "facts." Awakening has come with investigation and research. Research no doubt inspired by commercial motives with an intent to reduce waste and increase efficiency. The residue of a decade of efficiency experts has ironically tipped the balance in favor of the human element in industry. Statistics gathered by life, accident and fire insurance companies, by safety organizations, by national and state labor and industrial boards, actuated for material purposes have startled our consciences into the realization that life itself —man—transcends in value that which man can produce. We talk Efficiency ad nauseam. We talked Waste. We talked Production—and more Production. Nineteen-twenty talks Human Relations, of the conservation of man-power; Efficiency, waste, production, have been evolutionary cycles in an industrial growth that is leading rapidly to the birth of a Christian conception of wealth and industry. It is not Bolshevist, Soviet, or Socialistic, but American.

Why? Because research has brought to light the cost of killing and maiming. Figures taken from Government statistics show that every minute 21 persons are injured accidentally; that every five minutes 1 person is killed accidentally; that more than 11,000,000 are killed or injured yearly, or about 30,000 each day; that a person is twice as liable to die from accident as old age.

Who is to blame? The answer involves a consideration of the place where the accident occurred.

One of the most laudable recent attempts to separate persons killed as a direct result of their employment from persons killed otherwise is that made by the Metropolitan Life Insurance Company.

Occupational Accidents

In this mortality experience—limited to white males ages 15 and over and for the period 1912-1916—out or 14,151 deaths from 16 specified causes or forms of accidents careful inquiry revealed the fact that only 28 per cent were definitely assignable to occupation or were of occupational origin. If weather agencies, such as lightning, excessive cold, excessive heat (isolation) and certain other forms or types of accident had been included, the percentage would have been smaller. Again it must be remembered that this experience embracced mainly the industrially employed, or wage earners. If the professional commercial and other largely non-wage earning classes had been as fully represented as in the general population, the effect would have been still further to reduce the percentage of accidental fatalities of occupational origin.

If we assume that one-fourth the total accidental fatalities in the general population of ages 15 years and upward are due to occupation, the estimate is probably a liberal one. Three-fourths of the deaths by accident, ages 15 and over, would then be assignable to either public or home accidents. Here, however, we are left without any very definite knowledge of what percentage or proportion belong to either class. From general knowledge and experience, however, it seems reasonably certain that fully one-half of all the fatal accidents in the United States are chargeable to public accidents. It is quite probable that the true proportion considering all ages is nearer 60 than 50 per cent but, to be conservative, this argument will be based upon the assumption that 50 per cent of all accidents fatalities in the United States are of the public type.

Twenty-eight per cent were of occupational origin! There hangs the theme of this story; it is this percentage in the past that is not due to carelessness alone but to a sleeping industrial conscience. It is this 28 per cent that has created the department of safety engineering in our larger industrials.

Where in the factory are the hazards and to what extent can they be eliminated? They are infinite. A protruding rusty nail causes death by blood poisoning; a tilted ladle of molten steel cooks an operator alive—the one screaming with danger as it sputters, glares and scorches, the other hidden silent and viperous. Again the invisible dust from the loom may take years to effect its deadly purpose—but it is no less dangerous than the methane of the mines. To enumerate all the hazards of industry is a task for which we are not yet prepared or which we have not the patience to consider. They are as infinite in variation as industry itself.

Consider one class—electrical hazards—well selected, because electricity bears the same relation to this age of man that the titanic force of nature bore to the dangerous hazards of the past. Dangerous as it is—uncontrolled and unprotected—it is the greatest of the world's material riches. It has brought civilization success from drudgery, material riches, comforts,

commercialism, and advantages undreamed of. Yet it is dangerous.

It is the most dangerous in its elemental state of all of our sources of power. We can visualize the danger of a moving gear, an open manhole, a broken rail, an ill lighted room and instinctively draw away from them, but there is nothing to warn us of the lurking death in an exposed wire or an unprotected electric switch. A machinist may slip on a greasy floor, throw his hand behind him for support, catch an exposed switch, open it from a short circuit with his body for 500 volts and die—singing. Seventy per cent of the fatal accidents in the United States last year were caused by electricity.

And yet this is no longer an age of oxen, of flails, of black-smith shops. Civilization demands the use of this Titan—it is the only force great enough to do the works of the twentieth century. Our problem is to make it absolutely safe.

It costs dearly to injure or kill a man in industry. No one knows this today better than the employer of men, and millions of dollars are invested annually by our industrials to educate the careless and install safety devices to protect them against themselves. Furthermore, the cost of killing contributes materially to the cost of production, consequently the additional production cost entailed by accidents is everybody's business as it is finally borne by the ultimate consumer. The national bill of $300,000,000 for accidents is paid for in the cost of shoes, pencils and jackknives. Efficiency implies the elimination of waste. Human destruction is a waste in its most inexcusable form—compensation indemnity merely supplies the monetary equivalent for destroyed labor—it cannot recreate either or materials. Thus accident waste has a direct and unmistakable bearing on the present high cost of living.

K. CRABTREE STILL IN HOSPITAL

Readers of the Pulp and Paper Magazine will be sorry to learn that Mr. K. Crabtree, superintendent of the Crabtree Division of the Howard Smith Paper Mills, Ltd., is still suffering in Western Hospital. According to last reports he is progressing slowly. Mr. Crabtree, while making tests on March 22 caught his right hand in the gears of the saveall which made it necessary for him to have three fingers taken off. The accident was a very painful one, the bones being badly crushed and broken.

John Martin of the John Martin Paper Company in Winnipeg, and President of the Canadian Paper Trade Association is expected home from California next week. His many friends hope that his visit in the land of peaches and roses has resulted in a complete recuperation.

DEATH TAKES J. M. UPTEGRAFF.

James M. Uptegraff, treasurer of the Defiance Paper Company and Niagara Wall Paper Company, Niagara Falls, N. Y., died at his home in Beaver, Pa., on April 23rd, 1920.

He was associated with the Defiance Paper Company and Niagara Wall Paper Company ever since their incorporation in 1909 and has been treasurer of the Pittsburgh Wall Paper Company, New Brighton, Pa., since its incorporation in 1898.

Mr. Uptegraff was 53 years old and is survived by his wife and five sons.

The lumber cut on the Miramichi is the greatest production in the history of this industry on the North shore. The Fraser Company has cut thirty-one million feet; Miramichi Lumber Company thirty million, and various other operators from seven to twenty-three million.

J. O. Mason, manager of manufacturing for Laurentide is back at Grand Mere after a month's holiday.

NEKONEGAN PULP MILL SOLD

Nekonegan Pulp Mill at Old Town, Me., was sold recently to the E. B. Draper Company of Bangor, a concern which is accumulating much valuable timberland and manufacturing property through the state. This mill was built in 1899 and manufactures groundwood. It employs about 70 hands, has a capacity of about 40 tons per day and has always been a successful mill.

DO YOU THINK ABOUT YOUR WORK?

The year is two months old.

You have been in this Mill for some time, and in the paper industry perhaps for many years.

Don't you remember that time when the thing was not a go, and you knew that something ought to be done to make it right?

Have you taken the time to figure out what the cause of it all was, how much could be saved by doing it another way, or how much could be made, if—

Have you looked your machine over to see where the weak spots are, and what bothers you first when you want to increase your output?

What would you do if it were up to you to make the change that would make the operation right?

Would you improve the present equipment or would you substitute another machine?

Here are only a few problems which are worth the thought of every man in the industry:—

(a) Increase the speed of the paper machines, and still have them operate "safe":

(b) Maintaining constant basis weight:

(c) Decrease steam consumption for drying paper, cooking sulphite, or unnecessary waste:

(d) Methods of getting more heat contained in coal into the water of boiler for steam generation:

(e) Increase the amount of sulphur reclaimed from digester relief:

(f) Increase the yields of pulp per wood used:

(g) Decrease the waste of fibre to sewer:

(h) Improve quality of product:

(i) Decrease in upkeep and repair costs:

(j) Improved handling methods.

Think them over, and then answer these questions to yourself:—

Is the machine designed right for work being done?

Is it of heavy enough construction and made of right materials?

Can anything be done to decrease the upkeep of it?

Can it be fixed so that it will operate uniformly without constant attention?

If necessary, get the help of the Engineers, Service or Efficiency Departments, and find out just what your ideas would have over those in use.

Then, make an outline of your thoughts, and drop it in the Suggestion Box.

Do it now!

—H. J. B. in the Abitibi "Broke Hustler".

British Trade News

(From Our London Correspondent.)

London, 20th April, 1920.

Many Canadians who have come in contact with Sir John Thomas will regret to hear of his death at the age of 85 years. He was one of the pioneers of the British paper industry and Chairman of Thomas and Green, whose mill occupies a high place in the estimation of paper manufacturers. In these days of prohibition and dry countries, it is interesting to record that Sir John Thomas was an out-and-out total abstainer and was an international advocate against intoxicants. He was a man of strong religious ideas, particularly amongst the young people. The British Paper Makers Association lose a valued member and a helpful worker. Sir John leaves a wife and daughter to mourn his loss.

Lord Atholstan on Paper Prices.

Lord Atholstan, better known as Sir Hugh Graham, is on a visit here with his family. He is making arrangements for the great International Press Conference to be held at Ottawa and incidentally several luncheons have been given to him. One of the chief questions, he says, to be discussed at Ottawa in August at the Conference will be paper. The price of paper has gone up leaps and bounds and then he queried: "Do you know that Canadian mills are now selling to the United States paper at 210 American dollars at present per ton? " Asked to explain the cause, Lord Atholstan gave his view of the question as follows:— "A few American publishers have of late bought in the principal mills in Canada, in some cases to such an extent that they have practically secured control of these mills, and they are now after other mills. It is not only the rise in wages which accounts for the increase in prices. There has been another factor. The newspapers of the States and Canada have had 15 months—since the Armistice, in fact—of the most wonderful development in advertising that has ever taken place in the whole history of the two countries. The papers, in consequence, have increased and increased in size until the bulk of them are only limited by mechanical capacity. The result has been a consumption of paper from 15, 20, and up to 35 per cent over the highest ever recorded."

Publishers' Fortunes.

Lord Atholstan mentioned also that this demand has enriched the great papers of the larger cities beyond computation. Even the owners of smaller journals have made fortunes. One New York publisher, whom he knew very well, was struggling a year or so ago to make headway. He has now amassed a sum of 500,000 dollars. "It stands to reason," went on Lord Atholstan, "that this enormous accession of business has enabled the newspaper publishers to pay almost any price for paper, and as the demand increased up went the price of newsprint. The paper mills today are making up to 30 per cent on capital. But the most serious aspect of the situation is that the supply of wood is within measurable distance of extinction. Indeed, it cannot be very long before a new kind of material for papermaking will have to be discovered, or newspapers will be high in price and also greatly restricted in circulation."

In conclusion, Lord Atholstan regreted that the English newspapers and publishers did not foresee the crisis. If they were to take up the question now, he remarked, and appoint one, two, or three from among themselves to go to Canada to investigate the situation, there is still time for them to do great things to save the situation for British publishers. It was entirely a matter for private discussion.

The latter remarks of Lord Atholstan bear out what I have written from time to time in the "Pulp and Paper Magazine." It is only now British publishers are being awakened to the fact that there is a crisis. The result is the daily and evening newspapers are publishing articles on high pulp prices, the cost of paper, and warning the public to look out for a shortage of paper. The publicity was really given to the crisis at the Stanley Cousins luncheon, notwithstanding that articles have been quoted from the "Pulp and Paper Magazine" here.

British Papermakers' Wages.

A conference has just concluded its findings on wages in the paper trade. The Court, which was an Industrial one, states that as regards the rates for probationers taking up skilled and semi-skilled work, they approve an agreement arrived at between the employers and Employees Federation, that after a continuous probation of 12 months a man should be considered skilled; also, that during the period of probation one-third of the difference between his previous rate and the full rate of the job to which he was promoted should be paid to the employee for the first six months, two thirds of the difference after six months, and the full rate from the end of 12 months; further, that the difference between the rate paid to the employee promoted and the full rate should be equally divided between the firm and those (if any) supervising the employee promoted. The Court decided also that juniors, both shift and day workers, 18 years of age and over, doing the work of adults should be paid the adult wages of 1s. 3½d. per hour for shift workers and 1s. 2d. per hour for day workers (roughly 32 cents an hour). With regard to the rates of employees working on two shifts of eight hours each, the Court held that they should be applicable to shift workers and also that the week and overtime rates of shift workers should begin after the completion of the normal working week for these workers, viz., 44 hours.

Wood Pulp Supplies.

The Trade Board figures for March were rather late in being issued this month. Canada is still out of the pulp market here as the following quantities will show:—

	March Tons
Bleached Chemical (Dry)	
Sweden	204
Norway	1,867
Germany	120
Other Places	100
Unbleached Chemical (Dry)	
Russia	297
Sweden	11,322
Norway	14,766
Germany	225
Other Places	50
Groundwood (Moist)	
Sweden	934
Norway	31,499
Canada	
Other Places	

Groundwood (dry) was received in March to the extent of 3,414 tons, as against 2,728 tons in March 1919. The total quantities of pulp received in March were as follows:—

U. S. A.	3,935	12,481
Newfoundland		7,000
Other Places	47,688	90,705
Total	135,340	219,870

	Tons
Bleached (Dry)	2,291
Unbleached "	26,660
Groundwood (Moist)	32,433
" (Dry)	3,414

Comparing the supplies with March 1919 there is a considerable increase, 64,798 tons of all kinds, as against 39,051 in 1919.

Printing Paper.

The following figures show the imports of printing paper. Owing to a recent classification newsprint is mixed up with writing paper, much to the disgust of paper men—

From	Jany. cwts.	March cwts.
Sweden	37,232	42,425
Norway	45,619	58,376
Germany	401	7,130
Belgium	485	1,753

It will be noticed that Newfoundland is now supplying the British market and that Germany is also increasing supplies. The 7,000 tons from Newfoundland was nearly all newsprint. Exports of the British mills also show a distinct increase in March. They shipped 66,446 cwts. of paper of all kinds, compared with 55,183 cwts. in February and 39,907 cwts. in January. Summarising the position today in England is—increased imports of pulp; increased imports of paper and increased exports of British paper when compared with February figures.

U. S. PAPER DEALERS CALLED UP

Washington, April 30.—Print paper brokers from New York and other cities will be summoned before the Senate Committee investigating the paper situation, decision having been made in an executive session today to subpoena them. The date of their appearance is indefinite.

Chairman Reed said the committee plans to go to the bottom of the print paper situation in an effort to find the cost of production and what profits are being made from the sale of paper, especially through brokers to the small publishers.

A POPULAR PAPER

Solely for the benefit of a friend in Toronto and others who occasionally need a story apropos of the paper business, the following is printed:—

One morning one of the children living in the block ran into the corner drug store and asked for a roll of toilet paper. The druggist gave it to her and as she hurried out the door without paying, he inquired, "And who is that for?" She turned her head and called sweetly, "For all of us."

WHAT HOLLAND HAS TO SELL

From the office for foreign relations in Holland comes a list of articles which Holland desires from Canada or offers to Canada. Among the latter we note the following:—Glass, glue, packing twine, paper, rags, rope and twine, rubber goods, strawboard, straw covers, and wafer paper.

NEWSPRINT AND PULP SITUATION IN GREAT BRITAIN.

(From Our London Correspondent).

London, 13th April, 1920.

The brief report published in last week's "Pulp and Paper Magazine" of the speeches at the luncheon given in London to Mr. Stanley Cousins, of the Imperial Paper Mill, on the occasion of his 50th birthday, gave a slight indication of the position of affairs in newsprint and pulp in the United Kingdom. In England the newspapers are waking up to the fact that there is really a shortage of paper, since the speeches were published, and France, Belgium, and Sweden are also having something to say on their newsprint resources. It may, therefore, be taken for granted that the luncheon to Mr. Stanley Cousins has done a world of good, because, the consumers of paper have had their eyes opened and plain facts placed before them of the difficulties producers of paper and pulps have to face today.

There is an old adage which says that great minds think alike and it is most remarkable that within the past six months two great British industries, the cotton and the paper producers, when they discovered that raw materials were becoming scarce and dear they turn their eyes in the direction of the Dominion and Colonies and dependencies to see if they can in any way alleviate the situation. Since raw cotton became somewhat scarce manufacturers planked down the money and turned to Egypt and other places to help the future supply. Papermakers are now giving thought to the Dominions as sources of supply for pulps in the future, because they realise that something must be done. We have the "great minds thinking alike" in two prominent industries in Great Britain and though some tangible steps have been taken in the past to develop new resources within the Empire it seems strange today that they did not receive greater encouragement. Lord Burnham says: "there is every disposition in this country to do what they could to develop the resources of the Dominions." Mr. Stanley Cousins says: "we must find further markets for raw materials." Men like the late Mr. Albert Reed, Mr. F. E. R. Becker, the Harmsworths, and a couple of others realised years ago the value of the Dominions and they left no stone unturned to develop trade between the Dominion of Canada and other places and the Mother Country.

It is too late now to say what should be done. Pulps are wanted and paper (of all kinds) is scarce—and prices are up. Lord Riddell, one of London's big newspaper owners, suggests that the time has come for consumers and producers of paper to meet in conference and consider the newsprint and paper shortage, as well as the question of raw materials.

A Serious Situation.

Lord Riddell has pointed out that the question is: "were they going forward blindly?" and whether before many months were over consumers and papermakers would be faced with such a serious position that they would wish that they had dealt with the matter before.

Lord Burnham agrees to a conference and says the only way to meet the present position is to increase the supply and realize that economic laws are justified in the long run and that there is no way of getting round them. It remains to be seen now what developments there wil be on these suggestions. But one thing strikes the papermaker and pulp man today.

very forcibly and that is the neglect in not taking a keener interest in the production of Canadian and Newfoundland pulp resources prior to the war and making provision for a "rainy day".

I have mentioned in previous notes to the "Canadian Pulp and Paper Magazine" that paper sold on contract is now 5¾d. per lb. and spot lots on the market—that is newsprint—is much more in price, 6d. to 6½d. It is predicted that the shortage will last for some years, but the only solution to meet the supply, and it is one that must be tackled at once—and newspapers in England are beginning to realise it—is the establishment of pulp propositions with all possible speed.

For the small provincial papers in the United Kingdom the position is growing serious. Sometime ago labor demands hit them very hard and now they are paying extra for newsprint with no guarantee of future supplies. Many have cut down their size, which means a loss of revenue, whilst others have closed down completely. About 113 papers have increased their selling price, but the economic situation, real or aritficial, cannot be entirely met by increasing the price of publications. It is regrettable that when everything was in the favour of the papermaker down to the dealer, and from the pulp producer down to the agent, the present crisis should arise of the demand exceeding the supply.

The views of a consumer of paper is intresting. One stated the other day: "I am not concerned at the moment with large newspapers, who no doubt could ride out the storm, but the facts of this economic position are too grim even for the directors of large newspapers. The position is not only critical in France, America, and Canada, but it is critical here. The war and war measures prepared the way. New sources for raw materials are suggested. But the crisis is here. It is not now a matter of mere outlook, of waiting for trees to "grow and multiply". This is the view of a man who passes along substantial sums of money to papermakers every year.

Swedish Pulp and Paper Booming.

There is talk in London today about Government intervention, what should be done and what should not be done. Scandinavian paper today in London is selling from £16 to £20 above the British prices—and it is being paid owing to the shortage. In connection with this quotation it is interesting to see how Sweden is faring. The "Handelstiding" reports a heavy demand and high prices. Of wet ground wood Swedish mills sold to their own paper mills 60,000 tons since last July. The paper then states: "Neither Canada nor Finland is likely to be able to meet the English demand. America, where there is a great shortage, will absorb Canada's production and Finland will have a surplus for export of not more than 10,000 to 12,000 tons of wet groundwood and 15,000 to 20,000 tons of dry. The present price for wet groundwood, f.o.b. west coast is about 300 to 325 crowns (nominally £16 17s. to £18 6s.) per ton and for dry about 600 crowns (£33 15s.).

"The demand for bleached and light bleaching cellulose is very great. Mills have already sold up to 80 per cent of their production for the year and for the balance are awaiting better selling conditions. The price of light bleaching sulphite which on January 20th was about 525 crowns (£29 6d.) has since risen to 1,000 crowns (£56 9s.) f.o.b. Gulf of Bothnia. For strong sulphite the demand is not quite so great, but here prices have nearly doubled since January. For sulphate prices are also rapidly rising as materials (in particular Glauber salts have risen for light-bleaching sulphate) are dearer and the price is 700 crowns (£39 7s.) a ton."

Owing to the scarcity of paper in America and England Scandinavians predict great prosperity for pulp manufacturers. Today they have a boom in paper as regards prices and they can sell all they can produce.

In England, Scotland and Ireland, papermakers are looking out for 1921 supplies of pulp. At present the market is firm, bleached sulphite still standing at the price of £60 a ton. Things have not developed here so quickly as in France and Belgium. In France the National Bureau have resigned as they were unable to assure the regular publication of the newspapers. The newsprint and pulp situation have become critical. In Belgian regions all newspapers are advanced in prices, but supplies of newsprint are very limited.

Taking all things into consideration England is just struggling along on the newsprint and other paper supplies and everything depends on how the pulp men will tackle the position.

FUTURE OF PULP AND PAPER INDUSTRIES.

While there will inevitably be a large development of the pulp and paper industry in the Rocky Mountain states and a great increase on existing developments in the Pacific Northwest, including particularly Oregon, Washington and British Columbia, pulpwood supplies in Eastern Canada and the Eastern states will always have the material advantage of a higher value, owing to proximity to the great centres of population, with consequent saving of freight rates upon the manufactured products.

Authorities in Canada are already becoming alarmed at the increasing difficulty of securing, in the eastern provinces, adequate supplies of pulpwood readily accessible to existing developments. Already in too many cases, pulpwood placed in the water for driving does not reach the mill until the second year of cutting. This adds to the cost of transportation and to loss by sinkage en route, and is inevitably reflected in higher prices to the consumer.

Great areas of the most accessible pulpwood lands have been so denuded by wasteful methods of logging and by fire, that they are now in an absolute or relative condition of unproductiveness. This is exactly the reason why the pulpwood supplies of the eastern states are so near exhaustion that many mills are largely dependent upon imports from privately owned timber lands in Canada. This heavy exportation from private lands in Canada of course correspondingly decreases the supplies that would otherwise be available for manufacture in Canadian mills.

It is obviously important to eastern Canada that its great pulp and paper industries shall be permanent, rather than transitory, as is proving to be the case in the eastern United States. To accomplish this end, however, it is necessary to make fully effective the viewpoint that the forest is a crop, which can, with proper care, be produced time after time upon the same land. This means the practice of forestry.—Clyde Leavitt.

Joseph Ford, of J. Ford & Co., Portneuf, has been ill for some time, but is now on the road to recovery.

Technical Section

NEW TECHNICAL SECTION MEMBER.

Leslie E. Kendall of the Abitibi Power and Paper Company, Iroquois Falls, Ontario, was recently elected to full membership in the Technical Section of the Canadian Pulp and Paper Association.

REVIEW OF RECENT LITERATURE.

A-2. Rags used in papermaking. Henry Atterbury, Atterbury Bros., Inc., New York. Paper, **25,** 735-8, (1919). A description of the sources, classification and method of assorting rags used in the U. S. and Canada.—A.P.-C.

A-3. Papermaking qualities of bagasse. Bull. 46, Hawaiian Suger Planters' Ass., 51 p.; J. Soc. Chem. Ind., **38,** 895a, (1919); Paper, **25,** 876, (1920). Report on the papermaking qualities of bagasse by A. D. Little Inc.—A.P.-C.

A-12. Free Acid in sulphate of alumina. Sindall and Bacon. Paper Makers' Monthly J.; Papeterie, **41,** 536-9, (Nov. 25, 1919). A discussion of the reason why basic aluminum sulphate is desirable for tub sizing, followed by the description of a method for the determination of the basicity or acidity of the salt.—A.P.-C.

A-12. Process for the prevention of caking and hardening of sulphate of alumina in storage. D.R.P. No. 305,715, Frantz Dahl, Germany. Chimie et Industrie, 2, 810 (July, 1919). The $Al_2(SO_4)_3$ is mixed with Na or K salts (e.g., sulphates or chlorides), immediately after it is finshed.—A.P.-C.

A-14. The quantitative estimation of starch in paper V. Voorhees and Oliver Kamm. Paper, **24,** 1091-5, (191)9; Papier, **22,** 317-21, (Nov. 1919).—A.P.-C.

A-14. The diseases of mildewed paper...Papier, **22,** 305-6, (Oct. 1919), 331-2, (Nov. 1919). Review of a book, "Les Maladies du Papier Piqué," Pierre Sée, Paris, 1919, (Doin, éditeur). The first part deals with the microscopic fungi found in paper. The second part deals with the nature of the damage done to paper and proves that it is in a large measure due to the above described fungi. The third part studies the means by which the fungi come on the paper and the method of preventing the damage.

A-15; L-5. Process for cellulose formation...U. S. Patent No. 1, 317,306, Sept. 30, 1919, Paul Minck, Hermsdorf unter Kynast, Germany. Paper, **25,** 827-8, (1919. The process consists in projecting cuprammonium cellulose solution into a precipitating bath containing Cu carbonate besides alkali bydrates, the former being produced in the bath by the addition of Cu hydroxide and alkali carbonate to the bath.—A.P.-C.

A-15. Colloidal properties of cellulose. Hydration problems studied in conection with reactions. Jessie E. Minor, Ph.D., Hammersley Mfg. Co., Garfield, N. J. Paper **25,** 100-3, (1919). Werner's theory of primary and residual valence, developed by Bragg, and applied to colloid-chemistry by Langmuir and by Lewis, is briefly described. The hydration of cellulose in its different aspects is then explained in accordance with this theory.—A.P.-C.

B-2. What Forest conservation really implies. Dr. B. E. Fernow, Can. Lumberman, Aug. 1, 1919, p. 41. Advocates the adoption of forestry methods in order to prevent the exhaustion of the forests of Canada. Emphasizes the importance of the pulpwood industry. The forests of eastern Canada are of particularly great economic importance. Extreme necessity for more intensive fire protection.—C.L.

B-3. Forest production in New Brunswick. Hon. E. A. Smith. Can. Lumberman, June 1, 1919, p. 42. Permanent system of regulating settlers' clearing fires, rules for slash burning, co-operation in fire fighting, and laws governing same.—C.L.

B-4. Reducing heavy costs in logging operations. Can. Lumberman, Oct. 1, 1919, p. 41. How the employment of modern equipment eliminates work and worry, speeds up production and increases efficiency—the standard steam hoist.—C.L.

B-4. Growing activities of Bathurst Lumber Company. Can. Lumberman, June 1, 1919, p. 43.—C.L.

B-4. Saw-mill waste is really appalling. Angus McLean. Can. Lumberman, Oct. 15, 1919, p. 34. Review of an article in which Mr. McLean advocates greatly intensified forest protection, reclamation of unproductive forest lands, regulation of cutting, with a view to elimination of woods waste, and utilization of the vast amount of material now wasted at the mill. Discusses progressive steps along these lines already taken in New Brunswick. Advocates also the manufacture of raw material at home instead of shipping it abroad.—C.L.

B-4 Timber exhibit at Canadian National Exhibition, Toronto. Can. Lumberman, Sept. 15, 1919, p. 31. Describes forest exhibits, British Columbia Forest Branch, Canadian Forestry Assn., Dominion Forest Products Laboratories, and individual lumber and pulp companies.—C.L.

B.-4. How some mills dispose of waste material. Can. Lumberman, Sept. 15, 1919, p. 37. Means adopted by woodworking plants to convert refuse to the best possible use. Practical outlets that the future may develop in this line. Aside from use of millwood as fuel, utilization depends largely upon the development of local markets.—C.L.

B-9. Should pulpwood embargo be extended? Can. Lumberman, Aug. 15, 1919, p. 29. Refers to agitation in favor of shutting off the export of pulpwood, even from freehold lands, to the United States. Much opposition has developed in Canada, aside from the probability that the United States Government might retaliate by placing an embargo on anthracite coal or otherwise. On the other hand, there are strong reasons why Canadian timber should be manufactured in Canada instead of being exported in a raw state.—C.L.

B-9. Making national survey of Canada's timber. James White, Deputy Head, Commission of Conservation, Can. Lumberman, July 1, p. 34. Discusses the survey of the forest resources of Ontario upon which the Commission of Construction is now engaged, under the immediate direction of R. D. Craig. The co-operation of the Department of Lands and Forests has been secured, and timber owners are also co-operating quite generally. See also issue for July 15, p. 35.—C.L.

B-7. The Government and the forest. O. M. Butler, Paper, **25**, 651-4, (1919). A discussion of the necessity of taking proper care of forest wealth, followed by a description of the U. S. Department's system of operating its forests.—A.P.-C.

B-7. A co-operative national forest policy. W. R. Brown. Paper, **25**, 706-7, (1919). As timber raising is a long time investment at small return, it should properly be undertaken mainly by the federal and state governments and by municipalities, preferably by leasing rather than buying the land.—A.P.-C.

B-9. How the timber limits of Ontario are held. Can. Lumberman, Sept. 1, 1919, p. 87. Evolution in the methods of disposing of licenses; the various species of woods found in the province and their wide distribution.—C.L.

B-9. How long will the timber of Canada last? R. G. Lewis, Dominion Forestry Branch, Can. Lumberman, Oct. 1, 1919, p. 43. Emphasizes our lack of knowledge of the forest resources of Canada; discusses estimates already made for the several provinces. If proper measures of protection and reproduction are undertaken, there is little danger of famine. Improved methods of utilization urged.—C.L.

B-9. What vast spruce forest mean to Quebec. Edward Beck. Can. Lumberman, June 1, 1919, p. 41. Classification of Crown lands, reforestation, provincial revenues, pulp and paper industry.—C.L.

B-9. Survey of British Columbia Forest. Can. Lumberman, June 1, 1919, p. 46. Review of report by H. N. Whitford and R. D. Craig, published by the Commission of Conservation. Of species suitable for pulpwood there is estimated to be approximately 250,000,000 cords in the province.—C.L.

C-5; D-3; E-3; F-5. Pulp output reduced by long storage. Paper, **26**, 15, (1920). Storing greatly reduces the yield of pulp obtainable from a given quantity of wood, without any compensating reduction in operating expenses. The loss may be as high as 25 per cent on wood stored for 2-3 years.—A.P.-C.

K-7. Green's viscosimeter for paper stuff. United States patent No. 1,321,736. Arthur B. Green, Erie, Pa. Paper, **25**, 746-8, (1919). A rotatable body, which is preferably formed with blades or wings, which has no effect in propelling the stock, is submerged in the paper stock, where it is rotated at a uniform rate of speed by a suitable motor. The measurement of the power required to produce the uniform rotation and the variation of such power accurately determine the viscosity of the stock. The same result may be obtained by applying to the rotor a uniform amount of power and measuring the rotations of the rotor.—A. P.-C.

K-18. Ribber cardboard. Fr. patent No. 496,317, Sept. 16, 1918. Cartonneries de Gondardennes, France. Papeterie, **41**, 384 (Dec. 10, 1919). By the use of a grooved felt, or similar means, a ribbed cardboard is obtained which is stronger than a plain cardboard of the same weight and same average thickness.—A. P.-C.

K-23. Treatment of paper... Eng. patent No. 120,353, H. J. Hickman and W. H. Goulding, England. Chimie & Industrie, **2**, 1078, (Sept. 1919). The paper or fabric used to cover jars containing preserved or canned fruit or vegetables is treated with a mixture of resin, beeswax and tallow to which has been added clove extract and a solution of carmine The coated fabric is adhesive when hot.—A.P.-C.

K-23. Waterproof paper... Eng. patent No. 121,318, J. T. Croll, Scotland. Chimie & Industrie, **2**, 1226, (Oct. 1919). On leaving the machine the paper is passed through a bath of wax or other waterproofing substance, and thence between cylinders, and finally in a drier where it is subjected to the action of ventilators or of compressed air.—A.P.-C.

L-5. Cellulose mucilage. Carl G. Schwalbe and E. Becker. Zeitzsch. angew. Chem., **32**, 265-9, (1919); J. Soc. Chem. Ind., **38**, 859a, (1919fl; Paper, **25**, 875, (1920). Cellulose mucilage was prepared by different methods from soda cellulose, sulfite cellulose, and parchment paper cellulose and the water, ash, copper value, hydrated copper value, and pentosans in the products were determined. Mechanical division produces mucilage, the copper and hydrated copper values being increased. Treatment with acids prior to mechanical treatment accelerates the formation of mucilage which appears to depend on the formation of hydrolytic decomposition products (cellulose dextrins), having a higher paper value than cellulose. Mitscherlich cellulose for parchment paper almost invariably has a high copper number. Pentosans are not materially attacked by the mechanical treatment, but in the disintegraton with acids a portion of the soluble pentosans is degraded and dissolved. The formation of mucilage is considerably reduced by boiling or steaming the cellulose for a long time.—A.P.-C.

L-7. Wetspun woodpulp thread. E. O. Rasser, Papierfab., **17**, 55-6, (1919); Chimie & Industrie, **2**, 1225, (Oct. 1919). For the manufacture of spun woodpulp thread, the choice of the wood is very important; trees growing on the south slope of a mountain are not as good as those growing on the north slope. Swedish pulp is superior to the German pulp, the fabrics made with the former shrinking less on washing. During the preparation of the pulp it is important to avoid cutting the fibres across the length. The wood should be cut in shavings, in a manner similar to that of a pencil-sharpener. The author considers the proper method of working would be to isolate the fibres sufficiently long to enable them to be spun either alone or mixed with others. At the present time the possibilities of parallelizing wood fibres wet, so as to obtain directly a continuous thread, are (1) the suspended pulp can be spun under pressure in the same way as artificial silk; (2) the rotation of stock of very low consistency in closed vessels parallelizes the fibres. This process will be covered by patents, as will also the manufacture of a woodpulp wadding which can be woven dry.—A.P.-C.

N-5. Pulverized coal. H. Fernand Poitte. Papier, **22**, 329-30, (Nov. 1919). To obtain a high efficiency the system must be flexible, i.e., respond quickly to changes. In many cases it is important to be able to regulate the flame so as to maintain a given condition e.g., a reducing or oxidizing flame. Producer gas possesses the disadvantages of loss of heat in transferring from the producer to the furnace (unless regenerators are used) and of containing the smoke producing part of the coal. Pulverized coal has a very high rate of combustion resulting in a high flame temperature and high efficiency. By proper control of the coal and air feeds complete combustion is easily obtained. The air should be brought in contact with the coal at a low pressure, and in such manner as to obtain a rich mixture, a high air pressure resulting in a poor mixture and lengthening the flame thereby requiring a longer combustion chamber and also causing much more wear on the latter owing to the high speed of the gases and of the particles of fused ash.—A.P.-C.

PULP AND PAPER NEWS

Mr. Alex. Buntin, of the Buntin Reid Company, paper dealers, Toronto, is back at his desk after a couple of weeks spent at Atlantic City, following a few days of hospital treatment. His many friends are pleased to know that he has been greatly benefitted by the rest and change.

An office has been opened at 81 Victoria Street, Toronto, by Mr. R. A. Rawsthorn, who is the Canadian representatives of Middows Brothers & Co., Ltd., paper and general merchants, import and export, of London, Eng. The company also have branches in Montreal, Australia, New Zealand and South America.

Mr. John R. Diggs, representing the Albermarle Paper Manufacturing Co., Richmond, Va., has been calling on the Canadian paper trade men in Toronto, Montreal and other cities.

According to advices reveived in Toronto, the Red River Paper Mills, Limited, of Norwood, Man., are now installing a paper machine equipped with twelve dryers as well as two beaters, one Jordan engine and a stack calender. Within the next few months the company expect to begin the manufacture of bogus wrapping paper entirely from old paper stock.. The Red River Paper Company are the first industyy of the kind in the prairie provinces and will provide a ready market for the waste paper of Winnipeg and other western cities.

In accordance with an order just issued at Osgoode Hall, Toronto, the Modern Paper Box Company, of Guelph, Ont., is to be wound up, the assets of the company are placed at $93,000 and the liabilities at $110,000.

Work on the erection of a sixty-foot addition to the machine room of the Kinleith Paper Mills, St. Catharines, has been commenced. W. J. Trimble, of Toronto, has the contract and the expenditure will be about $40,000. It is the intention of the company to add several more dryers to the large paper machine, which is 96 inches wide. The plant is very busy turning out its product and the improvements, when completed, will add greatly to the capacity of the Kinleith Company.

Richard Brown, formerly a member of the firm of Brown Brothers, stationers, Toronto, left an estate valued at $543,626. A number of Methodist institutions throughout the country benefited considerably, the deceased having been a prominent member of the denomination.

Rev. R. Douglas Fraser, D.D., Editor and Manager of the Presbyterian publications, has decided to retire from the position, after twenty-two years service. Dr. Fraser was founder of the church publications, which include Sunday School supplies and periodicals.

An official church weekly paper, to be published in the interests of the Presbyterian Church, will be one of the recommendations of the special committee to the Assembly on the subject of co-ordination of church officialdom.

J. Brittle who conducted a waste paper business in Woodstock, Ont., has disposed of his business to the National Metal and Waste Company, Limited, in the same city. Mr. and Mrs. Brittle have gone to England, where they will reside in future.

To conduct a newspaper and general publishing business, with a capital stock of $10,000 and head office at Rainy River, the Rainy River Record Publishing Company, Limited, has been granted Ontario incorporation.

The Canadian Child Publishing Company, Limited, has been granted incorporation by the Ontario Government, with power to carry on a general printing and publishing business. The capital is fixed at $40,000 and the head office is in Toronto.

In the opinion of E. R. Hyland, of the Thompson & Hyland Company, who has just returned to Toronto from a trip to New York, newsprint does not appear to be so short in the American metropolis as is sometimes represented. Mr. Hyland points to the fact that a recent Sunday edition of one of the New York Papers contained 252 pages and added that some of the publishers are sending out trucks to gather up paper from the mills for miles around the city for delivery to the city newspaper offices.

A young man, well-known in the pulp and paper trade, has been elected Honorary President of the Young Men's Club of the Toronto Board of Trade in the person of Mr. G. A. Howell.

A break in Lock 17 of the Welland Canal necessitated the closing down for a week of all the paper mills at Thorold, Merritton and St. Catherines, which draw their power from the canal. The tie-up was considered unfortunate in these days of under-production but the mills took advantage of it to give their plants a good over-hauling.

The 80 x 90-foot extension of the Georgetown plant of the Provincial Paper Company, which is to be used as a finishing room for coated stock, is now in use. Three trimmers are in use in the room, which is two stories high. The new color department is also completed and as soon as several color tanks are delivered the department will be in operation. The mill is still several weeks behind with its orders and two shifts have been working continuously for several months past in order to catch up with orders.

The Montrose mill at Thorold of the Provincial Paper Company will soon have its new store room in operation. It will be used for the storage of raw material and the structure is 136 x 50 feet, the material being brick and concrete.

P. Westbye gave a very interesting address at a recent meeting at Peterborough of the Peterborough branch of the Engineering Institute, the subject being "The history of paper making." The address had special reference to the history and development of the industry in Canada and it was made doubly interesting by the use of several rolls of films loaned by the Federal Government. One of the views was that of centrifugal screens which are manufactured by the William Hamilton Co., of Peterborough, and patented by Mr. Westbye.

Mr. D. A. Nicholson, of the Kimberly-Clarke Company, Chicago, was a business visitor to Toronto this week.

NEWSPAPER SUSPENDS

St. Catherines, May 2.—The Evening Journal suspended publication yesterday because of the steadily increasing cost of material and advancement in wages. The newspaper was established in 1859.

SATURDAY EVENING POST DESERTS CANADA

The Saturday Evening Post of Philadelphia, for years a popular nickel magazine with Canadian readers, will no longer be seen in the Dominion, for on account of paper shortage all supplies to Canada, save those to present subscribers, cease May 1. The ban will continue until there is an improvement in the paper supply, and as existing subscriptions run out they will not be renewed. The Post will not be obtainable after today on news stands or in book stores throughout the Dominion.

GRACE & CO.'S GROWTH SHOWN IN PICTURES

The annual fictional number of "The Grace Log," the monthly magazine of the well known trading company W. R. Grace & Co., is distinctively interesting and attractive. By 123 pages of beautifully lithographed photographs and sketches the number most delightfully carries out its aim of showing "by pictures the world-wide interests of the Company" during its 60 years.

Many interesting glimpses are given of the varied resources and activities of the company in the 26 countries where they control interests in the 157 branches of their great industry. One turns from an interior view of the leather and paper section in the home office in New York to an excellent picture of sugar factories in Peru—from a photograph of the Grace office staff in Yokohama, to the likeness of the representative of the House in Africa—thence to a lumber yard in Coquimbo or to a building containing the Grace offices in Vladivostock.

Illustrations of transportation facilities in the various countries have a special interest and variety, for these range from the splendid Grace steamships to the ox-cart of Costa-Rica and the camels of the Andes. All are agencies in carrying on the great work of the famous House of the business world.

Since, in the course of a year, an immense quantity of paper and paper material is handled by the Grace Co., this pictured story of the company's activities has a special interest for the pulp and paper industry.

MORE PULP, LESS WOOD, EXPORTED.

A sidelight on the pulpwood controversy which is agitating Washington is furnished by the Canadian trade returns for February which show that the exports of pulpwood from Canada to the United States during that month were reduced to 52,351 cords, valued at $539,429, or considerable less than one half the quantity exported in Februray 1919 which amounted to 145,747 cords valued at $1,411,100.

Exports of pulpwood have been gradually diminishing for many months, the total for the first eleven months of the current fiscal year amounting to 790,828 cords, valued at $7,956,819, against 1,449,117 cords, valued at $13,978,457 for the corresponding period of 1919, and 943,646 cords, valued at $7,778,750 in 1918.

Pulp and paper exports for the month, show an increase of $2,226,054 over February 1919, being made up as follows:

FEBRUARY	1919	1920
Paper and mfrs. of	$5,031,624	$6,304,388
Pulp, chem. prep.	1,916,828	2,615,156
Pulp mech. ground	217,421	472,383
Total	$7,165,873	$9,391,927

The paper exports for February, 1920, included 1,266,653 cwts. of newsprint, valued at $5,290,398; 34,884 cwts. of kraft wrapping paper, valued at $306,393 and paper boards to the value of $405,410.

Pulp and paper exports for the first eleven months of the fiscal year amounted in value to $92,968,105, a gain of $18,398,985 over 1919 and of $37,013,337 over 1918, made up as follows:

Eleven months	1918	1919	1920
Paper & mfrs. of	$32,844,643	$42,130,787	$56,022,212
Pulp, chem. prep.	17,323,731	28,184,972	29,124,782
" mech. ground	5,886,394	4,253,361	7,821,111
Total	$55,954,768	$74,569,120	$92,968,105

CANADA'S STAKE IN PULPWOOD INDUSTRY

Ottawa.—From April, 1914 to August, 1919 Canadian pulp and paper companies florted a total of $40,of 752,876 various forms of securities. Of this amount, $1,199,876 onl was placed in Great Britain; $17,800,000 was placed in the United States, and $20,753,000 in Canada. Of the balance of $1,000,000 which is uncertain, probably about $800,000 was placed in the States and $200,000 in Canada. The $20,00,000 placed in Canada was floated subsequent to November, 1917, the period during which Canada absorged three great Victory loans.

The "Census of Industry" gives the total investment in pulp and paper mills in Canada in 1917 as $186,787,405, being an increase of $53,050,602, or 39.6 per cent over 1915. The investment is now more than $240,000,000.

These figures reveal that the investment in our pulp and paper industry is very large and that it is rapidly increasing. Indeed, it may be truly said that the manufacture of pulp and paper is one of our "key" industries. We must always import many commodities from foreign nations and these must be paid for with our own exports. Every industry which produces a large surplus for export is vital to the nation's welfare.

ROYAL SECURITIES ENTERS AMERICAN FIELD

A direct reflection of the growing attractiveness of Canada and Canadian securities as an investment field for American capital is the announcement by Royal Securities Corporation of the opening of a New York Office. To conform with the requirements of New York State laws, the new Branch has been incorporated under the name of Agency of Royal Securities Corporation (Canada) Limited. Its offices are located at 165 Broadway under the management of Mr. Oliver E. Hurd. The extension of the facilities of the Corporation to include the American as well as the Canadian and British markets will tap additional capital for the development of Canadian public utility and industrial enterprise, in the financing of which the Corporation is a leading factor.

PRICE OF PEELED PULPWOOD

An advertisement in the Hartland, N. B., Observer offers $14.50 on the car for spruce and firs, and $9 a cord of poplar. Terms, cash when loaded.

SUCCESS OF SAFETY WORK DUE TO FOREMAN.

Some valuable suggestions will be found in the following excerpt from the annual report of the Secretary-Engineer of the Ontario Pulp and Paper Makers' Safety Association. Mr. Costigan said:

The safety movement is based on the co-operation of the management, foremen and employees. It is in the interest of all, and the duties of each can be clearly outlined.

An efficient Safety organization starts at the top. The management must do its part not only by a show of interest, but an active interest in giving effect to reasonable suggestions involving the safeguarding of physical hazards, sanitary conditions, lighting, plant housekeeping, etc. A safety organization to get anywhere must be backed by enthusiasm on the part of the management. If this is the case it is not long till every foreman and employee realizes that the Company is in dead earnest in its efforts to make the plant safe.

The duties of the Superintendent are in effect the same as the management, but coming in direct touch with all foremen, his enthusiasm is communicated to his assistants and brings about whole-hearted and intelligent co-operation. Where the Superintendent is not enthusiastic, Safety, if thought of at all, is treated as a side issue, whereas it should be considered of as vital importance as any other operating department. Only when the above is the case will production benefit to the full from the Safety organization.

The duties of the members of Plant Committees is all embracing, in that the spread of interest throughout the whole plant depends on how they conduct themselves in the carrying out of the ordinary duties of their employment. The members of Committees should be examples to their fellow-employees, ready and willing to give a word of warning or advice to new men, keeping their eyes open to detect unsafe practices, dangerous places, defective lighting, exposed electric wires, etc., and make suggestions for the correction thereof, encouraging other employees to make suggestions and doing everything possible to establish a feeling of pride in the employment among their fellow employees. It is fatal to the success of the movement to have men acting on Committees who themselves take the very chances they warn others to avoid.

Foremen, in the opinion of the writer, form the arch in the whole structure. There is no class of men in the mill who can more quickly or more effectually damn Safety work than the foreman if their sympathies have not been aroused and their interest secured. The foreman is the man most intimately acquainted with the men, he knows all the physical hazards of the work upon which his men are engaged; therefore, it follows that a foreman who is interested in Safety and is persistent in his efforts to prevent accidents will have few accidents. The foreman should feel that if one of his men is injured by a preventable accident, he is to a certain extent responsible, or if he knows that employees under his charge are indulging in practices which involve risk to themselves or others, he should eliminate such practices, as otherwise he is morally responsible for any accident that may result therefrom. If all the interests I mentioned could be brought to act in unison, it would be an easy matter to have a successful "No Accident" week, month or even year in any pulp and paper mill in Ontario.

NUT TREES

(New York Times)

"Why white pine," is the question vehemently asked in behalf of the Nut Growers' Associations both the national one and the northern, as a result of a little exploitation given in this column the other day to the plans and proposals of the Massachusetts foresters. The latter want to turn into pine woods several hundred thousand acres of Massachusetts land now producing nothing, or only "weed trees," and they figure out that at the end of fifty years there would be a clear profit of several hundred dollars for each acre. To the enthusiastic believers in the possibilities of nut trees, the slow growing pine, with only inedible cones for fruit, has few charms, and it cannot be denied that they make out a better showing for the objects of their own admiration and hope.

There is a good to be said for nut trees as against trees of other kinds. It is not necessary to go as far as do some of the growers, or would-be growers, of nut trees, for they insist that humanity make the stupidest of all its many mistakes when it turned to the cereals for food—that with vastly less labor nut trees would have supplied us not only with the starch supplied by the grains, but would have made eating not the near-necessity it is now, but a mere pleasant change of diet for those who like a diversity.

The case is hardly as simple as that, for the few people who depend largely on trees for food, while they certainly escape a lot of hard work, never have done much of value with the leisure thus won, and have been, as a rule, pretty poor specimens. Most of them live on South Sea Islands or oases in African deserts, and it is highly probable that they eat what they can get rather than what they like or what is good for them.

TECHNICAL QUESTIONS.

(From La Papeterie.)

Quest. 8. Can a very white twine be obtained without cooking?

Ans. This can be obtained provided the beating is done very carefully. This should last 3-4 hrs., accompanied by washing during the whole operation. After beating, the pulp should be thickened and treated with caustic soda, after which it is washed on a washing drum. Finally, it should be treated with bleaching powder for 2½-3 hrs., and again washed.

500 kilos of rags require 6 kilos of caustic soda and 20 kilos of bleaching powder.—A.P.-C.

Quest. 9. In the mill where I am machine tender it often happens that pure chemical pulp is not sufficiently hydrated. In spite of my putting in all the size, the sheet is already drained when it reaches the first suction box; it becomes "fuzzy" at the couch rolls; and then breaks. Could somebody help me out of the difficulty?

Ans. The best way is to use a draining roll. The paper may perhaps be finer than need be; but that is better than turning out nothing but broke.—A.P.-C.

Imports of wood pulp by the United States in 1919 amounted to 567,872 tons, valued at $37,048,381 and other pulp making materials were worth $7,184,555. Most of the pulp came from Canada, besides 1,047,249 cords of pulp wood worth, $10,458,753. This in turn declined by 322,778 cords and $2,903,813 as compared with 1918, while pulp gained 51,614 tons and $5,571,206.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, May 1.—With prices changing over night and with the buyers of paper not knowing today what they are going to pay tomorrow for their shipments, with the stocks low and shipments decidedly backward, the condition of the Canadian paper trade generally is far from satisfactory, except in the sense that the industry is tremendously prosperous financially. But the trade as a whole would gladly sacrifice a little of the prosperity if business would return to fairly normal conditions again, a consummation that can hardly be looked for until the prevailing underproduction is overtaken and the present great demand slackens. Market lists at the present time, for most lines of paper, are not a very illuminating guide. As one leading paper man put it, "we have one price today and another tomorrow and a number of lines are off the market altogether—so how can we quote prices." The same man was in New York the other day and was offered 15 cents a pound for carload lots of newsprint which order he would have been glad to fill if he could. It is known that some spot lots of Canadian newsprint have been sold at 12½c. Other lines are soaring in sympathy with the ever-increasing price for both mechanical and chemical pulp. Groundwood pulp is now quoted at from $100 to $110 a ton and bleached sulphite has soared to the $200 mark in some instances, although around $150 appears to be the ruling figure. Easy bleaching sulphite is selling at from $110 to $120 and the top price for sulphate is $115 a ton. Enquiries are coming into the Canadian mills from all quarters and foreign buyers are ready to pay almost any price for pulp and offers have been made of late of twelve cents a pound and more for spot lots of bleached sulphite.

All these sky-high prices for raw material have been having their effect on the finished paper goods in the form of frequent advances on several lines. There has been another advance of a cent on Manilas and fibres and the following prices now prevail in carload lots to jobbers: grey browns and white wrap 8c.: "B" Manila, 8¼c.: No. 1 Manila, 10c.: fibre 10c. With toilet and tissue plants from three to six months in arrears in the matter of deliveries another increase has just gone into effect on toilet paper. The basic discount on one case lots and less has been changed from 30 and 5 to 25 per cent and other and larger quantity quotations in proportion. The new price list advises that to all wholesalers and jobbers, as well as wholesale grocers in 10-case sorting-up lots in one shipment, the 25 case discount is allowed in addition to the discount applying on less than three case lots. Shipments of not less than 50 case lots may be favored in proportion to car lots, buyers direct to their consumers at the car discount. On such shipments, if made to an f.o.b. point, carload rate of freight only will be equalized on the basis of carload rates of freight.

Kraft, both glazed and unglazed, is a scarce article of paper merchandize and orders sent to the mills for the former, are meeting with no concrete response. From 11c. to 12c. is the prevailing price for the commodity and the product is being doled out on a rationing basis and as carefuly as the quartermaster handed out the rations during an advance on the western front. Kraft pulp is very firm and the ruling figures are from $125 to 130 per ton. There is a shortage in vegetable parchment and owing to the increased cost and the shortage of raw material, one firm dealing in that commodity has withdrawn its price list and all the book and writing paper mills are quoting at prices prevailing at time of shipment. In justification for this it is pointed out that no other course is available owing to the way that quotations for pulp, paper stock, rage, etc., are on the upward grade all the time. Advices of advances are received nearly every day and shipments are most uncertain owing to shortage of cars, scarcity of supplies and other causes. Some of the peper mills are sold up to September next, even if no more orders were booked. One of the leading stationery manufacturing firms in Toronto placed an order for certain lines of paper as far back as September last an is still looking for the stock.

Some of the mills making various lines have in the past been able to turn out considerably more quantities than required in the way of cover papers, bristols, tag Manilas, etc., but there are no stocks of any dimensions on hand at the present time.

The shortage of skilled help is handicapping the box board manufacturer and the number of manufacturing firms requiring containers for their goods,

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who are installing their own box-making plants, is increasing. Several of the large chocolate works and textile firms have now box making plants as part of their regular business and they, in common with the regular box-making factories are complaining of the difficulty with which box board is secured.

Pulp Prices.

	F.O.B. Mill.
Groundwood pulp	$100.00 to $110.00
Sulphite, news grade	$82.50 to $90.00
Sulphite, easy bleaching	$110.00 to $120.00
Sulphite bleached	$140.00 to $150.00
Sulphate	$110.00 to $115.00

Paper.

(These prices, for the most part, must be considered as nominal, the situation in many lines being quite abnormal.)

xBook papers (carload), No. 1	13c.
xBook papers (ton lots) No. 1	13½c
xBook papers (carload), No. 2	12c
xBook papers (ton lots), No. 2	12½c
Ledgers	17c up
Sulphite bonds	15½c
Light tinted bonds	16½c
Dark tinted bonds	28c
Manila B	$8.25
White wrapp	$8.00
Writings No. 2 (M.F.)	13½c
Writing No. 1 (S.C.)	15½c
Coated book and litho, No. 1	$14.50
Coated book and litho, No. 2	$13.50
Coated book and litho, colored	$14.75
Grey Browns	$8.00
Fibre	$10.00
Manila, No. 1	$10.00
Tissues (unbleached sulphite)	$1.40
Tag Manila	$10.00
Unglazed kraft	$11.00
Glazed kraft	$11.00
Tlssues, bleached	$1.65 to $2.00
Tissues, cap	$1.25
Tissues, Manila	$1.10 to $1.30
Natural greaseproof	17c.
Bleached grease proof	19c.
Genuine vegetable parchment	23c.
Bleached white glassine	32c.
Drug papers, whites and tints	10½c and 11½c
Paper bags, Manila (discount)	20—5 per cent
Paper bags (kraft)	30—5 per cent
Confectionery bags, white	20—5 per cent
Straw board	$88.00
Chip board	$88.00
Vat lined chip board	$96.25
Filled wood board	$99.00
News board	$96.25
Manila lined folding board, chip back	$104.00
Pulp folding board	$113.00
Jute board, No. 3	$88.00
White patent coated board	$145.00
Grey folding board	$126.00

*The Government price of 4 cents for newsprint rolls in carloads to Canadian purchasers is general to July 1st. Other sales are much higher, when paper is to be had.

xThese prices are for machine finish supercalender one-half cent higher.

NEW YORK MARKETS.

New York, May 1—While the daily newspapers continue to report the railroad strike as a thing of the past, with shipping conditions steadily improving, as a matter of fact the freight situation is very nearly as bad as it has been at any time during the past several weeks. Shipments of paper from mill centres have increased but slightly and the local market is high and dry of available stocks of every kind of paper. Jobbers have practically nothing to offer their customers and are finding it extremely difficult to secure consignments from mills. The chief factor in the railroad situation now is the car shortage. With roads in various parts of the country congested with freight, the movement of cars to destinations is very slow, and present prospects are that it will require a month or more for matters to become anywhere near normal.

Locally demand for paper of all varieties is of an excited character. Dealers' stocks are near to a vanishing point and jobbers are finding it next to impossible to fill the wants of customers, who are in turn anxiously seeking in numerous directions for available supplies. Spot lots of paper are fetching premiums in nearly every sale. In fact, buyers are overlooking questions of price and are meeting any figure when successful in locating unsold stocks of paper. Under the circumstances, it is next to impossible to get anything like an accurate line on market values. Quotations are very irregular and dealers and mill agents themselves frankly say they are not aware of what actual prices are.

The hearings in Washington before the Senate Manufacturers subcommittee in the newsprint investigation this week have had no visible effect on the market. Demand is of fully as broad proportions as heretofore and spot lots of newsprint are commanding just as high, if not higher, prices. Actual sales of news in standard rolls have been recorded at 15.50 cents per pound, and there have been rumors of 16 cents having been paid. The testimony of witnesses at the hearings in the national capital have emphasized one important point and that is that consumers of newsprint have finally come to the conclusion that the real reason for the present paper situation is that consumption is too greatly in excess of the current production. Prominent publishers from various parts of the country were loud in their praises, or at least in their defences of newsprint manufacturers, saying that no blame for the prevailing tight condition of the paper market could possibly be attached to manufacturers.

The market for book papers is strong to an extreme. Local publishers, whose stocks have been depleted during the railroad tie up and who are prevented from receiving shipments of sufficient size to cover their needs, are in quite a few cases hauling supplies from mills by auto trucks. In other cases, they are having consignments shipped to nearby towns where they are unloading the paper from freight cars and trucking it into the city. So acute is the shortage of book papers that several magazines have been obliged to combine two or more of their issues into one or more of their regular issues. Prices on book papers are very irregular and are mainly nominal. Jobbers have little or nothing to offer as about the only shipments arriving are contract supplies.

Available stocks of wrapping and tissue papers are at a minimum also. Dealers fortunate enough to have some supply still on hand are doling out these papers to regular customers so as to cover as much ground as possible, and outside buyers are binding it

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next to impossible to get paper. The fine paper situation is similar to that for other grades. Only very limited supplies are obtainable on the spot and but occasional consignments are being received from mills. Prices in every instance are mainly nominal.

A further advance has occurred in board prices. Plain chip board has sold at as high as $105 per ton and News board at $115, and rumors in the trade are to the effect that higher prices have been realized. Most of the board now coming into this market is being hauled in from nearby mills by auto trucks, and there is no where near enough to go around.

GROUND WOOD—Demand for mechanical woodpulp is of an excited character and buyers are meeting almost any price asked when finding spot tonnages available. Prices are principally nominal owing to the fact that few offerings are being made in the open market, and while $110 a ton is the highest figure actually reported paid, there are reports heard of transactions at even higer levels.. Grinders in common are sold up for some time and have little or nothing in the way of prompt shipments to dispose of. In some cases it is said producers are borrowing pulp from each other in order to fill contract commitments, which condition aptly indicates the dire shortage of unsold pulp. Newsprint and board manufacturers and other consumers are actively in the market as buyers and are eagerly snatching up every parcel of ground wood to be had while paying scant heed to the prices asked.

CHEMICAL PULP—Illustrative of the heavy consumption of chemical woodpulp at present, the monthly review of the Federal Trade Commission for March shows that despite an increase in production of chemical pulps in that month of approximately 47,000 net tons in excess of the output in March of last year and of about 18,000 tons above the average for the past three years, stocks on hand at domestic pulp mills at the end of March were but 36,242 net tons, a decrease of more than 15,000 tons from the holdings of mills on the same date a year ago and compared with average stocks of 46,052 tons for the past three-year period. These figures go to prove that current consumption of pulp is running well in excess of the production, which accounts for the pointed demand now prevalent and the high prices ruling.

There are very few lots of chemical pulp either for spot or future delivery offered at present. Manufacturers are mostly sold up for several months and are keeping out of view as sellers, being indisposd to enter into commitments further ahead. Prices in consequence are mainly nominal, and premiums are being paid for prompt shipments. Only occasional shipments of foreign pulp are arriving and such lots as are being received are practically all sold to arrive. Prices in the Scandinavian countries give no indication of receding and are generally so far beyond a parity with values ruling here that importers and consumers alike are little given to buy.

RAGS—The rag market maintains its equilibrium although business continues to be seriously hampered and curtailed by unfavorable shipping conditions. Mills are inquiring freely enough for supplies and appear to be in need of rags, yet they are mostly holding off in placing orders. because they know full well that stock cannot be delivered under prevailing circumstances. Dealers nevertheless are holding supplies with firmness are seen to be imbued with the belief that when transportation avenues open up mills will come actively into the market to buy and that values will undergo enhancement. A bearish factor is the heavy arrivals of foreign papermaking rags recently the great bulk of which is tied up here owing to the inability of importers to effect shipments to mills. Whether or not the accumulation of stocks of both domestic and foreign rags will result in a decline in prices is a question at the moment, and viewing the matter from all angles, it would appear to be a toss up one way or the other.

PAPER STOCK—Business of moderate volume is passing in old papers notwithstanding the many difficulties thrown in the way of shippers in moving supplies toward consuming mills. A good part of the local production of stock is being hauled by auto trucks to nearby board mills, and there is evidently a sufficiently large movement to sustain prices, as quotations are firm with such changes as have occurred being generally in an upward direction. Hard white shavings of No. 1 quality have sold at 6.50 to 6.75 cents a pound f.o.b. New York and No. 1 soft whites at 5.50 cents. Old magazines are readily fetching between 3.30 and 3.50 cents at shipping points, while folded newspapers are selling at 1.75 to 1.85 cents f.o.b. New York and No. 1 mixed papers at 1.50 to 1.60 cents. Kraft papers are quotably steady and old No. 1 kraft has sold at 3.50 cents New York. White blank news rules firm at a quotational range of 4 to 4.25 cents per pound.

OLD BAGGING AND ROPE—Prices on old rope are maintained with No. 1 Manila quoted at 8.75 to 9 cents a pound at shipping points. There is a tendency for prices to sag, yet dealers as a rule are refusing to accept orders at lower levels presumably because most of them have quite a volume of unfilled mill orders booked. Old bagging is in slight demand and No. 1 scrap is freely offered at arount 3.25 cents at shipping points.

DECENNIAL CELEBRATION FOR THE U. S. FOREST PRODUCTS LABORATORY

Madison Association of Commerce and Forest Products Laboratory Plan Big Celebration in Honor of Laboratory's Tenth Anniversary

Madison, Wis.—Preliminary arrangements are well under way for a big get-together at Madison during the latter part of June to celebrate the tenth anniversary of the opening of the Forest Products Laboratory. It is expected that a large gathering of representatives from the various industries interested in the laboratory's work will be present, and opportunity will be afforded for recreation as well as for becomng more familiar with the extent and significance of the laboratory's activities. Present plans call for a two-day meeting, with addresses by men of national reputation in science and industry, a banquet, tours of inspection through the laboratory, informal discussions, and various forms of entertainment. Detailed arrangements will be announced later.

The Forest Products Laboratory is a branch of the United States Forest Service, established in 1910 in co-operation with the University of Wisconsin, and is a consolidation of a number of testing laboratories and other units of the Forest Service which had been located at various points throughout the United States. It is engaged principally in industrial research on problems connected with the manufacture and use of forest products, including besides lumber, posts, poles,



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ties, and similar products, pulp and paper, naval stores, hardwood and softwood distillation products, and other chemicals and pharmaceuticals. At the present time the laboratory employs about 200 people and occupies five buildings in whole or in part.

TENTH ANNUAL REPORT, COMMISSION OF CONSERVATION OF CANADA, OTTAWA, 1919. Pp. 278.

The Commission of Conservation of Canada is a purely investigative and advisory body, having no executive or administrative functions whatever. It is interesting to note that this Commission was an outcome of the great conservation movement headed by President Roosevelt, which brought about the conference of Governors at Washington in 1909, and was followed by the North American conference shortly after. It was the report of the Canadian delegates to this international conference that determined the Government of Canada to establish a Commission of Conservation. This Commission has persisted, though the National Conservation Commission of the United States fell by the wayside.

The tenth annual report of the Commission comprises the proceedings of the annual meeting held at Ottawa, February 17, 1919, and embraces, for the most part, review of developments along conservation lines during 1918, with recommendations. The discussions cover such subjects as water-power, housing, town-planning, public health, agriculture, fuel supplies, and forestry.

The report is unusually rich in forestry material, containing reports by Clyde Leavitt, Chief Forester of the Commission, Dr. C. D. Howe, in charge of forest research, and R. D. Craig, in charge of the investigation of forest resources, on the Commission's forestry staff.

The report of the Committee on Forests, by Mr. Leavitt, embraces a review of the forestry situation during the previous year, with recommendations for future action. The situation for each province is reviewed separately, as also with respect to the Dominion Government. Very material progress has taken place, notwithstanding war conditions, but only a beginning has yet been made toward the actual practice of forestry. The ownership by the Dominion and provincial governments of the great bulk of the non-agricultural timber land throughout Canada renders the situation very much more favorable for future forestry practice than is the case in the United States, taken as a whole.

Dr. Howe presents a preliminary report on the Quebec forest regeneration survey, which is being carried on in that province under a plan of co-operation between the Commission of Conservation and the Laurentide Company and the Riordon Pulp and Paper Company. In addition to studies of regeneration, volume and growth of pulpwood species, permanent sample plots have been established, upon which detailed observations will be taken periodically throughout a long period of time. Collaboration is also established with the Dominion Entomological Branch, under which Dr. J. M. Swaine is making investigations of forest insects, with special reference to the balsam (or spruce) budworm, which has caused enormous damage in the pulpwood forests of eastern Canada, the damage to the balsam being much greater than to the spruce.

Dr. Howe contributes also a second paper entitled "How Shall We Make Our Forests Safe for Trees?" In this are discussed losses from fire, insects and disease, and the effect of present method of conducting logging operations, in the gradual or rapid conversion of the mixed softwood-hardwood forests into hardwood forests.

Mr. Craig's contribution to the report comprises a review of aeroplane lumber production in British Columbia. During the latter portion of the war, Mr. Craig's services were loaned by the Commission of Conservation to the Imperial Ministry of Munitions, in order that he might take charge of the inspection of aeroplane lumber purchased in British Columbia for the British Government, through the Imperial Munitions Board. Major Austin C. Taylor was appointed Director of the Department of Aeronautical Supplies by the Board, his assistant being H. R. MacMillan, formerly Chief Forester of the British Columbia Forest Branch, but who, more recently, has gone into the export timber business with headquarters at Vancouver. Mr. Craig's report summarizes the important contribution made by the forests of British Columbia toward winning the war, through the furnishing of large quantities of Sitka spruce and Douglas fir for aeroplane manufacture.—C. L.

GERMAN NEWSPRINT COST

London, May 3.—The Daily Mail's Berlin correspondent says newsprint in Germany today is eighteen times its pre-war cost.

The German Newspaper Proprietors' Association meets in Dresden this week to consider the situation. It is held that the public cannot be asked to pay more for papers.

P. A. P. A.
SCREEN
Pulp and Paper Mill Accessories, Limited
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The Belgo-Canadian Pulp and Paper Company propose erecting a large addition to their plant, and, it is reported, will spend a million dollars. Machinery will be purchased in England during the coming summer.

IS THE DAY LONG ?

To-day there is much agitation for a six hour day, as a step toward a shorter day. Is the day now too long? We will get less work done in six hours than in eight. We will make fewer goods. Is the world oversupplied? Have we more food, more clothes, more houses, more of the good things of life than we can enjoy? Not just ourselves, but everybody in the whole world? If not, would the limiting of production make the world happier? Does limited production enrich us? or anybody?

What is keeping up the price of woollens today? One of the best informed men in the world, on this subject says that there is more than wool enough in the world, but that through short hours, strikes, and inadequate machinehy and methods, there will, for several years be a shortage of woollen clothing. This shortage means that many people will go cold through the winters. If we have any imagination, any real understanding of Christian brotherhood, we are not willing that other people should go cold and naked, so that we may have a little more ease.

Is leisure our goal? Would we really like to live in that South Sea Island, where the native is said to lie on the ground and the bread fruit drops into his mouth? What good is leisure to us unless we have something definite to do with it? It is the silver talent entrusted to us which we may wrap up in a napkin and bury in idleness, and we all remember what happened; because it was not used, even that little which there was, was taken away. Leisure is a sweet that soon cloys. Interest is the pass-word to happiness, The day is long if dull, but very short if interesting. How can we make it interesting? Putting zeal and effort into it is one way. Putting faith into it, another. Zeal and faith, based on knowledge.

The man who thorougmly knows his craft or his business finds all sorts of interesting things in it. He perceives the romance which runs through every great business like a scarlet thread. He feels himself one of a great body of men, reaching back with great traditions, looking forward into a vast future, rendering a service to their fellowmen, and in all justice, taking their reward. Knowing his work, he is sure of himsel, with a self confidence based on definite methods and policies. He keeps himself fit, not only in his bodily health, but in that health of the mind and heart that reflect themselves in hope and courage, faith and joy. He makes his decisions on a basis of all the facts obtainable, and then his decisions stand; he does not waver. He does not back and fill. He faces his work and gets through it, and the next day brings fresh work, and not old "hangovers." And each day seems very short.

And when he gets to the City where there is No Night, it will not seem an endless eternity, but always a vivid, vital Now, a continuing moment of joy.

Is the day long? That is as we make it.—The Caravel.

"HIS WORSHIP" PREACHES SAFETY.

His Worship the Mayor of Toronto, T. L. Church, has addressed the following letter to pupils of the schools of the Dominion. This is the first of a series of letters from prominent Mayors addressed to school children.

Mayor's Office, Toronto.

To the Children of the Schools,
of the Dominion of Canada.

Dear Children:

May I ask you to do what you can to prevent accidents and fires? Children can do much. Get the habit of care and watchfulness when crossing roadways. Never play with lighted matches.

We cannot afford to lose one of you by accidental death. You will be men and women in the future, and the country needs every one of you to make Canada a greater and more populous country and to keep it in the proud position it occupies in the world to-day.

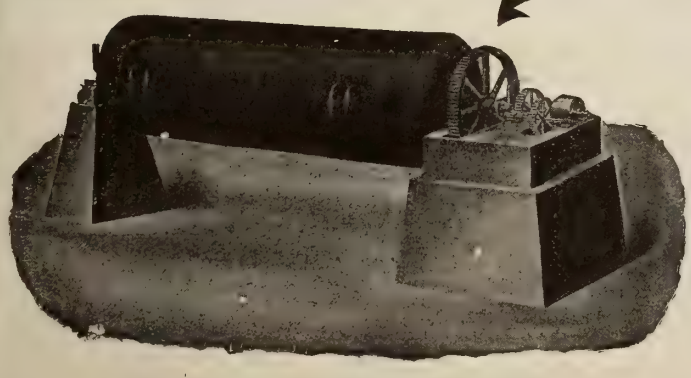
Your sincere friend,

T. L. Church.

THE BEST REMEDY.

Increasing wages without augmenting production sends up prices and leaves real wages unimproved. Sweeping aside the camouflage of prices expressed in currency in the higher cost of living really means that we must now put forth greater effort and work harder to obtain the same relative results. There is no cure for it but economy and increased production.

Let us face this blunt truth bravely and apply ourselves patiently to work and to save. These are the only remedies that will have the desired effect.—Ex.



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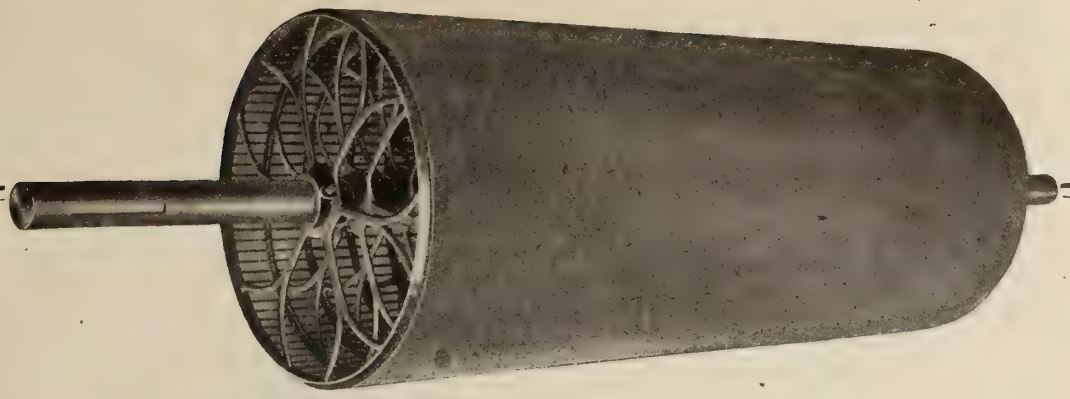
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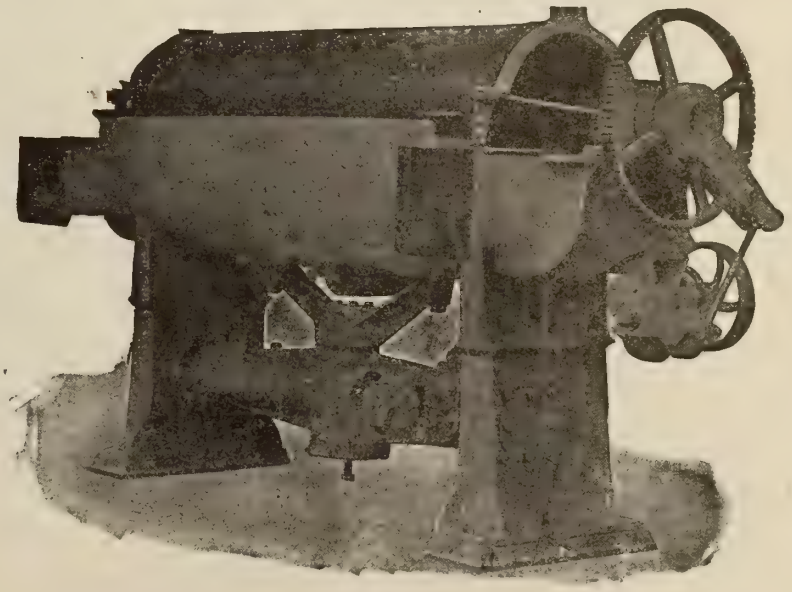
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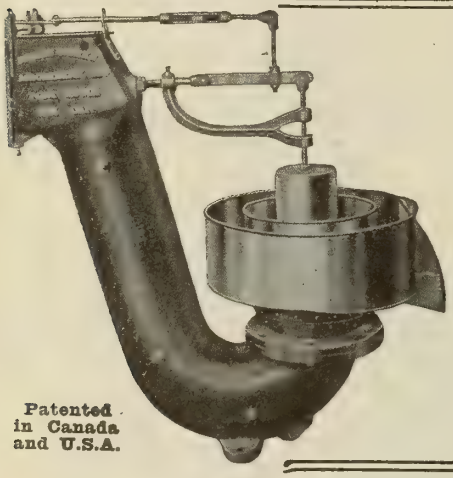
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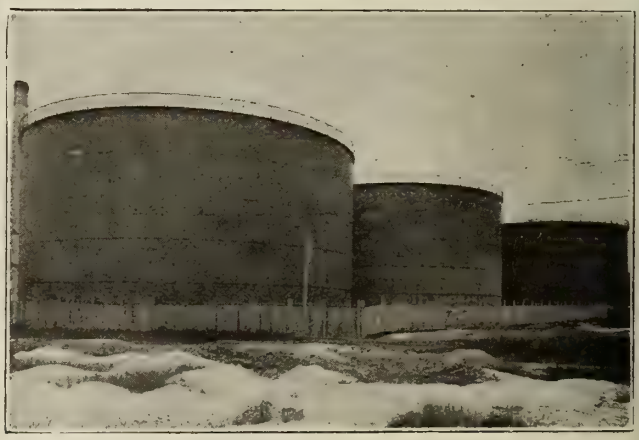
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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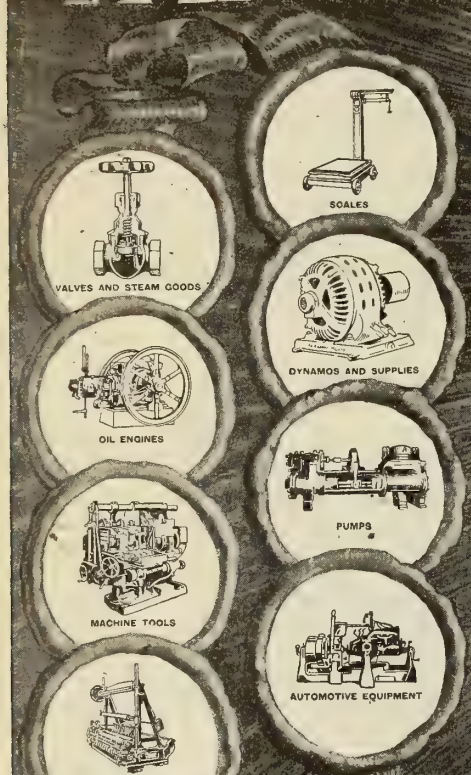
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EDITORIAL

"A FAT CHANCE."

Editors are not supposed to use slang, that is, if they happen to be connected with magazines that have ideals. The above expression, however, seems to be the best one to fit the situation suggested at the recent hearing on the Underwood Resolution before the House Committee on Foreign Affairs in Washington. The suggestion was made that the American market be made as free to every grade of paper and pulp made in Canada as it is now to newsprint as an exchange for the unrestricted right to import pulpwood. Again we say, "a fat chance" for the newspaper or magazine publisher in the United States to put that sort of a deal over without the bitterest kind of opposition from the manufacturer of every other grade of paper except newsprint, and even from some of them. It should be recalled that the manufacturer of newsprint paper represents less than 30 per cent of the value of the product of the paper industry in the United States, and not all of this portion of the industry would be greatly affected since many of the mills already get Canadian pulp on which there is at present no import duty or get wood in the U.S. from free-hold lands in Canada. Thus we see that such an exchange would benefit but a comparatively small portion of the American industry and might be a very serious matter for manufacturers of other grades of paper. It would not take much to convert news mills to the manufacture of magazine paper, both grades being made of wood fibre and we are rather of the opinion that with wood close to the mills and with power cheaper than it could possibly be obtained by the large majority of papermakers in the States, groundwood *might* be placed in the American paper mill cheaper than it could be produced on the spot from wood imported from Canada. That is just an idea that we should like to plant in the minds of those who would like to put something over Jack Canuck.

An opinion which ran through the discussion of Senator Underwood's Resolution was, that the commission in coming to Canada should carry the "big stick". We would remind our visitors that the lacrosse game is indigenous to Canada, and that there are still a number of aborigines in the Dominion whose ancestors hunted with clubs. These weapons have collected much dust from disuse and there is no inclination to get them out even for a practice skirmish, but, as the injured man on the street car said, "My feet were made to walk on, but that privilege belongs to me."

It is interesting to note from a statement made at the hearing in Washington that the box industry in the United States consumed twice as much wood of pulp making quality as would produce all the newsprint paper made in Canada and the United States. It was stated that the United States used in round numbers about two million cords of wood, and as more than a million cords were imported from Canada, it is easy to see that replacing by other grades, a small portion of the soft wood used for boxes there would be plenty of wood for the newsprint industry without invading Canadian Crown lands.

A particularly wild suggestion made was that removing restrictions on pulpwood from Crown lands would benefit Canada by giving employment to a greatly increased number of lumber-jacks and river-drivers and that it would call for investment in camps, wood preparing plants and the improvement of rivers. We fail to see the immense benefit in such a program. In the first place it is exceedingly difficult to get enough lumber-jacks to supply the wood required for Canadian mills and further competition for the limited supply of such labor would not be any great benefit, nor will the construction of such temporary affairs as lumber camps and taking-out plants nor even the improvement of rivers that would soon be cut out and deserted, compare with the establishment of permanent pulp and paper mills and the employment all the year round of both rough and skilled labor. We fail to see also where Canada is going to derive such unending prosperity from the export of pulpwood at what is practically a nominal fee to the government when the manufacture of paper or even of pulp in Canada would not only give the government the same fee for the wood, but would give the country the additional value of the finished product and the opportunity for employing at least as many men again as it required to take out the wood. If it took as many men to fight forest fires as it takes to cut and transport pulpwood, paper would not be selling now on contract for 5c a pound.

We heard a most ridiculous story in New York last week—and a plausible one, too. It was said that a Westerner weighed a weekly magazine and found that at the annual subscription rates the paper cost, delivered, about 3 cents a pound. Enough subscriptions were sent in to make something like a carload a week of highgrade waste paper stock. Not such a crazy idea as it looks.

PRAIRIE PROVINCES TO GET FORESTS.

In the Dominion Parliament last week it was announced that the natural resources of Alberta, Saskatchewan and Manitoba would be transferred to them as soon as proper terms could be arranged. One of the most important aspects of this announcement is its relation to the forests in the prairie provinces. Until now these have been under the control and administration of the Government in Ottawa. Such a transfer will, therefore, necessitate the establishment of three new forestry organizations and a readjustment in general. The wood using industries of the prairies have been obtaining their raw material under leases and licenses from the Dominion Government, which has not only administered the scale and cutting rights of timber but has also established nurseries and reservations and conducted forest protection campaigns.

The forests of British Columbia are the most important source of revenue to that province and the Eastern Provinces likewise derive large revenues from their woodlands. It is to be hoped that in taking over the obligations of administering their forest lands the prairie provinces will institute a policy and program that will insure the future of this self-maintaining source of wealth when it is properly conducted. These provincial governments have the experience of the eastern provinces to guide them and there is no excuse for repeating the early mistakes which have gradually led to the comparatively efficient standards and methods of the present day.

Alberta has enormous deposits of coal and, in Manitoba particularly, there are vast water powers yet to be developed. This region is also blessed with a great variety of minerals of unknown value as well as large quantities of oil. There will surely come a time when this section of Canada will become a very important manufacturing centre and among the important lines will be the pulp and paper industry, if the provinces take the proper steps at the beginning to insure a perpetual supply of raw material.

EDITOR OF "PAPER" RESIGNS.

Notice has been received of the resignation of Thomas J. Keenan, F.C.S., as editor of "Paper," a position he has ably filled for the past eight years or so. Mr. Keenan has also been an indefatigable worker in the cause of the Technical Association of the Pulp and Paper Industry, whose Secretary-Treasurer he has been since its organization. Feeling that the work of the association offers the wider opportunity for service, Mr. Keenan will now devote his whole time to this work. His address, for the present, is Room 1102, at 18 East 41st Street, New York.

Somebody said the Underwood Resolution doesn't strike the responsive note so much as the lost c(h)ord.

COBWEBS.

In our British trade notes this week there will be found reference to the principal features of the methods employed by British and Scandinavian mills and dealers for testing moisture in woodpulp. In looking these over there seems to have been omitted one very important point and that is, a stipulation that all of the pulp from which the sample for analysis is taken should be weighed at the time of sampling. It stands to reason that the moisture content of a lot of pulp will vary with the atmospheric conditions and consequently the analyst on the receiving end would not be expected to obtain the same percentage of moisture in the pulp as was present at the time of shipment. On the other hand the total amount of fibre shipped should, of course, be present at the time of delivery. It is this amount which is paid for and it is therefore essential that the gross weight of the shipment be taken at both ends of the route, in order that the variation in moisture content of the sample may be intelligently connected with the corresponding moisture content in the shipment. Work of analysts for the shipper and the consumer as well as the work of referees has sometimes been misleading, to say the least, because this little matter was not properly looked out for.

On another page will be found a communication from Col. W. E. Haskell of the International Paper Company. Col. Haskell knows so much more about forestry than the editor that it would be quite presumptious to undertake very much of a criticism of his remarks. The question might be asked, however, whether the 4 per cent increment he mentions does not apply to the United States as well as to Canada, and if this is the case, why have the holdings of the American paper companies not reproduced themselves twice in the approximately fifty years that wood has been the principal source of raw material for the manufacture of newsprint? That, of course, is not forestry, that's just arithmetic. It is evident that the American forests have not reproduced themselves, and it is certain that the Canadian forests will not reproduce themselves under Underwood's arrangement, as the same things that lost the forests to the United States threaten to wipe out those of the Dominion.

Sir Lomer Gouin, says his friend Mr. Lemieux, will remain in active politics. That is good news. It means that Quebec will continue to have an improved, and eventually an adequate, forest policy. In any case the premier has left a living monument whose example is an inspiration to other governments.

Our sympathy is extended to Mr. T. J. Keenan, secretary of the Technical Association of the Pulp and Paper Industry in the loss of a member of his household.

Compressed Air in the Pulp and Paper Industry

Part 4, Pumping with Compressed Air

By F. A. McLEAN, Canadian Ingersoll-Rand Co.,
Sherbrooke, Que.

THE AIR LIFT SYSTEM

One of the essentials in the successful manufacture of pulp and paper is an abundant supply of pure water, (which is not always as easy to secure as would be desirable).. Fortunately most mills are so situated as to provide a successful solution of this problem, for it is stated on good authority that 60 per cent of the mills in the United States, as well as a large percentage of Canadian mills, are operated by water power. With the cutting off of large tracts of timber in some sections of the country, however, the quantity of water obtainable from rivers and creeks is not as plentiful as it was some years ago, and many mills which formerly operated entirely by water, are now able to use their wheels during the winter and spring months only, and have to fall back on steam or electric power duriing the summer months. River water when it is available for use the year round is often too polluted to be fit for human consumption. Where any of these conditions prevail, water obtained from deep wells may be used to advantage. For lifting and distributing the water from such wells, the low first



Air Lift Discharging Water

cost and economy in operation of the air lift pumping system will bear thorough investigation before deciding definitely on the type of pumping system to be installed.

Due to the entire absence of moving parts in the air lift system and to the fact that the exposed portions of the equipment can be made of lead, bronze, or other corrosion resisting material, it is particularly suitable for transferring liquids of high specific gravity such as pulp, gritty water, oil, acid or alkaline solutions from one vessel to another, as well as for bringing water from deep wells to the surface.

The water from and air lift system is always as pure as the supply and in some cases purer, as the aeration of water always results in purification. Due to the expansion of the air the water is slightly cooler than surface water, in the summer, and warmer in the winter, as coming from a depth it is protected against the temperature which prevails at the top of the well.

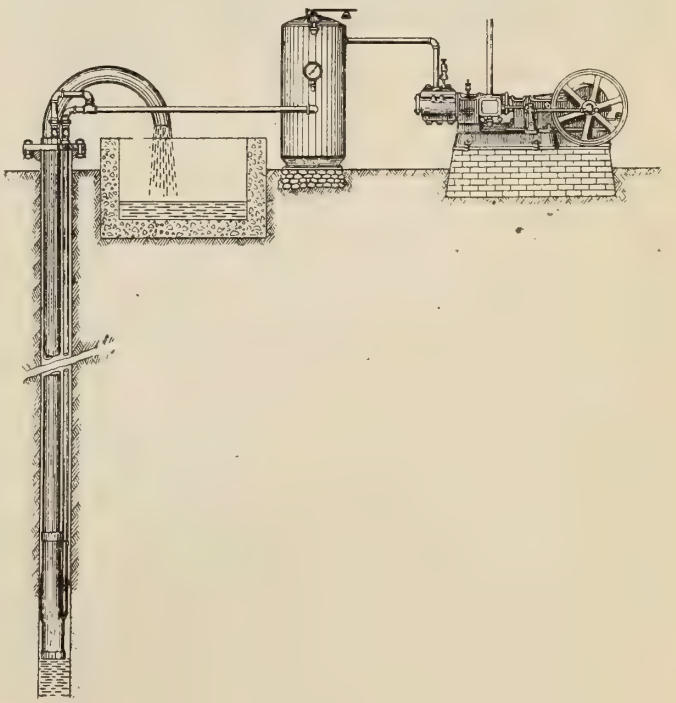
Air Lift Requirements. The three principal requirements for an air lift are: first, the well or river from which the water is to be taken. Second, a compressor to furnish air to pump the water, and the third, the pipes to carry the air from the compressor to the source of water supply and to transport the water raised to the place at which it is to be used or stored.

The Well or Source of Supply. The air lift system has often been called to the rescue of wells which were bored with the intention of using deep well pumps and which started off boldly with a hole 14 or 15 inches in diameter at the surface, but which, due to the difficulties encountered in the drilling, dwindled down to a diameter of 3 or 4 inches long before the maximum depth of the well had been reached.

A hole of large diameter is necessary for the installation of deep well pumps of the sucker type, but as the yield of this type of pump in proportion to the space it occupies is small, it was thought permissible to reduce the diameter of the lower part of the well without seriously affecting the efficiency of the installation. After being in service only a short time the yield of these wells was so reduced as to render it necessary to ream the well in order to obtain a sufficient supply of water. Under such conditions the air lift has more than once proved a successful solution of the trouble.

In the pumping of river or lake water by the air lift system, wells have been sunk to the required depth in the bed of the river or lake which were closed at the bottom and subsequently filled by water running in at the top. Where water of greater purity than is obtainable by this method is desirable it is often possibl to sink wells in the bank of the river or lake at

THE EQUIPMENT REQUIRED

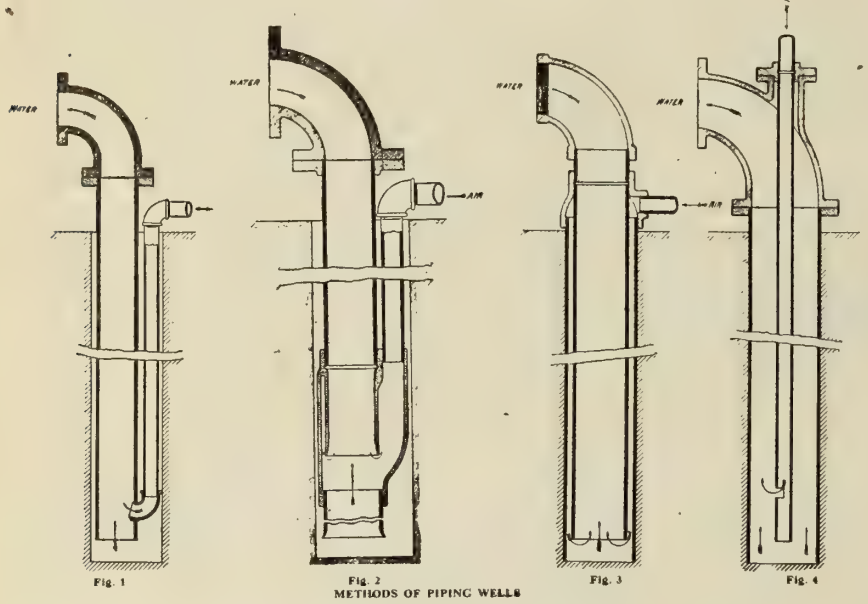


some distance from the edge, the intervening earth acting as a very efficient natural filter, which, with the aeration during the process of pumping, effectively purifies the water.

The Compressor. One of the most important steps in planning the installation of an air lift system is the air compressor, on the careful selection of which depends to a large extent the ultimate efficiency of the installation. The capacity and method of drive must be determined by convenience and local conditions. For small installations straight line or duplex single stage machines are suitable and for larger installations, the multi-stage types are more economical. The compressor may be either simple or compound steam driven, motor driven by a short belt arrangement, or by a motor, the armature of which is directly mounted on the compressor shaft. Where the necessary power is already available the machine may be driven by a belt direct from a line shaft.

Gear drives are only suitable for very small portable compressors and are practically never used on larger machines owing to the intermittent loads to which this class of machinery is subjected.

The Piping of the Well. The proper piping of the well is a very important consideration and it is advisable to consult a reliable maker of air lift pumping equipment before proceeding with the work, as on the proper proportioning of the air and water piping, and the proper depth of submergence at which the air is introduced into the water column, as well as the way in which it is introduced, depends (assuming the use of an efficient compressor) the success or failure of the entire system.



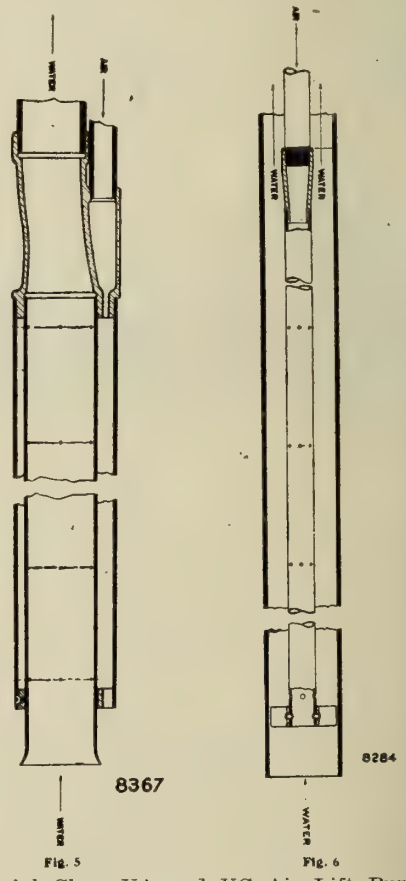
METHODS OF PIPING WELLS

There are several methods of piping a well, each having a number of supporters, those in most common use being in figure 1, 2, 3, 4, 5 and 6. The methods illustrated in figures one and two are known as the side inlet or Pohle system, after their inventor, Dr. Julius Pohle, and are generally used where the size of the well is large in proportion to the demand for water.

The Saunders system, illustrated in Figure 3, consists of a central tube suspended inside the well casing, the air passing between the well casing and the central tube through which the water is discharged. This system is suitable for wells of too small a diameter to permit the use of the side inlet type.

The third, or central air pipe system, Figure 4, is a reverse of the previously described arrangements and is used to obtain the largest possible output from a well of given size. The air pipe is suspended inside the casing and the water discharge between this and the casing. The diameter of the air pipe depends on its length, and the pressure and volume of the air which it is to carry. While this system will give the largest yield from a well of given size, it is not as economical as the other styles, and hence is not as widely used now as it once was.

Large bubbles of air ascend through water at a much more rapid rate than small ones, and thus any device which will divide the air into very small bubbles before it becomes mixed with the water will reduce the slippage losses and increase the amount of water pumped per cubic foot of air used. The Imperial system, Figures 5 and 6 are so designed as to break the air up into fine streams which greatly increase the efficiency of the system. Both types are open at the bottom and provide a ready exit for any dirt or scale which may be blown down the air pipe into the well. The Imperial class VC pump, as shown in Figure 6, is an improvement on the central air pipe system illustrated in Figure 4, and is adapted for use where the diameter of a well prohibits the use of the side inlet type, and is especially suitable for handling large quantities of water from strong wells. The casing in both of these pumps is made of steel tubing, and the pipes of brass tubing, around the periphery of which are drilled small holes so spaced as to create back pressure of sufficient strength to prevent slippage losses, and ensure control over the admission of air to the rising column of water.



Imperial Class VA and VC Air Lift Pumps

Limitations and Handicaps of the Air Lift System. The quantity of water which may be handled by an air lift pumping system is limited only by the capacity of the wells to furnish the water. With a properly

designed piping system the loss of power in the transmission is trifling, and compares favorably with any other system of power transmission. With a given size of pipe it varies as the distance, that is the loss in 2 miles will be twice that in 1 mile, etc.

Since the air lift pump is entirely automatic in operation there is no objection to having the source of water supply at a considerable distance from the power house. One central power plant supplies air to over 375 wells in a large southwestern oil field over 10 square miles of country and through 40 miles of pipe.

Where deep well pumps are used for very high lifts, more or less trouble is usually experienced through the breakages of rods and valves and the entire installation operates at low efficiency through the increased friction and leakage of plungers and valves, and the care and attention which they require. There are many air lift installations in use where the lifts vary

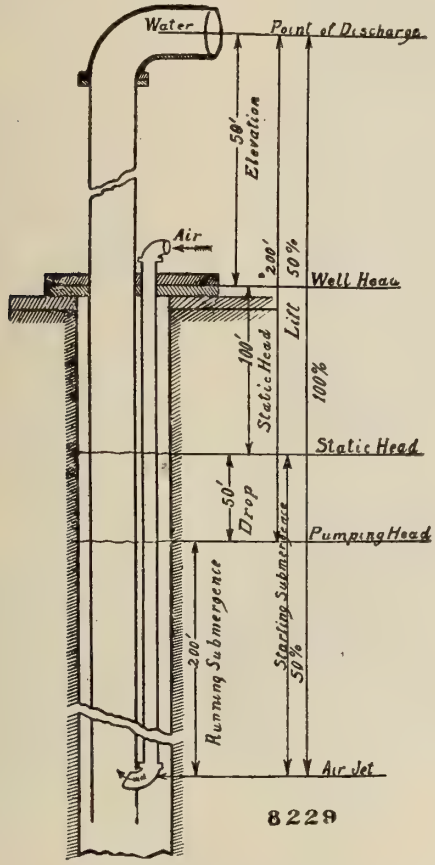


Diagram of Air Lift

from 600 to 1,200 feet with pressures of from 1/4 to 1/3 of a pound per foot of actual lift.

The air lift has received much unjust criticism at the hands of those who have installed it as a sort of last resource under conditions that have seriously handicapped it, whereas deep well pumping has usually been given every advantage. The fact that deep well pumps will either work as designed or not at all, and that no matter how poorly an air lift system is installed it will give some kind of results, has probably had a great deal to do with the prejudice which has existed against it in the minds of some prospective users.

Modern Practice. Those who have made an unbiased investigation of the possibilities of this method of pumping, have long been aware of its reliability, low installation and maintenance costs, and have generally acknowledged that by its use it was possible to obtain a greater quantity of water from a given well than by any other means. Within the last few years the high state of perfection to which the air compressor has been brought and the improved methods of introducing the air into the eduction pipe or water column, as well as the better proportioning of the pipes themselves, have so increased the efficiency of a properly designed air lift as to allow its favorable comparison with any other type of deep well pumping system at present available.

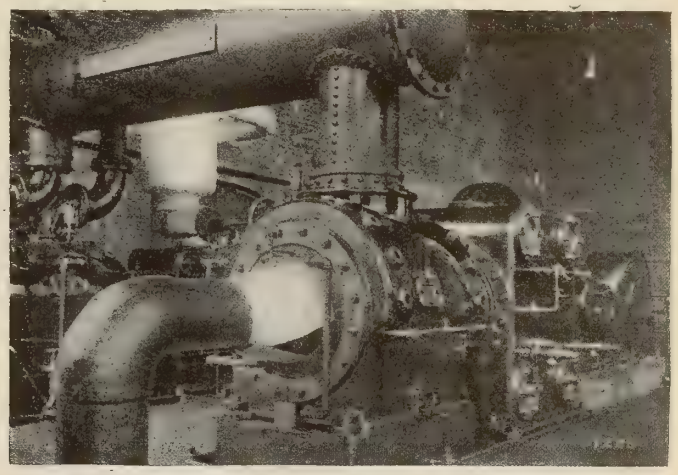
Air Lift Definitions. The Static Head is the distance from the level of the water in the well to the well head or ground level when the well is not being pumped.

The Drop is the distance which the water in the well recedes when the well is delivering a certain definite quantity of water.

The Elevation is the distance above the well head to which it is desired to deliver the water.

The Lift consists of the Static Head plus the Drop and Elevation.

The Submergence is the distance below the water level at which the air is admitted into the column and



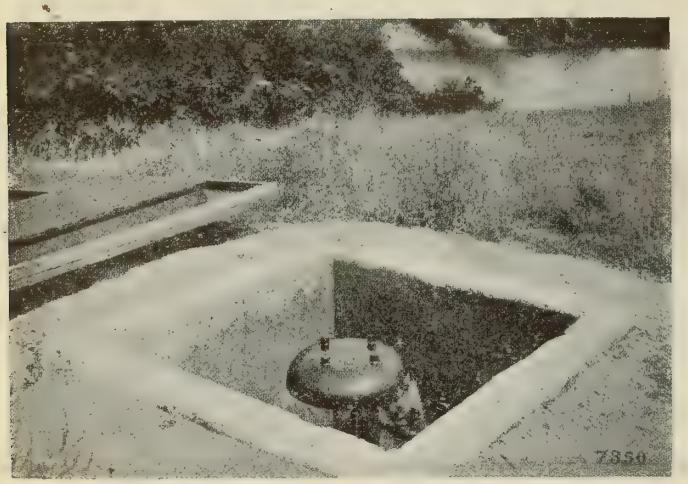
Compressor which Supplies Air for Sixteen Air Lift Wells at a Large New England Industrial Plant

is called either Starting or Running Submergence. The distance from the point where the air is admitted to the water column to the point of final discharge of the mixture of air and water is considered as 100 per cent. Thus a 70 per cent submergence means a 30 foot lift, or a 30 per cent submergence a 70 per cent lift; the amount and percentage of the submergence depending directly upon the height of the lift. These terms are illustrated graphically in the accompanying sketch.

Operation of the Modern Air Lift. In the modern air lift constant streams of air and water are mingled, the air being broken up into minute bubbles and distributed through the water resulting in a constant discharge with a minimum of slippage. The eduction pipe must be kept filled with air and water and if the pipe in use is too large for the amount of water available, a larger quantity of air must be used in order to keep up the velocity. The amount of water carried per square inch in the eduction pipe depends on the lift and percentage of submergence. A 3 inch pipe will be of ample size to pump 100 gallons per minute with a 100 foot lift and 60 per cent submergence, while a 3½ inch would be required in order to raise the same

amount of water with the same lift and a submergence of only 40 per cent. In other words the submergence regulates the air pressure, and the higher the air is compressed the greater are its expansive qualities, hence a smaller quantity of air will be required to do the work, and it will occupy less room in the eduction pipe owing to its higher velocity. With little submergence and consequent low air pressure and velocity a larger amount of air must be used and more of the eduction pipe filled with air on account of the lower velocity.

For best results the eduction pipe should have as smooth a surface as possible and places where the air may eddy, such as the ends of the screwed joints in ordinary iron pipes, should be eliminated wherever possible, as these increase the friction slippage between the air and the water. The piping from the compressor or to the point where the air is introduced in the well should receive careful attention. Every bit of power used to compress the air to a higher pressure in order to overcome friction is wasteful, and the extra first cost in installing large air pipes is compensated for by the saving in power consumption which, although it may be very slight, is continuous day in and day out.



One of Sixteen Air Lift Well Heads at a Large New England Industrial Plant

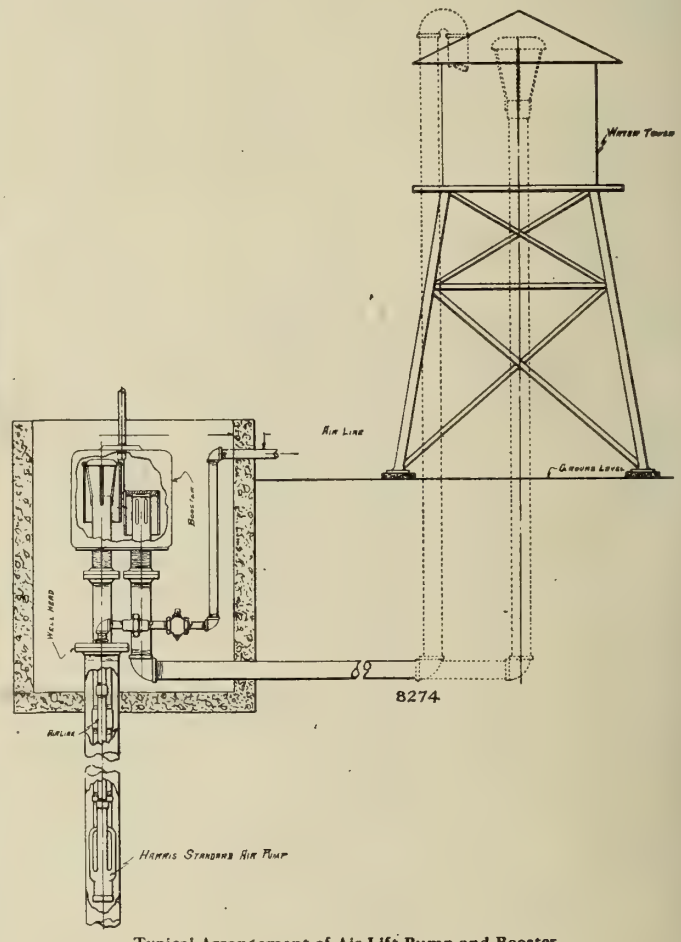
The only really successful objection to the air lift in the past has been that it was not efficient and, as stated in the foregoing, if reasonable care is used in selecting and installing the equipment, the air lift will be found to be equal if not superior to any other method of raising water from deep wells. That this is true is borne out by the experience of some of the largest users of the system in the United States and Canada.

Cost of Installation. When considering the purchase of a new machine or piece of equipment one of the first points to receive attention is the cost of installation. In this respect the cost of small air lift installations including wells of up to 400 gallons per minute in capacity, will be the same or slightly greater than with other methods. For installations of 400 to 800 gallons per minute the cost is about equal, with a decided advantage in favor of the air lift for capacities beyond this. One of the reasons for the lower first cost of the large capacities of air lift pumping system is that each well yields more water than is obtainable by other means, thus decreasing the number of wells to be bored.

Cost of Maintenance and Flexibility. The maintenance cost of the air lift is in marked contrast to that of the ordinary pump in which a number of working parts are directly exposed to the liquid being pumped and which requires the continual packing and renewing of valves, etc. The air lift pump when once installed stays down the well, and nothing comes in contact with the water except the air and the piping. Its efficiency is continuous and the conditions which prevail at the time the installation is tested out are usually those under which it continually operates.

The only machinery required is the compressor which may be located in the power house or in any convenient place and as a modern compressor is enclosed, self-oiling, and automatic in operation, it requires a minimum of attention, and this need not be by a man of great skill.

In the operation of the air lift it is sometimes desirable to carry the water along the ground horizontally, or at an angle with a subsequent lift to a tank or reservoir, and unless the system has been carefully designed more or less trouble will occur and the system will operate at low efficiency. When these conditions prevail it is necessary to submerge the air nozzle below the water level to a distance having a large ratio to the actual total lift.



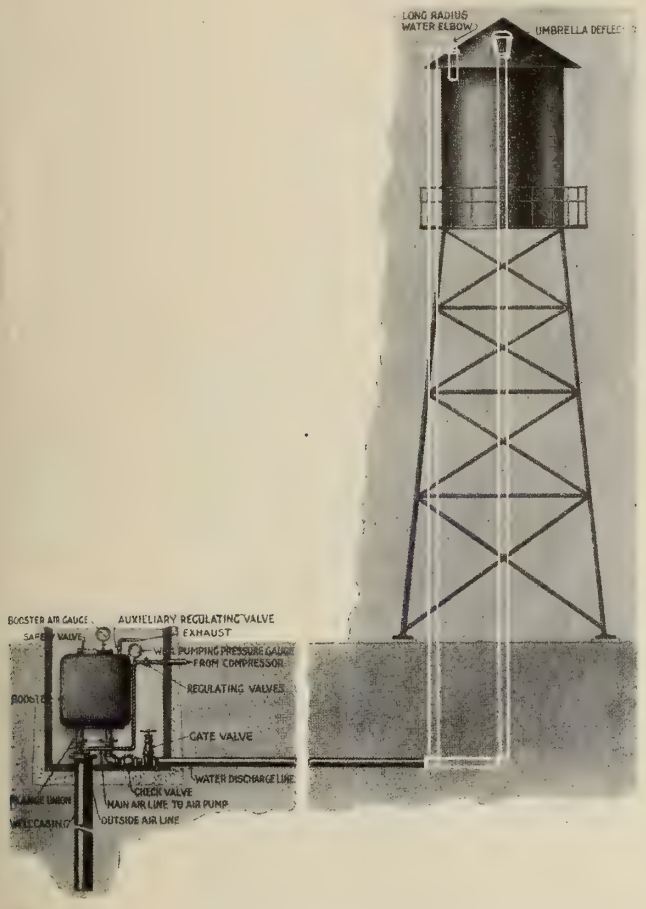
Typical Arrangement of Air Lift Pump and Booster

To meet these conditions efficiently the water from the air lift may be discharged into a tank or pond and then raised by ordinary steam or centrifugal pumps to the desired height and place of storage or consumption. The use of steam or power driven pumps for this purpose, however, detracts to a large extent from the automatic features of the system as a whole, and it is, therefore, much better to use what is known as the air lift booster.

The object of an air lift booster is to force a solid stream of water horizontally or vertically through a pipe or system of pipes from an air lift pump, the air being separated from the water in the booster and its pressure made use of to force the water horizontally or to a higher level.

As shown in the accompanying drawing the booster is placed directly over the well head so that the air lift pump discharges directly into it. The mixed air and water as discharged by the air lift is separated in the booster and the pressure utilized in doing the work.

The booster is very simple in operation, the amount of air in the booster being controlled by the water level. An automatic valve is so arranged that as the water rises the valve is closed and a pressure built up in the booster, and as the water falls this valve opens and allows the air to escape from the booster directly to the atmosphere or to the intake of the compressor



as may be desired. If it is returned to the intake of the compressor, it is necessary to pass it through a moisture trap so as to dry it as much as possible before it reaches the compressor.

The most valuable feature in the use of the booster is the advantage gained by being able to deliver the water to the place desired without the installation and maintenance costs of power driven pumping equipment, and the fact that as with the air lift pump itself, the whole system retains to a high degree its features of automatic operation.

Summary. The air lift steadily improves the well and increases the flow, and sand, solids, or semi-solids in the water have no detrimental effect on the pump or its operation. With the ordinary pump of the reciprocating or rotary types, unless specially designed, this matter has to be prevented from entering the pump by means of screens, which became clogged in time and require time and trouble to remove and clean. The air lift, by drawing out the sand and sludge, enlarges the water bearing cavities of the well and so increase its flow.

The air lift is thoroughly reliable, reasonable in first cost, economical to maintain, and will obtain all of the water a well is capable of yielding and enlarge this yield, and when the yearly overall costs are compared with those of any other type of pumping equipment, the balance in favor of the air lift is without an equal, and this fact should commend the air lift to the careful attention of those who are confronted with the problem of securing an abundant supply of pure water.

(To be Continued)

ITALIAN PAPER MILLS IDLE.

(Special translation to the Pulp & Paper Magazine)

The Federation of Paper Mill Operatives has presented to the employers a memorial containing forty-six demands. On their part representatives of the employers and paper makers, though anxious to find an equitable solution of the workmen's demands, rejected as wholly inacceptable, eight of the demands presented by the workmen on March 30th, and invited the labor representatives to a new conference in order to discuss improvements in their economic conditions and all the rest of the questions in the memorial, on the understanding, however, that the workmen's representatives renounce the eight points in dispute, and that a declaration to this effect should be made before the conference is proceeded with. But the Secretary of the Federation of Workmen declared that he would not compromise, and the strike of the operatives has been proclaimed. The mills which are in the workmen's organization number 430 and the number of strikers has risen to thirty thousand. — Giornale d'Italia, April 3, 1920.

"PAPER DAY" AT VICTORIA.

A dining-room in Victoria, B.C., filled with business and professional men decked out in pink, blue and green foolscaps, tables set with paper tablecloths, paper serviettes, paper plates, and paper drinking cups, made it plain to the observer at the Kiwanis Club luncheon, April 20, that "Paper Day" had arrived. Arrangements for the luncheon were in the hands of Mr. C. H. Dennis, of the Columbia Paper Company, the feature of the event being the address by Mr. C. J. Kay, of the same firm, on "The Paper and Pulp Industry in Canada." The attendance was so large that accommodation was taxed to capacity. In address Mr. Kay dealt with the paper industry, historically and statistically. He traced its manufacture from Egypt down to the present day. The first mill was established on this continent in 1690, and the first in Canada in 1803. The first British Columbia mill opened at Swanson Bay in 1908.

NEW B. C. PULP PLANT.

Cranbrook, B. C.—Michigan interests are reported to have acquired timber limits from the East Kootenay Lumber Co. to the extent of 500,000,000 ft. and will operate a pulp and milling business at Wattsburg or Cranbrook. The mill capacity in the neighborhood of this point is 1,000,000 ft. a day at present.

British Trade News

(From Our London Correspondent.)

London, April 22, 1920.

Wood Pulp Men Meet.

The annual meeting of the British Wood Pulp Association was held during the first week under the presidency of Mr. L. P. Andrews. There was a small attendance and a brief report was submitted for adoption, which dealt principally with internal affairs of the Association, the unsettled state of trade, and the sampling and testing of pulp for moisture. Things remain as heretofore in regard to testing and sampling and the same applies to disputes arising. Mr. Andrews paid a high tribute to the memory of the late Mr. Albert E. Reed and Mr. Johnsen, two old pulp men who had passed away—and who were well-known in Canadian pulp circles. After resolutions of condolence had been passed, Mr. Andrews drew attention to the question of tests and the attitude that was being taken up in Scandinavia where an agitation is on foot to alter the procedure at present existing. The procedure advocated by Scandinavians is that testing should be done before shipment to the vendor or purchaser. Mr. Andrews says this is a question that must be settled between the British committee and the Scandinavians, and the present contract note would also have to receive some attention.

Excess Moisture in Pulp.

Messrs. C. Greenhalgh, W. Palmer, S. Nicol, L. P. Andrews, J. Nordberg, Sig. Diesen, A. Griffiths, L. E. Rustad, G. Buchanan, (Messrs. Becker and Co., Ltd.,), and R. Dickson, with Mr. Eric Nordberg (as secretary to the Association) were elected as a committee for 1920-21. They were also instructed to make some arrangements for the annual dinner.

A question arose about excess moisture in pulp and Mr. Charles Greenhalgh said the Swedes suggested that three chemists should be dispatched to Sweden to investigate and examine the methods for testing pulp for excess moisture. The testing process in England could also be investigated from a Swedish point of view. Mr. Greenhalgh pointed out that a universal system was necessary and the sooner it was decided upon the better for all concerned. The subject was one for the Association's Committee. Mr. Andrews agreed and said they wanted fair play all round.

Mr. T. Wallace asked, "assuming the result came out at exactly ½ per cent who would bear the cost of testing?" To this question a reply was given that the seller would pay—the result would have to be under the ½ per cent for the buyer to pay. The contract note was the guiding adviser. The subject was eventually left to the committee.

It should be mentioned that No. 3 object, inter alia, of the British Wood Pulp Association is "To recommend and adopt a uniform Contract Note and system of drawing and testing samples."

Testing Rules for Analysts.

The British Wood Pulp Association have rules for testing pulp for excess moisture and they have been approved by the Scandinavian Pulp and Paper Association. They are: (1) Samples to be cut by the wedge system. The wedges or triangles to be drawn from the centre to the outside, with base angles of 24 degrees or 12 degrees, according to the size of the parcel; (2) Templets stamped by the Association, to be used for regulating the size of each wedge; (3) Two per cent of the bales, (but not less than six bales) to be stamped, and the Analyst to have the exclusive right to return within 3 days and take a further 2 per cent should he deem advisable; (4) The selection of the bales for testing to be left entirely to the discretion of the Analyst; (5) Five sheets from each bale to be sampled. The first sheet of No. 1 bale to be drawn at zero (or, say, the outside sheet); the second sheet at 5 inches downwards, the third sheet at 10 inches downwards, the fourth sheet at 15 inches downwards, and so forth, different sized bales pro rata. The object of this is to have the outside sheets in fair proportion. The wedge shaped sample as described is to be drawn from each of the five sheets of a bale, and the wedge is to be cut right through the sheet or slab of pulp. The sheets are to be considered as divided into 16 or 32 triangles, and at each cutting the wedge next in rotation is to be taken. More than half the parcel must be in existence for testing when the analyst arrives, otherwise no claim is acceptable.

In view of the importance of testing pulp for excess moisture I quote these rules for the informations of Canadians. Under them American and British analysts have been working for some years.

The great point is that where a seller does not recognize a test he must have his objection in within 10 days, as stipulated in the contract. Cases have occurred where the objections have been lodged after the allotted time and the seller had no case and no recompense.

The Pulp Situation.

At the annual Pulp meeting Sig. Diesen expressed his opinion that it was impossible to give any forecast to the pulp market for any length of time. Mr. L. P. Andrews replied that it was one of the principles of the British Wood Pulp Association that the Association knew nothing about the market. It might be a wise decision and it might not; but they had never helped each other in regard to matters of that sort.

The quotations to-day and in 1913, for comparison in the pulp market are as follows:—

	Present	1913
Bleached Sulphite	£75	10— 0—0
Easy Bleaching Sulphite	60	9—10—0
News Sulphite	54	8—15—0
Unbleached Soda	45	8—10—0
Soda Kraft	40	8— 5—0
Groundwood (moist)	19	2— 2—6
Groundwood (dry)	39	4—12—0

These are record quotations in the pulp market in England today. Pulp is rising fast in prices. The market is strong and the demand good.

When one compares this years quotations with 1913 prices, the comparisons will be found interesting. I remember attending the Papermakers Association dinner in May 1913, and on looking up my notes I find Mr. John E. Jepson said on that occasion in reference to pulp: "——The prices have advanced so high that it looks like the fatal blow to be struck, before long, if sulphite is £9 or £10 a ton. I hope something will come to our relief and lift us out of the hole into which we have tumbled——". Replying to this Mr. F. E. R. Becker said the pulp men were hewers of wood and carriers of water and he supposed the papermakers were congratulating themselves on how cheap they were getting mechanical pulp.

Mr. Augustin Spicer, chairman of the Spicer Bros., Ltd., the well-known paper manufacturers, of New Bridge St., London, has just died, in his 75th year.

Col. Haskell has the Floor

The Pulp and Paper Magazine has just received a communication from Col. W. E. Haskell, vice-president of the International Paper Company, which it is our pleasure to reproduce herewith. Col. Haskell has been for years closely in touch with the pulpwood situation and is probably one of the best informed men in the United States with regard to the forestry situation in Canada. We have no doubt that Col. Haskell is perfectly sincere in his desire for an amicable settlement of what is on the point of developing into a somewhat acrimonious dispute over the restrictions imposed by three of the Canadian provinces on the use of wood cut on crown lands, lumber material as well as pulpwood Readers of the Pulp and Paper Magazine know the position that this paper takes in regard to the matter so Col. Haskell's communication is presented just as received as we believe with him that it is very desirable that those interested should see and consider the issue as it is and on its merits. We are sure that Col. Haskell will pardon us for mentioning that his communication is addressed from New York.

Editor,
Pulp and Paper Magazine of Canada.
Dear Sir:

As there seems to be considerable misapprehension regarding the real purpose of the Underwood Resolution on the part of the financial and trade press of Canada, I beg to hand you herewith a statement that explains the real scope and spirit of the measure introduced by the Senator from Alabama.

If what we need in this country adds greatly to the revenues of the woodlands provinces and does not destroy the forest asset of each, it surely seems that an amicable convention could be arrived at and a permanent entente established that will be of mutual advantage.

At all events, in the discussion of this matter is it not better to discuss the issue as it really is rather than a false picture of the truth seen through a glass darkly?

Yours sincerely,
W. E. HASKELL,
Vice-President.

The Purpose of the Underwood Resolution.

The purpose of the Underwood Resolution is not the ruthless exploitation of the forest wealth of the Canadian Provinces. It aims simply at an amicable convention that will release raw material in the form of pulpwood to the United States without restrictions, just as the United States gives of its raw material in the form of coal, oil, and cotton to its sister nations.

The total present annual consumption of wood by the by the newsprint mills of the United States, is about 2,000,000 cords.

Quebec, for example, has a total area of Crown lands of 190,000 square miles in round numbers. Of this area, 70,000 square miles are now leased, while 120,000 square miles are untaken. Premier Gouin is authority for the statement that four to five times as much timber could be cut from the leased Crown lands of Quebec as it cut at present, without impairing the forest values of these lands.

This means that the present annual growth of the forests on the leased Crown lands of Quebec is four or five times as great as the present cut.

It is a well-known fact that the cutting of the matured timber in a forest, thus opening the woodlands up to sunlight and air, promotes the growth for standing trees. The 70,000 square miles of leased Crown lands in Quebec are equivalent to 44,800,000 acres. At the estimated stand of an average of 5 cords to the acre, this gives a total stand on these leased lands, of 224,000,000 cords of wood. With an estimated annual growth of 4 per cent., the annual growth on the leased Crown lands would amount to 8,960,000 cords.

The present cut of timber on the leased lands in Quebec, is stated by Premier Gouin to be 1,000,000,000 feet, the equivalent of 2,000,000 cords. Thus, his statement is proven, as the annual growth is estimated at 8,960,000 cords, which is just about 4½ times the present annual cut.

Those who hope to see the purpose of the Underwood Resolution achieved, expect that the provinces will impose more scientific and rigid lumbering regulations than obtain at present, and they will limit the cut to the estimated annual growth of the Crown land forests.

Thus, should the provinces agree to cancel the present export restrictions, the Crown land forests would be able to supply many times the needs of the American pulpwood market without impairing the national forest asset.

Using the same basis of computation, all the Crown lands of Quebec, leased and unleased, totalling 190,000 square miles, contain 121,600,000 acres. At an average of 5 cords to the acre, this represents a total stand of timber of 609,000,000 cords. The estimated annual growth of this large stand would be 24,320,000 cords. which would be cut and removed without reducing the size of the forest or its value to the province.

Should Quebec consent to lift her export restriction on Crown land wood, leases of the more remote limits would be purchased at large bonus prices per square mile, the provincial receipts from ground rentals would be greatly increased, the receipts from stumpage fees (96c. per cord) would be augmented in proportion to the extent of the lumbering operations which have the possibility of reaching the enormous total of $24,000,000 a year, and labor in Quebec would share in all of the large expenditures that would be required to improve the rivers, build preparing plants, and harvest the pulpwood in the enlarged operations.

The same computations apply with equal force to Ontario and New Brunswick, Quebec having been selected as the example on account of its proximity and its great forest wealth.

The opposition in Canada to the purpose of the Underwood Resolution comes chiefly from the larger paper manufacturers, whose views find expression in the columns of the financial and trade press of Toronto, Ottawa, and Montreal.

These manufacturers have nothing to loose by the removal of the export restrictions on Crown land wood. because they are amply protected by leases of extensive limits, secured in early days at merely nominal bonus prices per square mile.

The following table gives a clear idea of the extent of the limits held by the leading manufacturers in Canada respectively, together with the estimated stand of timber on their limits, the estimated annual growth, and their actual pulpwood needs to operate their respective plants to capacity.

Name of Company	Crown lands owned	Estimated stand at 5 cords per acre	Estimated annual growth @ 4% per annum	Estimated amount of wood required annually
	(acres)	(cords)	(cords)	(cords)
Belgo-Canadian Pulp and Paper Co.	1,065,520	5,327,600	213,104	105,400
J. R. Booth	1,547,520	7,737,600	309,504	93,000
Brompton Pulp and Paper Co.	135,040	675,200	27,008	130,200*
Donnacona Paper Co.	119,680	598,400	23,936	66,650*
E. B. Eddy Co.	432,000	2,160,000	86,400	65,100
Laurentide Co.,Ltd.	1,668,480	8,342,400	333,696	195,300
Ontario Paper Co.	200,960	1,004,800	40,192	91,450*
Price Bros. and Co.	4,350,080	21,750,400	870,016	148,800
St. Maurice Paper Co.	980,480	4,902,400	196,096	99,200
Total	10,499,760	52,498,400	2,099,952	995,100

*These companies buy the balance of their requirements.

With these vast reserves of timber to depend upon, which, economically and scientifically lumbered, will supply the raw material requirements of the Canadian mills indefinitely, the opposition expressed might, to the uncharitable, indicate the attitude of a dog in the manger. But an analysis of the situation rather indicates clever trading tactics, as strong intimations have been received by those interested in the success of the Underwood Resolution that the Canadian manufacturers could be induced to concede the fairness of removing present export restrictions, provided they could secure other advantages in the markets of the United States in addition to the free entry of their product which they have enjoyed for the nine years and which has expanded the Canadian industry far beyond the optimistic dreams of those whose early vision perceived the possibilities of building up a great paper business in the provinces.

ABITIBI TO DOUBLE PAPER OUTPUT.

The retiremtnt of the outstanding 7 per cent debenture issues of the Abitibi Company, together with the increase of its production from 70,000 to 145,000 tons of newsprint paper per annum, are the outstanding features of the announcement of the purchase by Royal Securities Corporation of a new issue of $4,000,000 6 per cent. general mortgage sinking fund bonds of the Abitibi Power and Paper Company. President F. H. Anson pointed out some time ago that the sale of the company's bonds has been arranged for.

In addition to retiring its present issues of 7 per cent. debentures, the Abitibi Company is provided by the new issue with the capital required for the completion of a most extensive development program now under way, which will increase the company's water power development from 25,000 to 53,000 horse-power capacity. It will also increase the company's present output of 70,000 tons of newsprint paper to 145,000 tons per annum, and will add a wrapping paper machine with a capacity of 10,000 tons per annum, making a total capacity in operation by February of 1921 to 155,000 tons of product.

In connection with the purchase it is interesting to note that the Abitibi's Company's earnings are showing a substantial increase over those for the same period last year.

The new $4,000,000 issue makes the total funded debt of the Abitibi Company approximately $8,000,000 ranking junior to which there is $1,000,000 7 per cent. preferred shares and 250,000 no par value common shares, which show a present market equity ranking junior to the company's funded debt of approximately $17,000,000.

It is understood that the larger part of the new $4,000,000 issue has been placed in the United States market, where 90 per cent. of the company's product is sold. It is probable that public issue in Canada will shortly be made of a small portion of the bonds.

PROSPERITY IN PULP AND PAPER.

The Canadian Pulp and Paper Companies continue to show exceptionally large earnings. Those who had faith in this industry during the years of its protracted struggle against the difficulties of a limited market, inadequate shipping facilities and general apathy on the part of investors, says a writer in "Investment Items", have a right to congratulate themselves that their faith has been justified. Their present reward is not excessive. It will be well to bear in mind that a few years ago, several of what are now among the most brilliantly successful of the Canadian paper companies were actually struggling to keep their property out of the hands of their creditors—and in some instances were enabled to do so solely by the unwillingness of the creditors to take them over and incur the risks and responsibilities of management. There is nothing certain in the business world, except that he who puts his money into an enterprise of any kind is taking the risk of losing it, by reason either of bad judgment, or of bad management, or of sheer, unadulterated bad luck. The only compensation that he receives for this risk is the chance of enjoying the profits in case of success. If that opportunity is going to be taken from him, as there is now a general disposition to take it from him by means of a direct an discriminatory taxation upon success, there can be no incentive lift for business enterprise of any kind. The State that claims the right to share in a man's profits when he is successful should also taken upon itself the obligation to share his losses when he fails. A small proportion of the number of Canadian investors had the requisite confidence in the paper industry's future to invest their money in its securities in the days when it was in its pioneering stages and its future was obscure; and of these, no small number had to content themselves with a very moderate return, or no return at all, upon their capital for a number of years. The community did little for them in the time of their discouragement, and must not begrudge them to-day the benefits of their combined foresight and good fortune.

"International" Views on Pulpwood

Col. W. E. Haskell, of the International Paper Company, read a prepared statement at the recent session of the House Committee on Foreign Affairs at which consideration was given to the pulpwood situation and the Underwood Resolution, printed copies of which were circulated about the room. It was entitled. "The Underwood Resolution—a Measure to Supply Raw Material for American Newsprint Mills, to Increase Production, and Lower and Stabilize the Price to the Consumer." The statement, which was refered to in our last issue, was as follows:

"The scarcity of pulpwood is the basic cause of the present serious situation in the newsprint market of the United States. The demand for newsprint today is in excess of the production of the newsprint machines of the United States and the tonnage imported from Canada. The sudden increase in general and local advertising which started in the early part of 1919, created a demand on the part of publishers which the manufacturers were physically unable to satisfy.

"It is impossible to state accurately the exact quantity of newsprint consumed in the United States during the last year, over and above the total production of the United States mills and the tonnage imported from Canada. This is because the records of production include wall-paper and side-runs. The quantity of side-runs and wall-paper is variously estimated at from 5 to 10 per cent of the total production and there are no records kept to determine the quantity with exactness.

"It is true, however, that the total production of the United States mills of 1,375,000 tons and the 624,000 tons imported from Canada were used to satisfy the demand of the publishers in 1919. And besides this, mill inventories or the stocks of paper on hand not yet shipped, were decreased 10,000 tons, and the stocks of newsprint held in reserve by leading publishers of the United States, as reported to the Federal Trade Commission, decreased 53,000 tons during the year. The sum of these two figures, or 63,000 tons, can be accepted as the minimum by which production and importations fell below consumption.

"These figures prove conclusively the need of greater production. But greater production cannot be had and capital cannot be found to construct new mills and install new paper machines unless an adequate supply of raw material can be assured.

"The Underwood Resolution, which provides for a Commission to negotiate the removal of existing export restrictions on pulp wood cut on the Crown lands of Ontario, Quebec and New Brunswick, is the only measure yet presented to Congress which contains any assurance of a sufficient quantity of pulp wood to perpetuate the present production of our paper mills, to justify the installation of new machines, and to save the great pulp and paper industry of the United States.

"By the Articles of the Confederation of the Dominion of Canada, known otherwise as the British North America Act, full control and possession of all natural resources were reserved to the respective provinces. This reservation included the Crown lands and the forests.

"In the statutes of the three woodland Provinces of Ontario, Quebec, and New Brunswick, it is provided that the Crown lands may be leased, and it is also provided that these Crown land leases shall vest in the lessee all rights of property to the timber growing on the leased limits. These leases are sold at a bonus price per square mile, now at public auctions, and are drawn for one year, but it is provided that they may be renewed from year to year as long as the prescribed ground rent has been paid and the fees paid for whatever stumpage had been cut. Loans are transferable like fee titles, and are conveyed for considerations as high as $6,000 a square mile, depending upon the quantity of timber and the accessibility of the limits. They are accepted as securities for loans by banks and underlie bond issues. No lease, not in default, has ever been cancelled.

"When the manufacture of paper from wood had gotten fully underway in the middle 80's many farseeing American manufacturers leased extensive Crown lands limits in Ontario, Quebec, and New Brunswick, with the clear understanding on the part of the respective provincial governments that the timber on the limits was to be cut and sent to the mills of Wisconsin, Ohio and New York. Pulp wood was imported without restriction from Ontario until 1900, when the promoters of paper manufacturing at Ottawa and Hull were able to secure the passage of an Order in Council in 1900, prohibiting the exportation of pulp wood cut on Crown lands unless manufactured in Canada into lumber, pulp, or paper.

"The paper manufacturers of New York and New England secured leases of extensive Crown land limits from the Province of Quebec as early as 1890 at great expense, and exercised their rights of property in the timber on these limits vested in them by the statutes of the province, for 20 years, sending the wood freely to their mills and paying their ground rents and stumpage fees into the treasury of the province. In the latter part of the first decade of the present century, paper manufacturing interests in Quebec were able to influence prohibitive action by the Government, and in 1910 an Order in Council was issued without notice, prohibiting the exportation of wood cut from Crown lands unless manufactured into lumber, pulp, or paper. This order was issued on April 26, 1910, and became effective May 1, 1910.

"American manufacturers had expended hundreds of thousands of dollars improving the rivers, building dams and piers, constructing taking-out and wood-preparing plants, and all this great investment was, in four days' time, made dormant and unproductive.

"The story of the experience with New Brunswick is similar to those of the two other provinces mentioned, the practice of New Brunswick regarding Crown lands differing from the other two provinces only in the one feature of granting annually renewable licenses for 20-year terms instead of indefinitely.

"Since 1910, the only pulp wood procurable from these three provinces has been that cut from patented agricultural lands, from certain railroad subsidy lands, from small freehold properties, and from the old French seignories usually fronting on the St. Lawrence and extending almost to Labrador. This wood has been sought by a small army of pulp wood buyers, whose competition with each other has constantly increased the cost of raw material to the ultimate purchaser, until, today, pulp wood which ten years ago could be bought for $6 or $7 a cord at the railroad track or river banks, now commands a price of $25 a cord f.o.b. shipping point. To this is to be added the cost of freight and the handling charges before the pulp wood is at the mill ready to be made into pulp.

"In 1911, the Reciprocity Act, which had been fostered and fathered by ex-President Taft, became a law. The Reciprocity Act, the provisions of which had been carefully worked out between the two countries, provided, among other things, for the removal of all tariff barriers against Canadian paper and for the importation into the United States, without restriction, of pulpwood from the Crown lands of the provinces. Canada refused to accept the treaty, and the Reciprocity Law, then on our statute books, was operative only as regards the brief section granting free entry to Canadian newsprint of a certain valuation per pound. But although reciprocity was rejected by Canada as a whole, Quebec enthusiastically accepted its full provisions including the unrestricted exportation of pulp wood from her Crown lands, for, in the general election in which the Reciprocity Treaty was the issue, it carried 60 out of the 64 boroughs of the province.

"Although the spruce forests of the United States east of the Rocky Mountains are fast disappearing, and outside of some large tracts owned by some old and large manufacturers in New York, Vermont, New Hampshire, and Maine, there is not a spruce woodland tract of sufficient size to justify the erection of event a 50-ton mill, you must forget the common charge that the paper-makers are the ones who have exhausted the forest wealth of the country. Of the 91,000,000,000 feet of timber cut in the United States in 1919, the entire pulp and paper industry of the country is responsible for only 3 per cent.

"The pulp and paper industry of the United States consumed last year, 5,500,000 cords of pulp wood, of which 1,000,000 cords came from the freehold lands of the Canadian provinces. During the same year, there was used in the manufacture of wooden packing cases and containers, 6,000,000,000 feet of various kinds of wood. It can safely be assumed that one-half of this was soft wood capable of making pulp, 3,000,000,000 feet of lumber are equivalent to 6,000,000 cords of wood. As it takes about one and one-half cords of wood to make a ton of paper, it is, therefore, plain that the wooden packing cases and containers made of soft wood consumed enough material to manufacture 4,000,000 tons of paper, or, in round numbers, double the quantity manufactured by all the newsprint mills of Canada and the United States combined, the newsprint manufacturers of the United States using in round numbers, 2,000,000 cords of wood for the 1,375,000 tons of paper produced.

"The Crown lands of Ontario consist of 342,000 sq. miles, of which 116,900 sq. miles are licensed. The Crown lands of Quebec total 190,000 sq. miles, of which 70,000 square miles are under license. New Brunswick Crown lands consist of 11,300 sq. miles, all of which, with the exception of 1,100 sq. miles, are licensed.

"Premier Lomer Gouin of Quebec is authority for the statement that from four to five times as much timber could be cut from the present licensed land of Quebec as is now cut, without impairing the forest asset. The present cut of timber in Quebec, is stated as 1,000,000,000 feet, board measure. This is the equivalent of 2,000,000 cords. Sir Lomer Gouin's statement, therefore, means that the forests of Quebec could yield annually from 8,000,000 to 10,000,000 cords of increment. This is borne out by the generally accepted estimate of an annual growth of 4 per cent of a scientifically lumbered forest. The 70,000 sq. miles of leased Crown lands in Quebec are equal to $44,800,000 acres. At an estimated stand of an average of 5 cords to the acre, this gives a total stand on these leased lands of 224,000,000 cords of wood. The estimated annual growth of 4 per cent, therefore, would give a yield of 8,960,000 cords, which confirms the statement of the Premier. Using the same basis of computation, the 190,000 sq. miles of all Crown lands of Quebec contain 121,600,000 acres. This represents a total stand of timber of 608,000,000 cords. The annual growth of 4 per cent of this mammoth forest would yield 24,320,000 cords as merely the annual interest on the forest capital of the province.

"Since 1910 and the passage of the Reciprocity Act in this country in 1911, relations between the paper industry of the United States and that of Canada have been of the jug-handle variety with the Canadians holding the handle. The opening of our enormous market to the free entry of their newsprint production, which immediately called for fully 85 per cent of that production, galvanized paper manufacturing in Canada into prodigious activity. Capital eagerly sought investments in Canadian paper enterprises, sure of large, growing, and lasting returns. And it was the big, receptive market of the United States opened freely to the production of the Canadian mills, that built up the industry in the Dominion beyond the most optimistic dreams of Canada's paper pioneers. The restrictive Order in Council of 1910 in Quebec did not aid one iota in the result achieved, but served only to hamper industry in the United States and to advance the cost of manufacture which established the selling price for the Canadian produce.

"The growth of the industry in Canada has been enormous. In 1910, Canada manufactured 161,000 tons of paper, and exported to the United States 25,000 tons. In 1919, Canada's newsprint production was 808,000 tons, a growth of over 500 per cent, while her exports to the United States were 624,000 tons, a growth of practically 2,500 per cent. In the meantime, newsprint production in the United States, which reached its maximum in 1912 of 1,432,000 tons, has not succeeded in holding its own, and in 1919, the gross production was 1,375,000 tons, and this included the production of many small wrapping-paper, wallpaper, and specialty mills, ill-adapted for manufacturing newsprint, but which have been lured for the time being into turning out a nondescript product for the publishers by the extravagant prices of the spot market.

"Various estimates have been made of this bastard newsprint production, but a consensus of estimates places the figures at about 500 tons a day or 150,000 tons a year. If this figure be true, then the normal newsprint production of the United States has decreased from 1,432,000 tons in 1912 to 1,225,000 in 1919.

"Provided Senator Underwood's measure succeeds, the woodland provinces of Canada would benefit tremendously by a prompt concession of the claims and requests that will be preferred by the commission appointed to negotiate with them. Not only would there be an active market in leases which would add wealth to the provincial treasuries, but the stumpage that would be cut under the wise and modern lumbering regulations would add vast sums annually to the provincial receipts. Besides this, the improvement of the rivers, the building of camps, the constructing of taking out, and wood-preparing plants, and the recruiting and employment of lumbering crews would yield so

great a harvest to labor that the provinces would begin an era of unending prosperity. Moreover, the army of men that would be employed in the bush would provide at all times effective forces for fighting forest fires, which are a greater menace to standing forests than the axes of the lumbermen.

"The owners of the Canadian paper mills can have no ground for complaint if the commission provided by the Underwood Resolution succeeds in its labors, for they have already secured boundless limits of wood lands which provide not only for the indefmite supply of their mills at present capacity, but for as great an expansion as can be expected in the next generation. The Belgo-Canadian Pulp & Paper Company of Shawinigan Falls, Quebec, J. R. Booth of Hull, Quebec, The Brompton Pulp and Paper Company of East Angus, Quebec, the Donnacona Paper Company on the Jacques Cartier River, the great Laurentide Company at Grand'Mere, Quebec, Price Brothers & Company of Kenogami, at the head of the Saguenay, and the St Maurice Paper Company at Three Rivers, hold, in the aggregate, 10,499,760 acres of limits secured years ago for bonus prices as low as $1.10 a sq. mile, with an estimated stand of 52,498,000 cords of pulp wood According to the basis of computation used by Premier Gounin, the annual growth of these forests, or the yearly interests on the forest capital will be 2,099,952 cords, or more than double the present capacity requirements of 995,000 cords a year in the aggregate of the mills of those companies.

"The purpose of the Underwood Resolution is not the ruthless exploitation of the forest wealth of our neighbors. It aims at equality of opportunity for the paper industry of the United States. It comprehends the only practical means of providing sufficient production of newsprint in the United States to insure the lives of the smaller newspapers. It proposes by amicable negotiations and friendly approach to reach agreements with the provinces of Ontario, Quebec, and New Brunswick, which will be of mutual advantage and which will secure our fair 'quid' for the 'quo' which the Canadian manufacturers have enjoyed since the removal of the tariff on Canadian paper. Its purpose is to save a great industry of the United States and to provide that production of newsprint may be increased and that the price of newsprint to the consumer may be lowered and stabilized.

"April 24, 1920."

FRASER COMPANIES OWN DOMINION PULP

St. John, N.B., May 7.—The Fraser Companies, Ltd., of Edmundston have exercised an option they have recently held on the Dominion Pulp Company's mill near Chatham, on the Miramichi and holdings of 288 square miles of Crown land timber limits. Somewhat more than $1,000,000 is involved in the transaction. The mills have a present capacity of 50 tons of pulp daily.

The Frasers now own and operate eleven lumber mills and have two more in course of construction. They have a pulp mill at Edmundston and the Dominion plant will make their second.

LA TUQUE SUPERINTENDENT DEAD.

H. Martinson, General Superintendent of the big sulphite mill of the Brown Company at La Tuque, Que., died last month and his loss as a friend and official is deeply felt. B. B. Jornhead has been appointed superintendent, and it is a popular choice.

Canadian Papers Oppose Underwood

Canadian papers are as unanimous in their support of the principles which lead the provinces of New Brunswick, Quebec and Ontario to place certain restrictions on the disposal of wood cut on Crown lands as American papers have been in support of the Underwood Resolution which was printed in full in our last issue, and to which further reference is made in communications appearing in this number from Col. W. E. Haskell of the International Paper Company. Following the rather extensive hearing on the subject before the House Committee there has been almost a flood of comment in the columns of the Canadian Press. A few extracts are here given which indicate the attitude of the people of these provinces insofar as it is reflected in the newspapers, which are generally looked on as indicating the trend of public opinion.

The Pulp Embargo.

Under this title the St. John N.B., "Standard," on April 29, presents a New Brunswick view of the matter:

Senator Underwood still seems inclined to advocate the "big stick" policy as a method of inducing Canada to revise her regulations regarding the export of pulp wood. He told the House of Representatives during the course of a discussion on the resolution he had proposed—for sending a commission to Canada to discuss the matter—that unless Canada change her tone, retaliatory measures must be employed.

It is doubtless correct that the American paper manufacturers are placed in a very awkward predicament as a consequence of the difficulty in getting pulp wood, but that is no reason why the people of this country should continue to furnish the means of livelihood to citizens of another country. Mr. Underwood declares that unless the raw material can be obtained from Canada, the newsprint industry in the United States must close down and the plants be sacrificed.

It was admitted by other witnesses who were called before the House Committee that the newsprint industry in Canada had grown amazingly since the embargo on the export of pulp wood had been put on. In view of the fact that this is precisely the end that is desired to be attined, the information is interesting. Canada wants her industries built up; she wants to sell wherever possible the finished article, rather than the raw material. To sell the latter, for others to make money out of, is poor business at the best.

It was intimated before the committee that Canadian paper mills are dependent upon American coal and sulphur, which might be refused if Canada did not change her present policy To refuse these commodities would scarcely help out the American situation, seeing that 85 per cent of Canadian-made newsprint is used by American papers. If American mills cannot supply paper for lack of raw material, and Canadians are unable to supply it for lack of the coal and sulphur to make it, where are American papers going to be then?

Care was taken to point out that "the purpose of the Underwood resolution was not the ruthless exploitation of the forest wealth of Canada, but only the procuring of equality of opportunity for the paper industry of the United States." What do the people of Canada care about the paper industry of the United States? What should they care? It is of no benefit to them. They want to build up a paper industry

of their own. The American people took no care of their own timber lands which would have furnished them with an abundance of pulp wood for themselves, and they are not likely to treat with much consideration the Canadian sources of supply if they are given free access to them.

Senator Underwood's Threat.

The "Journal of Commerce" thus heads an editorial in its issue of May 4th, from which we quote:—

It is much to be regretted that a public man of Mr. Underwood's standing and influence has adopted such an entirely unjustifiable attitude. When he moved his resolution in the Senate some weeks ago he assumed the existence of an embargo where there was none. The Canadian official who had supervision of the paper industry had made a regulation requiring that a certain proportion of the product of a mill should be set apart for Canadian needs, and the remainder might be exported. There was nothing unreasonable in that. For a few days there was a misunderstanding respecting the operation of this regulation, but this was speedily cleared up and the shipments to the United States have since been made. There is no embargo on shipments of either wood or paper from Canada to the States. Often strong efforts have been made in Canada to prohibit the export of pulpwood. Arguments having much weight were advanced in support of such a policy; but the Canadian Government never yielded to the request. So far as the Dominion Government and Parliament are concerned there is no embargo on the shipment of such materials to the States. Whatever restrictions there are have been applied by the Provinces, which, within certain limits, are free to make their own laws, just as the State Legislatures are free to do so across the border. It is not in the power of these Provincial Governments to forbid the export of pulpwood, or pulp, or paper. As a matter of fact considerable quantities of wood grown on private lands, or pulp produced from such wood, are shipped to the States. Only a Dominion law could prevent this, and no such Dominion law has been passed.

What has been done by the Provincial Governments in relation to this matter is more in the capacity of landlords than as legislators. The Provincial Governments hold large areas of land which they lease to parties who wish to use them. The landlord has the right to determine the terms and conditions under which he will lease his property. In this case the landlord says he does not wish to lease his property except on the condition that the logs cut on it shall be manufactured in Canada. How far this is a wise policy may be a question for consideration within the Province. But what possible objection can be taken, in logic and reason, by a foreign government to the right of the landlord—the Provincial Government—to manage his own property in the way that he deems best? If any State in the American Union had made a regulation as to the terms on which it would lease its own property to people who desired to use it, and any foreign government challenged the right of the State to do so, the challenge would be regarded as very ridiculous. It would be well for our American friends to try to look at the matter from that viewpoint.

If the American commission be appointed and come to Canada, its members will, of course, be welcomed and treated with all courtesy. But what can they learn that they do not already know? There is no Dominion law to which they can reasonably take exception, and there is small probability that the Provincial Governments concerned will yield to threats. Retaliation is a game that can be played by the United States and by Canada, to the annoyance and disadvantage of both, but not to the good of either.

International Blackmail.

In the Montreal Gazette, April 29th we read:—

Although the United States has shown a marked reluctance to interfere with the domestic affairs of European nations, it manifests no such delicacy in regard to this continent. This may be due to the fact that the interests involved in the one case are merely those of humanity, while in the other they touch the sacred ark of American trade and industry. At any rate, this marked mobility of principle presents itself conspicuously, and nowhere more so than in the impudent attempt that is being made in Washington to bluff or blackmail Canadian provinces into the cancellation of certain export restrictions affecting the pulp and paper industry. For many years the United States has been engaged in squandering its pulp resources, waking up to the danger of exhaustion only when that danger has become a practical reality. Conservation, when conservation and reforestation might have meant something, received no thought and, so far as its resources in raw materials were concerned, the pulp and paper industry drew with persistent recklessness, not only upon its interests but upon its capital, and now it feels the pinch.

For this instructive demonstration in national and industrial economics, certain politicians at Washington, acting, presumably, out of a disinterested regard for the earnings of the American pulp and paper industry, propose that Canada shall be made to pay, and if Canada is unwilling to foot the bill, then Canada must be bludgeoned into submission. Nothing less than that is meant by the resolution passed by the United States Senate asking for the appointment of a commission to "negotiate" with Canadian representatives with a view to the removal of the provincial embargoes on the export of pulp wood cut upon Crown lands. The offer to negotiate is backed by a threat that, if the embargoes are not removed, the United States will stop coal and cotton shipments into this country. One of the leading exponents of this friendly and disarming method of opening international negotiations is Senator Underwood, of Alabama, the gentleman who, a few years ago, presided over the Ways and Means Committee of the House of Representatives and gave his name to the Democratic tariff. Presenting his views to the Committee on Foreign Affairs, Mr. Underwood said that United States paper mills could not be operated in capacity without free importation of Canadian pulp wood. He said that the United States had been more than liberal in its trade policy with Canada, giving liberally of coal and cotton and providing a market for eighty-five per cent of Canadian newsprint. This is what is known in the United States as "bunk". The United States trade policy has been to sell as much in Canada and buy as little as possible, a strictly business policy, and the American market for Canadian newsprint is due to the very condition which Mr. Underwood now seeks to correct by what he calls retaliatory measures.

Percy Cash has given up his place in the Chemical Dept. at La Tuque, and accepted a position with the Beaver Cove (B.C.) Lumber and Pulp Co.

UNITED STATES NOTES

Paper mill executives in the Kalamazoo Valley district have voluntarily advanced the pay of their employees, granting a 20 per cent increase beginning with the first week of this month. This is the second increase voluntarily given to the Kalamazoo mill workers during the present year, and it is expected that other mills in Michigan will follow by giving similar increases. A 12 per cent increase has been given to the valley's paper workers in February. While there has been no official announcement from any manufacturers' body regarding this action, it is stated on good authority that the recent pay increase was a move on the part of the newly-organized paper mill division of the Kalamazoo Chamber of Commerce, which was organized from among the executives of all the big paper concerns following a series of conferences held during the past month. Under the terms of the latest increase the common laborer receives 60 cents an hour for a fifty hour week. Girls on a regular 50 hour weekly schedule will be paid 40 cents an hour, while the tour working girls will get 44 cents an hour for 48 hours a week. All other tour workers are to receive substantial advances, the scale affecting them was not given out. Mill workers themselxes have estimated the average pay increase to be $1 a day, or an aggregate of from $1,800,000 to $2,000,000 a year for the entire district.

Parisien hats fashioned of wood shavings and paper were among the novelties introduced at recent exhibition in New York of latest French model millinery. These models, which were on display at the Bush Terminal Sales Building, comprised paper hats in which the material was finished so as to give a metallic appearance, a paper material made to resemble leather, and a style in which wood shavings were woven into a basket effect. Adorning the heads of the fair models these paper and wood shaving hats could hardly be distinguished from those made of fabrics and straw.

Approval of a plan for increasing the capital stock of the Union Bag and Paper Corporation from $10,000,000 to $20,000,000 was voted by stockholders at a special meeting held May 4. Under this plan the corporation will distribute a stock dividend of 50 per cent. The remainder is to be held available for application from time to time by the board for corporate purposes.

Because of the pulp and coal shortage, due largely to the strike of rail workers, the mills of the Whiting-Plover Paper Company, at Stevens Point and of the Gilbert Paper Company at Menasha, Wisconsin, were compelled last week to suspend the operation of all but one or two of their machines. Prospects for a resumption of full operations in the near future appear to be poor. Reports received from other Wisconsin cities indicate that several more mills are on the verge of shutting down because of their inability to get pulp and coal.

Diversified views as to the causes underlying the acute shortage in print paper were adduced during the first week's hearing before the Senate sub-committee investigating this matter. Leading publishers were called to testify, as were also paper brokers and others connected with the paper industry. Charges and counter-charges of wastefulness, lack of faith in living up to publishers' agreements, and recommendations of one sort or another, all of which previously had been aired, came to the attention of the sub-committee through this testimony, much of which was given with a wealth of detail and statistical information. Among the developments toward the latter part of the week was an announcement from Chester W. Lyman, vice-president of the International Paper Company, presented to the committee in the form of a telegram addressed to Joseph Pulitzer, jr., publisher of the St. Louis Post-Dispatch, according to which further advances in print paper prices are to be made by the International Paper Company, July 1. Mr. Lyman's message read as follows: "Alarming rise in prices for pulpwood, other raw materials and mill supplies, together with inevitable increase in transportation charges, will necessitate a higher selling price for last two quarters. Impossible to foretell extent of increase on account of uncertainty of conditions. Increase in cost likely to continue to turning point reached in general industrial social and financial conditions. Only remedy for present trouble is rigid economy by publishers in their use of newsprint." The paper brokers who were called to testify denied that they are making excessive profits as had been charged in some quarters, claiming that their earnings are less now than they were before the war.

A bill designed to eliminate speculation and brokers' transactions in print paper was introduced last Thursday in the House of Representatives by Chairman Steenerson of the House Post Office, and Post Roads Committee, which has proved various features of the present shortage. The measure proposes that all paper manufacturers or distributors who do not file a list of their prices and sales with the Federal Trade Commission shall be taxed five cents a pound for all paper sold.

The New York State College of Forestry at Syracuse announces that it has added to its faculty C. Earl Libby, who as assistant professor on the staff of the Department of Forest Chemistry, will direct the short course in paper and pulp chemistry. This course was not begun as early as usual this year because of the difficulty experienced in securing a capable instructor, several of the prospective directors having been lured away by more attractive offers from the industry. Following an appeal by the college to the paper industry, Prof. Libby was induced to accept the post, although he had declined it when it was first offered to him several months ago. Prior to coming to the college, Prof. Libby was employed by the Bayless Manufacturing Corporation as chief chemist. He has a degree of B.S., in chemical engineering from the University of Maine where he specialized in the work of that institution's paper and pulp school. He served as chemist in charge of the paper testing laboratory of the R. A. Pettingill Company, industrial engineers, Chicago, and during the war was research chemist with the Aetna Explosives Company, directing part of the research work in cellulose and its nitration.

Technical Section

REVIEW OF RECENT LITERATURE.

A-3. Brazilian anhinga fibre for paper...Paper, 25, 707, (1919) Anhinga which grows along the banks of rivers in the State ot Para, Brazil,, yields cellulose used for making linen paper. An old sugar mill has been fitted for treatment of the fibre and is turning out 600 kg. a day.—A.P.-C.

C-0. The electrical treatment of wood.— F. patent No. 498,447, April 17, 1919, M. P. Otto, France. Papeterie, **42,** 163, (Feb. 25, 1920). The wood is artificially seasoned by treating it with a mixture of ozone and heated air.—A.P.-C.

E-4. The determination of sulphides and SO_2 in gases. P. Haller, J. Soc. Chem. Ind., **38,** 52-6 T, (1919) Chimie & Industrie, 2, 1041, (Sept. 1919). The SO_2 is absorbed in an alkaline solution containing 5 per cent of its volume of glycerine, the latter preventing the oxidation of the SO_2 to SO_3. It also prevents oxidation when the solution is acidified. The alkaline sulphite solution is strongly acidified with HCl and titrated with KIO_3 in the presence of a few drops of $CHCl_3$. The use of a solution of I chloride is not necessary. The average error (as determined by working on weighed amounts of SO_2) is about 0.4 per cent. In the absence of glycerin the results are much too low.—A.P.-C.

E-5. Acid-proof plastic. Eng. patent No. 121,855, C. F. Curtis, England. Chimie & Industrie, **2,** 1228, (Oct. 1919). A mixture consisting of sawdust 30 per cent, Portland cement 30 per cent, pyrites ashes 30 per cent, Spanish white 10 per cent. The mixture is moistened and either applied as a coating or moulded. —A.P.-C.

E-2; R-2. A short bibliograhpy of sulphite alcohol. Clarence J. West. Paper, **25,** 655-6, 659, (1919). A list of articles on the production of alcohol from sulphite waste liquors.—A.P.-C.

F-4. Evaporators...English patent No. 118, 635. K. L. E. Trunholm, Sweden. Chimie & Industrie, **2,** 795, (July 1919). An apparatus specially suited to evaporating solutions containing substances which coagulate under the action of heat, such as waste sulphite liquor. It is composed of a series of chambers with double bottoms for heating. Each chamber contains a rotary agitator. The chambers communicate by means of a central pipe.—A.P.-C.

G-6. Improved screening apparatus for pulp. U. S.A. patent No. 1,319,705, Anton J. Haug, Nashua, N. H., assigned to Improved Paper Machinery Company, Nashua, N.H. Paper **25,** 618-20, (1919). The screen is given a rotational motion, and also a compound (i.e., vertical and horizontal vibratory motion. The interior of the screen may not be provided with blades, arranged longitudinally, to increase the vibratory, agitating and transcolating effect of the moving of the screen, also to bring within the radius of action of the shower water any accumulations of unscreened stock.—A.P.-C.

K-5. Mixing chests. Paper Makers' Monthly J. Papeterie, 41, 539, (Nov. 25, 1919). A short description of various types of mixing chests used in newsprint mills in place of beaters.—A.P.-C.

K-5. The Lannoye pulper as a broke kneader. Paper **25,** 785, (1919). A diagram showing how the Lannoye pulper may be used a broke kneader, resulting in considerable saving of time and labor.—A.P.-C.

K-6. Treatment of certain plants for making paper. English patent No. 166,005, C. J. Stewart, H. D. Hall, and H. Beadle, London. Chimie & Industrie, **2,** 828, (July 1919). Practically the same as Fr. patent No. 486,393. See Pulp and Paper, **17,** 358, (1919).—A.P.-C.

K-7. Notes on beating. A Noel. Papeterie, **41,** 587, (Dec. 10, 1919). As beating is a very important operation it should be watched very carefully and should be entrusted only to an experienced man. The use of propellers in front of the cylinders is useless in a properly designed beater. Granite bedplates are especially useful for beating stock for the manufacture of grease-proof, parchment, etc.—A.P.-C.

K-12. Practical training of the papermaker. How to become a machine tender. III. E. Arnould. Papier, **22,** 324-5, (Nov. 1919). A description of the duties of the machine tender, with special reference to the manufacture of fine and semi-fine papers. (Cl'd).—A.P.-C.

K-12. Unoxidisable paper machine cylinder. D. R. P. No. 312,168, Fullner A. Warmbrunn. Pepeterie, **41,** 535, (Nov. 25, 1919.) An iron or steel grooved cylinder is covered with a cement coating.—A.P.-C.

K-12. Method of heating steam drying cylinder. Fr. patent No. 488,951. Anton Huwiler, Switzerland. Chimie & Industrie, **2,** 829, (1919). Condensation of the steam on the inner surface of tthe cylinder is prevented by means of electric heating elements placed on the inner circumstance.—A.P.-C.

K-20. Process for the manufacture of parchment paper. French patent No. 495,742, Feb. 13, 1919, W. Dagnall, England. Papeterie, **41,** 535, (Nov. 25, 1919). —A.P.-C.

K-23. Process for making reinforced waterproof paper. U.S.A. patent No. 1,270,250, Safepack Paper Mills, U.S.A. Chimie & Industrie, **2,** 829, (July 1919). Carded textiles fibres are placed between 2 thicknesses of paper which are glued by means of an adhesive which waterproofs the paper.—A.P.-C.

K-23. Artificial sole leather. French patent No. 489,462, E. W. Ericson, England. Chimie & Industrie, **2,** 830, (July 1919). Fairly thick sheets of cardboard are impregnated with tar, pine resin, and a small amount of fatty substance.—A.P.-C.

K-23. Spraying metals on paper. J. Frank. Inst., Dec. 1919; Paper, **25,** 707, (1919). Schoop's spraying process is being further developed and metal can now be coated on glass, celluloid, paper, etc.—A.P.-C.

L-4. Paper bags for preserving clothing, etc. Fr. patent No. 495,496. Feb. 4, 1919, Watz. Papeterie, **41,** 535, (Nov. 25, 1919).—A.P.-C.

L-5. Manufacture of viscose articles...Fr. patent No. 489,881, B. Borzykowski, U.S.A. Chimie & Industries, **2,** 830, (July 1919). Viscose may be used without purifying it or allowing it to mature. To obtain cellulose xanthogenate strong salt solutions must be used; and to obtain cellulose hydrate, dilute acids. In both cases a relatively long stay in the precipitating bath is required.—A.P.-C.

Testing Moisture in Pulp

The Editor regrets that delay in getting cuts has prevented an earlier publication of the following communication. The issue, however, is still a live one in view of the reference to it in the British Trade News, on another page.

March 16, 1920

Dear Sir.—In the discussion at the Annual Meeting of the Technical Section, of the report of the committee on moisture testing, the writer referred to a communication which he had made to the committee on moisture testing. With the permission of the chairman of that committee, I enclose a copy for publication. In connection with the question of taking samples, I refer to the Pulp and Paper Magazine of Jan. 1st, 1916, page 10, being the report of a special committee representing the American Pulp and Paper Association, and the American Wood Pulp Importers The findings of this committee are stated to have been made as a result of "experiments carried on at Holyoke, Mass., at a great cost. Experts in charge of the experiments have made their report and the following instructions are now given as the standard methods of testing and sampling pulp."

Later in the report, the method of sampling is given as follows: "depth" boring:—The sample shall be taken by boring into a bale to a depth of 3" (7.62 cm.) with a special auger which cuts a disc about 4" (10.16 cm.) in diameter." In the whole of this report no reference is made to the wedge method of sampling and it is obvious therefore, that the wedge system was not regarded as being either appropriate or satisfactory for use on bales of dry imported pulp.

The writer has always considered methods of testing which required breaking of bales or cutting of rolls to the centre, as not conducive to the interest of the consignee, and in cases where referees are called in, as being too time-consuming, and therefore, having a tendency to cause a consignee to accept the shipper's figures or compromise on a basis of the shipper's test. It is possible to make a boring instrument that will correctly sample every form of pulp, and devise with a little investigation, a form of test that will give correct results with the kind of pulp in consideration. It was suggested that the only method adopted by the European buyers of pulp, was the wedge test, but the writer has frequently seen bales of European pulp which had been sampled otherwise.

The objections to the wedge and strip methods are: (1) The inconvenience of opening up bales to cut wedges, or laps to cut strips. (2) The large bulk of sample obtained. (3) The amount of time required, and (4) the general objection that holds with all rule of thumb methods, that the special circumstances are ignored. I can refer to a case where a referee was sent to a mill to test pulp which the consignee found short. The pulp had been standing in the mill in a comparatively dry, well-ventilated room, for over six weeks. The referee did not re-weigh the pulp, but insisted on breaking bales and taking wedges in quite a free-hand manner, that is the bases of his wedges varied from 4" to 8", and this finding which supported the seller, was accepted as final in the face of tests by two other parties which showed a shortage of about two percent, and were taken at the time the shipment was received and weighed.

I believe that this question is of sufficient importance to be held open, not because there has not been time enough to make the tests, but because I believe that attention has been entirely focussed on one line of action.

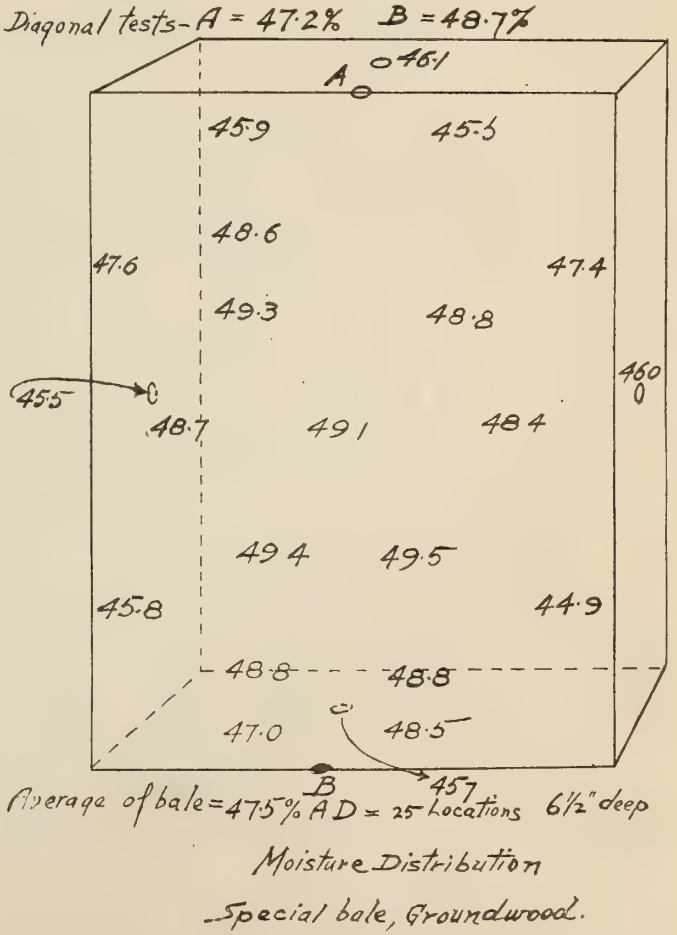
I am, yours very truly,
T. LINSEL CROSSLEY

43 Scott St., Toronto, Ont.,
Twenty-third of May, 1919

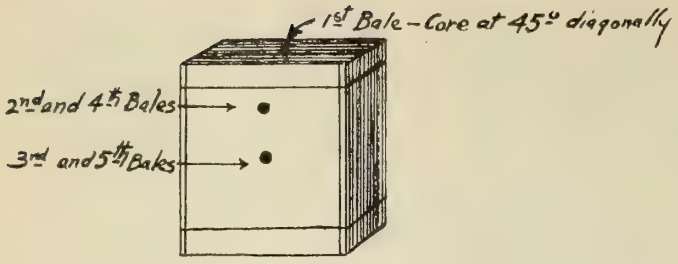
E. B. Slack, Esq., Chairman, Committee on Moisture,
c/o Riordon Pulp and Paper Company,
Hawkesbury, Ontario.

Dear Mr. Slack:—At the February meeting, I promised to let you have some data on testing of a special form of groundwood in bales. The bales are 20" x 26" and 14" to 15" deep. They consist of 15 to 18 sheets of pulp ¾" to 1" in thickness. The sheets are made by running the fluid pulp into spaces between perforated brass sheets, and are formed in a vertical position. In some cases, the lower side of the sheet was drier than the upper, but not in the majority of cases. The bales were put up in such a way that upper and lower edges of sheets were generally alternated.

After testing the single sheets in various ways, whole bales were tested. I enclose a sketch showing results obtained on one that was pretty thoroughly tested. The bales were bound with wire, and edges protected with wooden slats. The test cores went practically half way through the bale.



As a result of the investigation, a cycle of five bales was decided on as in following sketch:

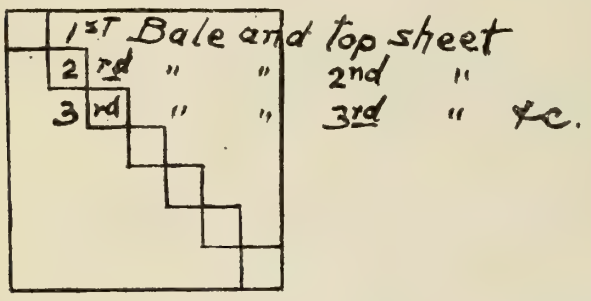


For carload test, ten per cent (10%) of the bales were taken. Carload would be about 350 bales.

A large proportion of this mill's output goes to one mill, which keeps a special testing department. The fact that, in three years, neither they nor others have made any claim on moisture test indicates that the cycle and method give fair results.

I have recently seen several cars tested at a consignee's mill, with results closely confirming the shipper. There is only one mill that I know of making this form of sheet and bale, but your report could, I believe, with safety suggest that such bales be tested as described above.

I have also seen this pulp tested as in the following diagram:



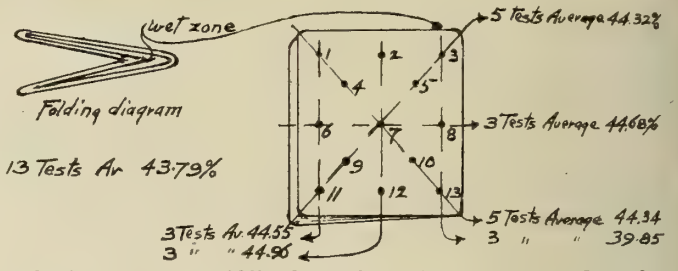
Successive squares about 4″ x 4″ were sawed out of the sheets, following the diagonal of the sheet and progressing through the bale. This was cumbersome and necessitated breaking the bales. The squares could better be cut with a broad sharp chisel. This form of test would favor the seller, as the majority of the squares are in the drier portion.

I believe the wedge method would do here, but would also call for breaking bales. The core would penetrate four or five sheets, and as the bales are made up from the machine run, there is no reason to consider any special moisture distribution through the depth of the bale. In the case of long storage, the outer disc should be eliminated from the test on a due proportion of the bales tested, if the bales are weighed at time of testing. If the shipper's weight is the only one available, the outer sheet should not be included at all.

Re Wet Laps—as per report of committee at February meeting, I have looked at the figures for this material in the committee's report, and I do not see how it could have made the statement that "the results arrived at prove **conclusively** that a strip sample 3″ wide cut clean across the face of the roll is an **absolute** test of the whole lap." I do not think the committee was warranted in using the words "conclusively" and "absolute" when only fifteen tests out of forty-four came within 0.25 per cent., that is, the divergence between the strip and the whole sheet. This divergence seems to run as much one way as the other: that is half the tests are high in the strip, and half are high in the sheet. (I attach a tabulation showing this.)

I believe almost any form of test other than cutting from the felt side only, would give as good results. Had I not seen your figures, I would not have thought there could be such a divergence. One would expect the strip on account of the extra handling to be always slightly higher. The average looks all right, but it is misleading as to absolute agreement in individual cases.

Hydraulic pressed laps.—The following sketch shows results on a typical lap which I tested out some time ago:



Owing to the difficulty of drying a whole lap for test, it was bored as above, which would result in circular discs being cut from 157 different places in the sheet. The results were considered equal to strips cut along the lines indicated.

It will be seen from the sketch that strips in either direction might be higher than the average of the whole lap. My method of sampling this form of lap is by means of a cycle of 13 laps, taking one lap from a truckload, or other unit, and cutting the first lap at number 1 upper left hand corner; second one at number 2 and so on to number 13. On a large car I take 5 cycles or 65 laps in all, and have reached close duplications.

From a number of tests, the indication was that the turned-in edges formed a moisture pocket along the back of the lap, when the pressure was put on and even after a couple of weeks, it had not re-distributed to the rest of the lap.

A cycle of wedges might take of this form of lap, but would not be so rapid and would produce an unnecessary bulk of sample.

Ordinary Wet Laps—I take thirty to forty laps through a car, and bore them through the centre, thus cutting a disc out of the sheet at twelve places, covering width and length.

Rogers Wet Laps—These are bored half way through at the centre. I have found that there is little difference between the edges and centre of this form of lap.

Dry Rolls and Bales—Rolls are bored to a depth of 1½″ and the outer ½″ rejected, when shipper's weight is taken. If weighed at consignee's mill, they are bored to 1¼″ and ¼″ rejected. For one or two car lots, one roll in five is taken. For over two cars, one in ten is taken. That would be for mill use. In referee cases, of course, each car would be separate, and one roll in ten taken. Bales are bored in the centre to a depth of 1¼″, rejecting the outer ¼″ and one bale in five is taken.

The principles I work on in testing are:

1. **The method must not be so cumbersome as to encourage shirking.**

2. **The individual samples should be of uniform weight.**

3. **A large number of samples with a reasonable system of location is preferable to exact location on fewer units.**

It is easier for the shipper to make elaborate tests than for the consignee, but on the other hand, there is a better distribution of moisture by lapse of time, when the pulp is received.

With reference to this point, I think all pulp, especially hydraulic-presed wet laps, should be tested only after standing at least 24 hours.

Yours, very truly,
T. Linsey Crossley.

Table A.

Test.	3" Strip.	Whole Sheet.	Strip High. %	Whole Sheet High. %
1	39.85	39.25	0.60	..
2	40.65	39.20	1.45	..
3	39.05	38.70	0.35	..
4	36.70	37.65	..	0.95
5	40.25	40.05	0.20	..
6	38.85	39.80	..	0.95
7	39.20	39.15	0.05	..
8	41.05	42.05	..	1.00
9	40.20	41.15	..	0.95
10	41.95	40.60	1.35	..
11	40.15	39.90	0.25	..
12	39.30	38.75	0.55	..
13	39.40	39.80	..	0.40
14	42.15	42.65	..	0.50
15	41.80	42.20	..	0.40
16	41.05	39.55	1.50	..
17	40.80	39.95	0.85	..
18	42.70	4325	..	0.55
19	40.65	40.50	0.15	..
20	40.85	41.40	..	0.55
21	41.65	42.25	..	0.60
22	40.40	40.55	..	0.15
23	42.45	43.05	..	0.60
24	40.70	40.55	0.15	..
25	38.55	38.15	0.40	..
26	41.30	41.45	..	0.15
27	41.80	42.55	..	0.75
28	42.75	42.65	0.15	..
29	43.05	43.55	..	0.50
30	42.00	42.05	..	0.05
31	42.25	41.40	0.85	..
32	41.75	42.60	..	0.85
33	41.35	41.50	..	0.15
34	40.50	40.26	0.24	..
35	40.32	40.81	..	0.49
36	38.17	38.07	0.10	..
37	35.86	36.43	..	0.57
38	38.36	38.33	0.03	..
39	40.21	39.74	0.47	..
40	39.91	39.66	0.25	..
41	37.72	37.57	0.15	..
42	31.76	32.04	..	0.28
43	30.27	30.64	..	0.37
44	31.50	30.94	0.56	..

15 tests out of 44 are within 0.25%
27 tests out of 44 are within 0.50%
10 tests are more than 0.75% apart

Standard methods of testing moisture in pulp as adopted 30th January, 1920, by the Canadian Pulp and Paper Association:—

1. *Strip Method for Testing Wet Lap Pulp—*

(a) The strip or sample should be between 2 in. and 3 in. in width.

(b) This strip must be taken clear across the width of the machine which makes the lap.

(c) In a car of 60,000 lbs. capacity, 30 laps should be taken and strips cut from same, and the average tests obtained from these samples will be the average for the whole car.

2. *Strip Method for Sheets when taken from a Machine such as the Rogers Wet Machine—*

(d) The strip or sample must be between 2 in. and 3 in. in width.

(e) Strips are cut clear across the face of the machine—that is, from the front of the sheet clear across to far side of sheet.

(f) In a car of 60,000 lbs. capacity at least 60 such sheets should be taken, and strips cut from these form the basis of test.

3. *Wedge Method for Hydraulic Pressed Pulp in Bales—*

(g) This method consists of taking a wedge starting with a nine deg. angle at apex, and such wedge reaches from the centre of the press lap to the outer edge.

FIG. A

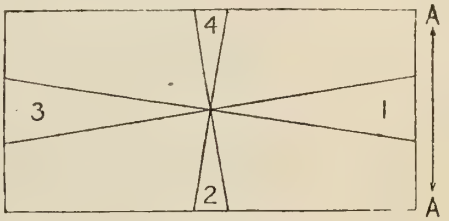


Fig. A represents the wet edge, or in some cases, when pressed lap is only folded once, the closed end of said lap.

Take on first lap sample 1, on your second lap sample 2, always placing your lap so that "A" is in the same position as in previous case.

On third lap take sample No. 3, and on fourth lap take sample No. 4.

In a car of 60,000 lbs. capacity, 24 laps should be taken for an average test and wedge samples cut from these, and if more samples desired they should be taken in multiples of 4.

MORE ABSTRACTS.

L-5. Artificial leather. D. R. P. No. 308,089, T. Schmidt and J. Foltzer, Switzerland. Chimie & Industrie, **2,** 832, (July 1919). A cellulose solution is incorporated by pressure with a fabric of carded and felted hair which is then subjected to the action of a hardening liquid with a cellulose base.—A.P.-C.

Q-0. Preservation of wood. U.S.A. patent No. 1,283,105. J. A. DeCew, Canada. Chimie & Industrie, **2,** 816, (July 1919). The wood is first heated in order to dry it, coated with pitch at a temperature below 100 deg. C, and finally coated with a harder pitch at a temp. above 100 deg. C, enough of which must remain to protect the wood from moisture.—A.P.-C.

R-1. Espanola plant of Spanish River Paper Mills. Paper, **25,** 781-4, (1919). History of the construction of the addition to the Espanola paper mill and a detailed description of the 2 new machines.—A.P.-C.

R-4. Unified set of regulations for transactions in the paper industry. Papyro. Papeterie, **41,** 522-31, (Nov. 25, 1919). A proposed set of regulations suggested for adoption in all countries to do away with the present confusion due to the differences in the regulations in use in different countries.—A.P.-C.

International Number

OF

The Pulp and Paper Magazine of Canada

The Pulp and Paper Magazine will shortly issue its first Special Number, which will be called The International Number.

Editorially, this issue will be in charge of Mr. J. N. Stephenson, M.S., Editor of Pulp & Paper Magazine, and Mr. Edward Beck, Manager of Publicity for the Canadian Pulp & Paper Association. It will contain the most complete magazine description of the Pulp and Paper Industry in Canada that has yet been attempted. The object is to show the importance of this industry in the life of the Dominion, the wonderful resources behind it and the unparalleled opportunities ahead, and the part it plays in the paper markets of the world. There will be a brief story of the development of pulp and paper making in Canada, an account of the Canadian Pulp & Paper Association, a description of Canada's forests, water powers, transportation systems, etc.

ADVERTISEMENTS WILL BE ACCEPTED ONLY FROM FIRMS WHOSE ANNOUNCEMENTS APPEAR IN THE REGULAR ISSUES OF PULP & PAPER MAGAZINE.

If you have not already sent copy for the International Number advise us what space to reserve for you. Copy and cuts should be mailed as soon as possible.

Rates are as follows:—Half page, $40. One page, $75. Two pages, $70 each. Four pages, $60 each. Type size of page, 7 x 10 inches. Coated paper will be used.

Pulp and Paper Magazine

GARDEN CITY PRESS

Ste. Anne de Bellevue, Que.

PULP AND PAPER NEWS

It is announced by the Spanish River Pulp and Paper Co., office Bank of Hamilton Building, Toronto, that the company has purchased an aero-marine flying boat, to be used in inspecting its timber limits and watersheds. The machine will also be used for survey work and for quick trips between the mills at Espanola, the Soo and Sturgeon Falls. The flying radius of the machine, which will be operated by George H. Simpson, formerly a captain in the Royal Naval Air Service, is several hundred miles.

Negotiations between a committee of Local 91, I.T.U., Toronto representatives of the Master's Printers' Association will be continued with a view to obtaining an increase over the 10 per cent bonus which the Master Printers' Association offers as an amendment to the wage schedule signed last year for a period of two years by local job printers.

It is rumoured in pulp and paper circles in Toronto and elsewhere that the Brown Corporation has secured about 950 square miles of free-hold timber on the north shore of the St. Lawrence River. The wood is to be used in connection with the United States operations of the Corporation.

Contracts have been let by the Fraser Companies, Limited, for two additional digesters for the Edmunston plant. Construction work will be started immediately and it is expected that the digesters will be in operation by January 1st. This will increase the capacity of the plant to 180 tons. Production has increased in the past few weeks under Manager Brawn's direction, until now the plant is being operated almost to capacity, which is 130 tons.

W. J. Wilkinson, New Editor of the Toronto Mail and Empire, received the congratulations of many friends on May 2nd, when it was recalled that fifty years ago he entered newspaper work. In the last half century he has worked on four different papers, three of them in Toronto and he has been with the Mail and Empire for the past twenty years. Mr. Wilkinson's father founded the Guelph Advertiser and the St, Thomas Times. The son came to Toronto thirty years ago and was a cub reporter on the Toronto World.

Dixon A. Burnes, a former member of the Toronto Globe staff, was ordained a minister of the Baptist Church at a council held in Toronto by representatives of the Baptist denomination.

Joseph Albert Warren, a veteran of the war and for some time employed on the editorial staff of the Toronto Telegram, died in Toronto at the age of 42 years. He saw much active service in France and prior to the war had worked on the Ottawa Citizen and the Calgary Herald.

The Provincial Paper Mills, Limited and the Interlake Tissue Mills, Limited, moved into their new offices at 54-56 University Avenue, Toronto, on Saturday of this week. The two companies have had their head offices in the Bell Telephone Building for some years and are now located in the old Government House property.

The Don Valley Paper Company is installing a motor drive on their Jordan engine and expect to have it in operation in about a week's time.

The Kinleith Paper Company, of St Catherines, have let the contract for a seventy foot extension to their machine room in order to permit of greater drying capacity. It is estimated that it will be about six months before the addition will be ready for use.

The Canadian Pulp and Paper Association has sent out copies of a trade custom adopted by the manufacturers of newsprint in connection with standardization of sheet newsprint. On a minimum basis of 24 33, including wrappers and turne minimum size, 24 x 36, the following shall be standard publishers sizes: 24 x 36, 27 x 41, 28 x 42, 30 x 44, 35 x 45, 35 x 48, 38 x 48, 42 x 56. Where sizes other than these are required and where they can be accepted by the mill, an extra charge for cutting shall be made as follows: 2 or more tons, $3.50 per ton: cars (20 tons or over) $2.00 per ton. Not less than two tons of any odd size shall be cut. All papers are to be put up lapped.

The Spanish River Pulp and Paper Mills, Limited, in persuance of the decision arrived at at the recent meeting in Toronto for paying off the accumulated dividends on preference stock, have now sent out a circular letter to all shareholders, calling attention to the scheme of payment as previously announced, and to a general meeting on June 23rd for the purpose of endorsing the scheme.

The Hinde & Dauch Paper Co., of Canada, Limited, Toronto, announced this week that as soon as matters resume a normal basis, so that the necessary machinery and supplies can be obtained, they expect to build a large paper mill and box factory in Montreal.

M. Unagasaki of Osaka, Japan, accompanied by M. Nakayama, representing several large newspapers in Japan is in Canada for the purpose of securing newsprint owing to an acute shortage in the Orient.

Word has been received in Toronto that a syndicate of Winnipeg business men intend erecting a wallboard factory at Selkirk, Man. and that construction will start at once. It is reported that an enormous quantity of straw, which is now burned, will be used in the industry.

A. C. Mackintosh, President of Fibre Cases, Limited, Vancouver was in Winnipeg recently, with the object of establishing a wood fibre box factory in that city. The exclusive selling rights between Port Arthur and the Pacific Coast have been secured for these patent composition boxes, which are now made by another company in the east known as Fibre Boxes, Limited, is a new company in the east known as Fibre Boxes, Ltd., Fibre Cases, Ltd., is a new company which was organized a month ago, consisting of Wininpeg, Vancouver and Toronto capitalists. It is expected that the new industry, when it starts in Winnipeg, will employ about thirty hands.

A charter has been granted to the Nipigon Fibre & Paper Mills, Limited, with headquarters in Port Arthur and a capital stock of $1,000,000, to own and

operate timber limits and to erect saw and paper mills and manufacture and deal in pulpwood and all by-products of lumber, timber, pulp, paper, etc. Among the incorporators of the company are Hugh Keefer, Wm. Colling, Arthur Young and A. P. Freed, all of Port Arthur.

A charter has been granted to the United Press, Limited, with headquarters in Toronto and a capital stock of $40,000, to carry on a general business of printing and publishing, engraving, lithographing, bookbinding, paper bag, envelope and box makers.

The Stott Press, Limited, of Toronto, have been incorporated with a capital of $40,000 to carry on a general printing and publishing business as well as electrotyping, stereotyping, paper-making, envelope, paper bag and stationery manufacturing. The incorporators are Wm. F. Stott, Adam F. Penton, J. J. Nightingale and others.

Some difference arose this week between Kilgour Bros., paper and paper-box manufacturers, Toronto, and the International Union over the discharge of union printers in the firm's employ. The discharge of the eight union men has resulted in an order from the executive Committee of the local union closing the Kilgour shop to union men and has complicated the negotiations between the Master Printers' Association and the job printers. The shop has been union for years.

SHINGLES OF PULP PAPER.

The Walker Paper Mills, at Sault au Recollect are putting out large orders of paper shingles for France. The idea of pulp and grey or red granite roofing composition has been tested out in Ontario, and a twenty-year weather resistance is guaranteed.

AUSTRALIAN BUYERS IN VANCOUVER

When the Canadian Australian line steamer "Makura" arrived in Vancouver on her last trip she brought several newspaper men who are here on several matters, partly on the quest for newsprint supply. They are finding that the supply is pretty well taken up as far as British Columbia is concerned.

SWEDISH GOVERNMENT REPRESENTATIVE VISITS BRITISH COLUMBIA

Mr. Henrik Carbonnier, Honorary Attache to the Swedish Consulate General, Montreal, and representing the Swedish Government was in Vancouver recently. Mr. Carbonnier is investigating timber resources and conditions in North America on behalf of the Swedish Government, and visited British Columbia on his way South to San Francisco. He will visit Seattle enroute, and from San Francisco will go to the Southern Pine regions, ultimately visiting all the timber districts of the United States.

STANLEY POCHIN COMING OVER

Pochin's have been "coming across" in the China clay for paper makers for some time. Advice is just received that Mr. H. Stanley Pochin has come across on the s.s. Carmania, having left England, May 1st, on important business in the U. S. A. and Canada, for the firm of H. D. Pochin & Co., Ltd., of which he is managing director. The excellent works of his company have been fully described in the Pulp and Paper Magazine, and many readers who know the products of the company will be glad to make the personal acquaintance of one of the principals.

MR. P. L. LYFORD BACK FROM THE SOUTH

Mr. P. L. Lyford, of the firm of Clark & Lyford, forest engineers, has recently returned from a trip to Salt Lake City in connection with the purchase and sale of some B.C. timber limits.

OUTSIDE CAPITAL IN B. C. TIMBER

Outside capital has been active in British Columbia recently in the acquisition of timber limits, and this may result in a sharp rise in stumpage values provided the lumber and pulp business continue along the satisfactory lines of the past year. There is every appearance of the pulp business continuing to grow for some time to come, and without doubt, even though there is some fluctuation, the lumber business will continue to be energetic for many months. Like many lines of business where there is an abnormal demand for a particular product, firms and middlemen will spring into existence, but these do not last long, and this is what has been happening in the lumber and shingle business in British Columbia during the past year.

FRASER PAPER COMPANY BUYING LANDS

The sale of the lands of the New Brunswick Railway Co., which consist of 1,700,000 acres, to the Fraser Companies, Ltd., has been recommended by the directors' and a meeting of shareholders is called for June 1 next to consider the recommendations of the directors concerning the sale of the company's properties and to authorize the directors to sell or dispose of all or part of the same at such a price and on such terms and conditions as they may approve.

Following the incorporation of the Fraser Paper Co., Ltd., with authority to erect dams and pulp and paper mills at the Tobique Narrows, N.B., negotiations were carried on between the railway company and the paper company in this connection, and it is understood that the deal will be put through if the shareholders of the former concern approve. If the paper company takes all the railway company's lands, the sum involved will run into many millions of dollars.

PRICE BROS. EARNINGS

Earnings of Price Brothers & Co., Ltd. for the year ending February 28, were over two millions, with $1,621,806 applicable for dividends. Owing to the distribution of bonus stock during the year it is impossible to calculate the actual rate earned on capital. In addition to these profits $600,000 was put to various reserves as shown in the balance sheet.

Shareholders participated in the prosperity of the company during the year to the extent of $690,000,000 in the form of dividends and bonus compared with $400,000 in the two former periods.

In addition shareholders received a special distribution of $1,540,000 out of the surplus earnings of the company accumulated prior to the first of January, 1917. After all deductions, there remained a surplus in profit and loss account at the end of the year amounting to $2,115,346, compared with $2,874,234 in 1918 and $2,220,239 at the end of the preceding year.

The balance sheet shows the comfortable position occupied by the company in the way of working capital, this being higher than in the previous statement by slightly in excess of $500,000. Among the current assets inventories are shown of slightly over $1,000,000 higher than in 1918, amounting to $3,934,755, with accounts receivable up over $200,000 at $1,181,064.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, May 8.—There have been some signs of a slackening off in paper buying in a few lines, although these were so slight as to be imperceptible in a good many cases and the prevailing opinion appears to be that what reduced buying there was in the past week was no more than one of the fluctuations that have periodically appeared of late. Some dealers look for a slackening off of demand and for the most part the mills would welcome it for it would give them an opportunity to get partially caught up with some months arrearages of orders and permit of more normal conditions of manufacturing. Heretofore Spring has always produced a marked lessening in the demand for papers and while it is recognized that this is an abnormal year in the trade, it is predicted in some quarters that history will continue to repeat itself and that with the anticipated cessation of big newspaper and catalogue advertising, the usual spring and summer slackening of demand will show itself, although not to the extent of causing a tumbling of prices. As a matter of fact most lines are still on the up-grade and higher prices still are predicted for raw materials, chiefly while the finished products are still considerably behind in the way of needed production.

Of course the serious shortage of paper in the United States is affecting the shortage in Canada. It is worthy of note that Toronto is now receiving 61 tons of American magazines less each week than during normal distribution. The supply of some periodicals has been cut off altogether, while the shipments of others has been considerably reduced. In most cases only regular paid-in-advance subscribers are being served and no sale copies are being sent, while some of the American periodicals are sending out two issues in one, and in reduced size. It is predicted, also, that in a short time American newspapers will be withdrawn from the Canadian news-stands and the manager of the American news-stand in Toronto states that it is quite likely that within a month no American magazines will be available here.

The newsprint situation remains unchanged and as far as Ontario papers are concerned, while they are being supplied, barely enough is comiing from the mills to meet the demand and there is none over, in the warehouses, to meet emergency calls. Newspapers in Manitoba and Saskatchewan are less favorably situated and for the second time in the past six months some of the journals there are facing suspension owing to inability to get paper. Their source of supply, for the most part, is the Fort Francis Pulp and Paper Company, Limited, which is 200 miles east of Winnipeg and when, following the Supreme Court decision in the Price Bros. appeal, the company notified the papers to get their paper elsewhere, and shut off shipments, the western papers tried other sources and failed. The latest development in the western situation is that the Fort Francis Company has again notified the papers to get their supplies from other mills and Winnipeg says that unless shipments from the mill are resumed, next week will see several daily newspapers in Manitoba an Saskatchewan out of publishing business, temporarily at least.

There is no speculative buying of any lines of paper at the present time. The state of the market and the discrepancy between supply and demand prohibits that, while a further deterrent is the fact that all shpments are governed by the price prevailing at the time of shipment. Raw stock is still very short and hard to get and as a consequence many of the cheaper grades of paper have been withdrawn from the machines. This is but natural with bleached sulphite hovering around the $200 a ton mark. One Toronto firm thought they were taking long chances some weeks ago in buying up what bleached sulphite they could get at $160 a ton, but it was turned over at a considerably higher figure than that and they are now looking for more at almost any price.

Toronto wholesale paper dealers have been advised of another advance in all American lines of cover papers, blotters and bristols and these went into effect on May 1st, representing an all-round increase of ten per cent. Coated papers are still far from meeting the present demands and one wholesale paper house in the city has placed an order for seven tons, being content with the mills promise to have delivery next October, and at the price that will prevail at that time. The same mill got a quotation from a newsprint mill of 12c a pound for a spot lot of newsprint.

Despite shortage of supplies the paper houses are prospering. Casting up his accounts this week, the head of one big paper house found that his total sales

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for his business year just closed exceeded those of the preceding twelve months by about 150 per cent and he made the statement that could he have secured all the stock that he wanted the increase would have gone up to nearly double the percentage mentioned. All of which indicates that while the paper trade has been wonderfully prosperous it was prevented from reaching the peak by shortage of supplies as compared with the big demand that has kept up all through the year.

Book paper mills are still disposing of their product pretty much on a rationing system and owing to the unsettled and fluctuating condition of the market and the difficulty in getting hold of raw material, no set price lists are being used. In this, and in most other lines of paper, the question of price is subordinated to the matter of deliveries. All the manufacturing stationers, making envelopes, papeteries, blank books and specialties are still experiencing great difficulty in getting stock and the demands for their output has out-stripped theis order-filling capacity.

None of the mills are after orders for wrapping papers although the jobbers are sending in orders that cannot be filled for months. Although 9 cents still prevails for manilas and fibres it is stated that one mill has raised the price to 12 cents, not with a view to selling, but rather as a deterrent to orders and to allow them to catch up with their arrears in shipments.

There is still a great shortage of raw material and pulp prices show no signs of a downward tendency. Groundwood pulp is hard to get at $80.00 a ton and bleached sulphite is equally scarce at from $140 to $150 a ton. Easy bleaching is quoted at $110 to $120 and new grades around $90, but spot lots have brought higher prices than these.

There is a general demands for grades of rags and paper stock, but shipping has been held off to a considerable extent on account of the embargoes. Some of the lines of book stock have gone up slightly, but there have been practically no changes in the rag market during the week.

Rag and Paper Stock Prices.

	F.O.B. Toronto.
No. 1 shirt cuttings	19c
No. 1 unbleached cotton cuttings	16c
No. 1 fancy shirt cuttings	13½c
No. blue overall cuttings	13½c
Bleached shoe clip	15c
White cotton hosiery cuttings	17½
Light colored hosiery cuttings	13½
New light flannellette cuttings	13½
No. 2 white shirt cuttings	13c
City thirds and blues (repacked), No. 15	5¼
Flocks and satinettes	$3.75
Tailor rags	$3.75
Gunny bagging	4c
Manila rope	8c

No. 1 white envelope cuttings	$5.75		$5.25
No. 1 soft white shavings	$5.50		$5.00
White Blanks	$3.50		$3.25
Heavy Ledger Stock	$3.80	$3.90	$3.75
No. 1 magazine	$3.50	$3.27	$3.50
No. 1 book stock	$3.00	$2.80	$2.50
No. 1 Manilas			$3.25
No. 1 print Manila			$2.00
Folded news	$2.10	$2.00	$1.90
Over issue, news			$2.25
Kraft			$3.75
No. 1 clean mixed papers	$1.70	$1.65	$1.60

NEW YORK MARKETS

New York, May 8.—With railroad traffic conditions improved, at least to an extent, business in the local paper market has increased this week. Transportation facilities are still far from normal and no one is willing to even venture a guess as to when they will be, yet most of the railroads leading into New York are gradually lifting embargoes and doing their utmost to clear their lines, and there is a better flow of paper shipments into the city from mill centres than for some weeks. Buyers have not let up in their demands as a result of the arrival of larger amounts of paper. On the contrary, inquiry has broadened, and it would appear that consumers, seeing that jobbers and mill agents are getting in larger supplies, have doubled their efforts to secure deliveries of much-needed paper.

The market in its entirety displays an exceedingly firm tone. Prices tend sharply upward, and while no further heavy advances have occurred, it would not be at all surprising to witness values attain still higher levels before the present remarkable upward movement of prices is checked. Printers, publishers, department stores, box makers and various other consumers here and in other large consuming centres are sorely in want of supplies, and are overlooking matters of price when endeavoring to locate available lots of the kinds of paper and board required. Against this condition, mills are sold up for such a time that the great majority of them are totally out of the market as sellers. A good many manufacturers who booked orders well ahead some time ago have seen their mistake and they are taking care not to repeat their error, particularly in view of the innumerable uncertainties surrounding raw material supplies, labor, shipping, and other factors having to do with production costs.

The attention of the newsprint trade has been focused this week on the hearings before the Senate investigating committee in Washington, which is endeavoring to get at the bottom of the prevailing shortage of print paper. Many prominent manufacturers, jobbers and publishers have appeared as witnesses, and some highly interesting testimony has been given. The facts presented, however, have brought out nothing of a startling nature aside from the fact that the present tight market situation is due solely to the very heavy consumption of newsprint and the resultant inability of manufacturers to fill the demands made upon them. There have been numerous suggestions for legislation giving the Government control over the production and distribution of newsprint, but it remains to be seen what definite action will ultimately be taken by the national law-makers.

Probably one of the most important developments at the Washington hearing is that it is the intention of the International Paper Company to advance its contract price on newsprint next July 1. A prominent publisher testified that he had been advised by an official of the I. P. that increasing production costs would necessitate this at the beginning of the third quarter of the year, and if such is the case, it stands to reason that whatever price established by the International will become the minimum contract basis for newsprint because all other manufacturers will undoubtedly take action similar to that of the big company.

Demand for newsprint shows no perceptible abatement. It is rather generally conceded that large metropolitan daily newspaper publishers are keeping out of the spot market, as it is understood they agreed

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to do, yet other buyers are searching for paper in every possible direction and are paying all manner of prices to obtain prompt deliveries. Sales of newsprint in standard rolls for spot shipment at around 15 cents per pound are growing quite common, and this price has been exceeded in some cases. Available stocks in New York are relatively larger than any other kind of paper, owing to the fact that railroads are giving preference to newsprint shipments, yet there is but little being offered in the trade because most of the paper here is owned by consumers.

Fine papers are very hard to locate here in sizable amounts. One reason for this is that New York is practically cut off from New England by freight embargoes, whence most of the supply of bond, linen and ledger papers are derived. Prices are strong and are gradually moving upward. Wrappings and tissues are under active inquiry and are selling at very firm prices. Jobbers' stocks are at a minimum and buyers in the majority of cases find it necessary to pay premiums to cover their wants.

Book papers also are scarce, and quotations on them are strong. Publishers of magazines are in such a bad way for want of paper that they are being obliged to cut down the number of copies issued, it being reported that they are stopping all shipments of their books into Canada for circulation there. The board market remains firm and prices are repeatedly being advanced. Plain chip board is quotable now at $105 to $110 per ton, while news board is selling at $120 to $125.

GROUND WOOD.—There is no abatement of demand for mechanical wood pulp. Consumers in various parts of the States are eagerly searching for available supplies, and are meeting stiff prices to get prompt shipments. Reports have been heard of prime spruce ground wood for quick delivery selling at beyond $110 per ton at grinding mills, and although confirmation of such transactions has not been obtained, it seems quite likely that buyers have paid the prices mentioned i nsome cases. There is a feeling among trade factors that the mechanical pulp market will ease up within the next few weeks, the view taken being that with more favorable weather grinders will produce larger tonnages, but there are no visible signs of this now. About the lowest figure quoted on spot lots of ground wood is $100, and it is doubtful whether sizable tonnages can be secured at that price.

CHEMICAL PULP.—There is a strong demand for chemical wood pulps of all kinds and prices rule exceedingly firm. Actual market values at the moment are strictly nominal, insofar as spot prices go, for so few sales of worth while quantities of pulp are being consummated in the open market that no one seems to know what definite values are. Reports have been heard of sales of domestic bleached sulphite of No. 1 quality at 11 cents per pound, while foreign bleached sulphite is nominally quoted at around 14 cents ex dock. Easy bleaching sulphite and Mitscherlich sulphite are in active demand and are well nigh unobtainable for prompt shipment. Domestic kraft has sold at 6.50 cents a pound.

Advices from Scandinavia are discouraging, from the American consumer's point of view. Mills in both Norway and Sweden are sold out for nearly the entire balance of this year, it being reliably stated that all they have to dispose of is approximately 20 per cent of their fall output. Prices prevailing on the other side are far above a parity with our market levels, and the Swedes and Norwegians alike are seeking to divert but little of their pulp to the American market.

RAGS.—Business of fair extent has been done in papermaking rags this week. Those mills enabled to receive shipments through the railway maze have been actively in the market and have absorbed substantially the large amounts of rags, while inquiry from other directions would indicate that manufacturers in common are in need of stocks. Prices rule firm and there have been slight advances recorded on certain grades. Whites lead in demand and sellers are obtaining premiums for choice packing of this class of rags in frequent cases. Old No. 1 repacked whites are selling at from 13 cents upward, while No. 1 white shirt cuttings are worth in the neighborhood of 19 cents f.o.b. shipping points. Roofing rags are in steady call and are selling freely at 3.50 to 3.75 cents for No. 1 packing Blues, on the other hand, are sought in a rather lax way and are to be had at concessions in price in some quarters.

PAPER STOCK.—All grades of old paper are under good inquiry from consuming sources and there have been small advances scored in certain instances. The unfavorable shipping conditions continue to hamper trading and there is no question that appreciably more business could be easily put through were shippers enabled to effect deliveries. Old folded newspapers have sold at 1.90 cents a pound f.o.b. New York and the market for this grade seems to be working toward the 2-cent level. No. 1 mixed paper is freely commanding 1.60 to 1.70 cents at shipping points, while No. 1 heavy book stock is quotable at around 3.35 cents, old No. 1 kraft paper at 3.50 cents, overissue newspapers at 2.10 to 2.25 cents and white news cuttings at 4.25 cents. Shavings are firm at a price basis of 6.50 cents New York for No. 1 hard whites and 5.50 cents for soft white shavings of No. 1 quality.

OLD ROPE AND BAGGING.—Old Manila rope meets with a ready sale to paper manufacturers, who evidently are consuming large quantities of this commodity, judging by the way in which they are constantly replenishing stocks. No. 1 rope is selling at 8.50 to 9 cents a pound for domestic and at a quarter to a half cent less for foreign rope. Old bagging is in slight demand and No. 1 scrap continues to be available at around 3.25 cents per pound at shipping points.

AN AVOIDABLE ACCIDENT.

"Making Paper" intimates that the following incident—or accident, happened in an Oregon paper mill town. We don't believe it, but it makes a good story.

Dorothy Sturtevant Lattlebury, blushing delicately, in flimsy wedding gown, came down the aisle on the arm of the husky bartender, whom she had chosen for her husband. The organ's soft notes gave forth the sweet strains of the wedding march. With her gossamer veil floating like mist above her head, she was any man's best bet for an angel.

At the altar she stubbed her toe on a potted lily resting on the floor. She said to the waiting minister, "That is a hell of a place for a lily." It was.

Not in withdrawing from the world, but in keeping unspotted in the world, is one's virtue or religion shown.



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INQUIRIES SOLICITED.

POSITION OF THE PAPER INDUSTRY IN HOLLAND.

(Special translation to the Pulp & Paper Magazine)

The Ministerie van Landbouw Nijverheid en Handel (Ministry of Agriculture and Commerce) has just published some interesting details of the position of the paper trade in Holland. In general the trade situation of the paper industry may be called favorable. The only difficulties which are still to be noticed, are the lack of aniline dyes and the inadequate supply of pulpwood for which the naval blockade was responsible. The supply of finished goods, both for the home and foreign markets is said to be very satisfactory. Only the manufacture of old Dutch papers which had been so considerable in the pre-war years, has suffered a sensible check. In this industry, also, the overhead charges show an upward tendency. In the strawboard industry conditions have changed but little. The introduction of the three shift system in the mills had at first, an unfavorable influence upon output, but of late, as the workmen have gradually become more accustomed to the change, this drawback has not been so manifest during the last few months. The strawboard industry being for the most part linked with export trade, the circumstance that imports into England are free again, has produced most favorable prospects. It is obvious, however, that the fall in sterling exchange acts unfavorably, by which profits are materially diminished. and, as a result of the high shipping rates and of foreign competition, above all, Japanese concurrence, exports to very remote countries, like Australia and India, can only be promoted with difficulty. But prices in the straw industry have a tendency to fall, which is an advantageous factor for this form of manufacture, yet unfavorable influences during the present quarter are the scarcity of fuel supplies and increasing wages, both of which have hindered the development of paper making in its different branches."

Other reports from Holland, while not quite so optimistic, indicate that in this country the market for all grades of paper is improving. Demand has greatly increased, but relatively few mills are in a position to satisfy it. German mills, which are able to make deliveries in Holland, are delivering paper in order to profit by the high quotation for gulden, though it is not allowable to export many grades, and, on the other hand, the minimum prices which are asked for export licenses are so high that many mills cannot assume them. Most of the Belgian mills are obliged to combat the shortage of raw materials, and are also so busy with home orders that they cannot consider export deliveries. For these reasons the Dutch buyers are almost exclusively obliged to turn to the domestic mills, which profit by this necessity and demand very high prices. In spite of these prices Dutch mills are so richly supplied with orders that most of the large mills are unable to accept any more. These various conditions make a hard market, with a still firmer tendency. But as mentioned before, an improvement has begun to set in.—Wochenblatt fur Papierfabrikation, March 27, 1920.

PRICE FOR POWDERED SULPHUR HIGHER.

There is a tendency toward an upward movement in the price of powdered sulphur and pulp manufacturers are beginning to feel the effects in British Columbia.

NO AMUSEMENT TAX

The Editor can always enjoy a joke, even if he doesn't immediately see it. We have laughed over the following.

The Editor,

Pulp and Paper Magazine,

Dear Sir,—In your issue No. 12 of 18th March, we find on page 288 rather an amusing article describing a new machine that makes twine from paper rolls. The Machine which only occupies a floor space of about 3′ x 5′ is equipped with 96 spools, and would approximately make 15,000 half-pound balls of twine per day, and this would mean 7,500 lbs. or 3½ tons, but that in order to make these 15,000 half-pound balls, 18 tons paper per day are required.

We are the patentees of paper spinning and paper twisting machinery which is acknowledged to be the best in the world, and if a machine like the one described in this article would be built and put in the floor space mentioned, it would be a miracle. A machine with 96 spools will need a space of at least 8″ each, giving the width of the machine as 768″ without the driving attachment at the side, so that the maximum width of the machine would be 64′.

It would be also interesting to know how a 40″ wide roll can be cut into 96 strips, and spread over 64′ fan-like without breaking.

It is obvious from the illustration that it must be most difficult to replace any broken strands, no automatic stop motion for each individual spool being provided.

These are just a few striking points which we mention. We could enlarge on the subject indefinitely, and on what appears to us to be the ridiculous claims made for the machine providing that the drawing and the particulars which were given to you are correct.

If this article has been inserted as a huge joke, having regard to the last paragraph we can quite understand it, but we cannot think that a paper of your standing would lend itself for this purpose. Possibly M. Hoad has some explanation to offer to you on the subject, which no doubt would be of interest to your readers.

Yours faithfully

THE TEXTILE ENGINEERING CO., LTD.

Per S.A.M., Managing Director

BAD FIRE AT POCHIN'S PLANT

A serious fire at the Farworth and Bold Works of H. D. Pochin & Co., caused damage amounting to some thousands of pounds. The sulphate of Alumina plant, was damaged by the fire, also a lot of the raw material we use for manufacturing, together with a quantity of small stores.

This will very probably delay production for some little time, but the company are making temporary arrangements in order to keep up supplies of goods for their friends, which it is hoped will be successful, and although there may be some delay in getting out the goods as required, they are reducing this to a minimum.

The company's own brigade was able to confine the fire to the Department in which it broke out, until the arrival of the Widnes Fire Brigade.

"A miss is as good as a mile, but that motor may not miss you next time. Be careful," says the Safety League.

SMALL CUTS AND MINOR ACCIDENTS

Minor accidents have, after a period of days and weeks, proved to be infected and we must draw everybody's attention to the fact that the slightest scratch that is neglected can cause blood poison and death.

Men in general have the tendency to overlook small cuts, and yet, if a record were to be made of time and lives lost due to this cause, the loss would be appalling. —Belgo Bulletin.

ACCIDENT PROOF

During the last three months of 1916-17-18-19 Belgo has had:

1916	69	accidents
1917	56	,,
1918	45	,,
1919	36	,,

These figures speak for themselves and show what carefulness can do towards rendering a mill accident proof.

PRESERVE THE YOUNG FOREST.

No disturbance or destruction of young forest growth should be permitted, even after all available pulp wood has been cut, if the ground is unfit for farming purposes. To allow this to be done is to destroy twenty, thirty, forty or more years of Nature's work in starting the growth of forests. The work of the forester should accompany and govern the work of the lumberman with his axe.—Quebec Telegraph.

The pursuit of holiness is simply the pursuit of Christ? Sanctity is a character and not in moods.—Henry Drummond.

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We are shipping our size in barrels or tank-cars.

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Specially manufactured for use in paper mills making all grades of paper, excepting the high grade whites and delicate tints.

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Burmas Paper Co., ... West Dudley, Mass.
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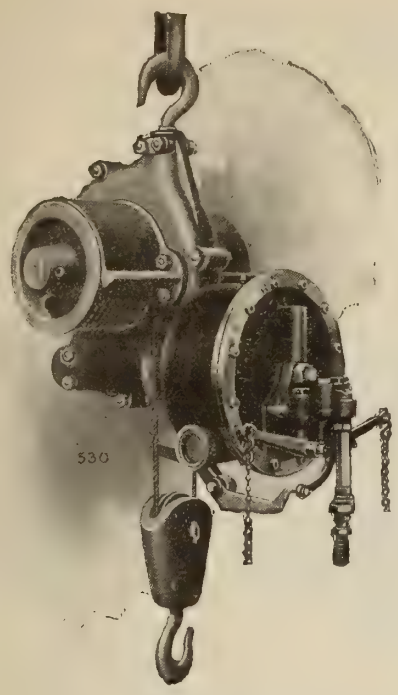
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The economy of hoisting with air is readily apparent when it is considered that a weight of one ton can be elevated to a height of one foot 100 times for 1.4 cents, or to a height of 10 feet 10 times for the same cost.

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Size No.	Capacity Lbs.	Ft. Lift per Min. 80 lbs. Pressure	Maximum Lift Feet	Net Weight Lbs.
1	1000	32	20	270
2	2000	16	20	270
4	4000	8	20	395
7	7000	8	20	785
10	10000	7	20	785

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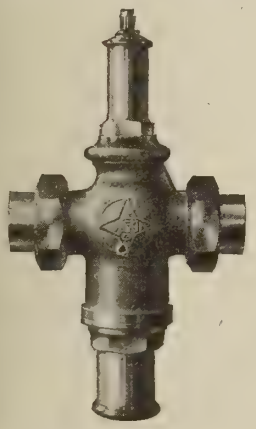
Hoist No.	Cu. Ft. Free Air Per Min. at 80 lbs Pressure	Cu. Ft. Free Air per Foot of Lift	Cost of Air per Foot of Lift	Cost of Air per 100 1-foot Lifts
1	45	1.41	$.00007	$.007
2	45	2.81	.00014	.014
4	45	5.62	.00028	.028
7	80	10 00	.00050	.050
10	80	11.43	.00057	.057

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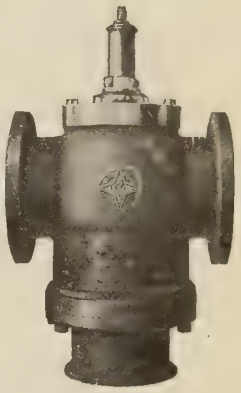


have established their complete reliability in maintening a positively even reduced pressure on steam and air lines to steam heating systems, auxiliary steam drives, paper machines, digestors, evaporators, dryers, dye kettles and other applications where constant pressure is demanded.

Easily adjusted to hold the required pressure by means of a special key which can be removed to avoid possibility of tampering.

Any reduced pressure to 5 lb. is economically obtained in a single reduction—with a minimum pressure difference of 10 lb. to operate the valve.

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Liquor Tanks	**SMOKE STACKS**
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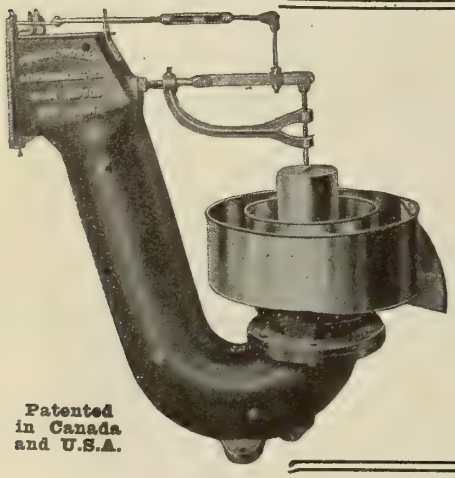
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VOL. XVIII. GARDENVALE, P. Q., May 20, 1920 No. 21

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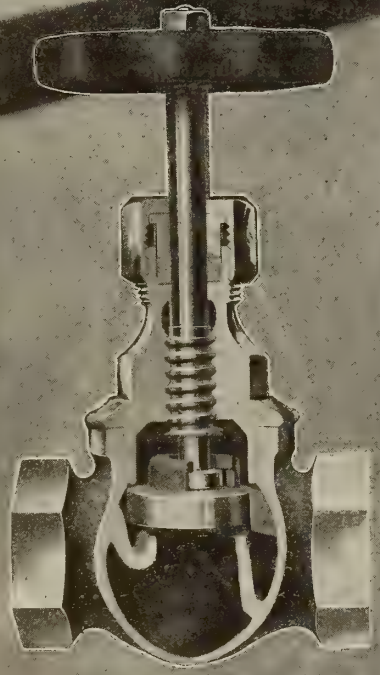
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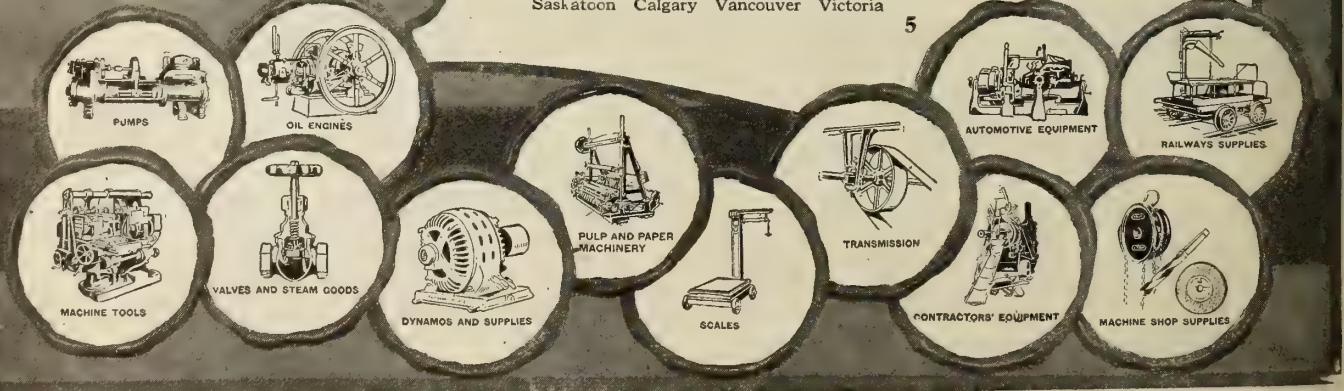
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-:- EDITORIAL -:-

REGARDING THE UNDERWOOD RESOLUTION.

The more one studies the text of the Underwood Resolution and the comments that have been made on it the easier it is to appreciate the support it has received from the press of the United States. Doubtless one of the principal factors in this matter is the fact that the hearings and discussions on the Resolution have been monologs. While the speakers' names have varied, their interests have been one so that the old adage might be varied to read "Minds with a single thought and mouths that speak as one." The arguments, therefore, that have been presented have been the expression of interestd parties and can hardly be expected to be impartial. Naturally with but one class of witnesses the matter has been presented in a rather onesided manner and it is not very difficult to understand the support given by the American newspapers when they really did not know any better, especially in view of the reiterated inducement of cheaper newsprint.

While the Canadian authorities have not yet been heard in the matter they are not worried about the outcome. An opportunity for the United States Government through its duly appointed commission will be given a chance to get acquainted with the Canadian point of view and the reasons and grounds for the action that has been taken.

The American newspapers have been led to believe that the removal of restrictions on wood cut on Crown lands would make cheaper paper for the press of that country. In this connection it is interesting to note the relative costs of freight on wood, pulp and paper over the same haul. The rate on wood between certain points in Canada and the United States is 17½c per hundred pounds, on pulp 20½c, and on paper 22½c. Wood is approximately 50 per cent water so that a cord weighs in the neighborhood of 3,800 to 4,000 pounds and it takes approximately 1½ cords of wood to make a ton of paper. Each cord of wood would occupy 192 cubic feet of car space while paper in rolls would occupy only 65 to 67 cubic feet, and sheets in bundles would require even less. Pulp would vary in moisture content depending upon whether it is groundwood or sulphite and whether it is in wet laps, pressed bales or dried, either in sheets or rolls. From the point of view of freight cost and convenience it is readily seen, therefore, that the advantage is altogether on the side of pulp or paper and that there is the further advantage in favor of paper in that a single direct shipment can be made whereas either wood or pulp would have to be rehandled somewhere between the original point of shipment and the publishers' city. Therefore the publisher is really "the goat" and the shipment of wood from Canadian points to paper mills across the line is a service to the paper mill which the publisher will have to pay for.

Another point in this connection is that with the shortage of cars and the cost of coal there is an advantage in regard to transportation in both these matters in favor of manufacturing wood into pulp or paper in Canada.

As already noted, the Underwood Resolution purports to get cheaper paper for the American publishers, at least that is what Congressmen and publishers have been told. It is proposed that if the provinces are not inclined to comply with the suggestions emanating from the other side that a retaliatory embargo on coal and sulphur would bring the matter to a conclusion favorable to the Americans. This would certainly be fine protection for the papermaker who was sure of wood or pulp but would not be any great help to those who have had to depend upon imports of pulp from Canada if the Canadian pulp mills were unable to supply this raw material by reason of a shortage of either sulphur or coal. It should also be remembered that about one-third of the newsprint paper used in the United States comes from Canada and that pulp imported from the Dominion is about enough to manufacture another third. Furthermore, an embargo on coal and sulphur would be at least a precedent for the Canadian government to place an embargo on pulpwood cut on private land and such action would not be any very great assistance to the pulp and paper mills in the United States depending upon Canada for approximately one million cords of pulpwood a year. We don't just see where the publisher would get off, or perhaps we should say we do not see how he can get on, if he is shut off from wood, pulp, and paper supplies from Canada. In the light of such circumstances as seem to be the natural course of events, if everything that has been said on the subject can be taken as indicating probable action, the American publisher will surely be the chief mourner.

This matter of a trade war, which some jingoes on the other side seem to delight in suggesting, is not only a ridiculous proposition, which would have a most unfortunate effect in disturbing what has been looked upon by the whole world as the most remarkeable example of cordial relations between neighboring peo-

ples, but it would be very foolish indeed from an economic point of view. Those who advocate such an ill-considered policy seem to have overlooked the fact that the United States sells Canada something like $340,000,000 a year more than the States import from the Dominion. This balance would give Canada an enormous advantage and there are other countries who would be very glad indeed to make reasonable concessions and strong bids for even a portion of the huge expenditures that Canadians annually make in the great Republic to the south of us.

The editor has sympathies on both sides of the 49th parallel and has endeavored to look on the matter from both sides. We fail entirely to see where such a threat to disrupt amicable relations is at all justified or why a Canadian province should be expected to modify in favor of another country, no matter how friendly, a set of regulations intended to protect and perpetuate one of the most important industries of the people of that province.

CHOOSING AN EDUCATOR.

A point was brought up at a recent meeting of the Executive Council of the Technical Section of the Canadian Pulp and Paper Association which is very considerable importance because of the bearing it has on the education of the technical men who will in the future engage in the pulp and paper industry. There has been considerable agitation for more attention by our Universities to the training that should be given to those who are planning to engage in this industry. Practically all of the discussion has been along technical lines and suggestions have been made for special courses in the technology of paper and pulp manufacture. There is no doubt but that there is room, particularly in Canada, for a few special courses dealing particularly with the principles underlying this industry and treating as well on the types of equipment that are used and the technique of the processes.

It is entirely feasible, and decidedly desirable, that the embryo technologist, be acquainted with the character of the raw materials, the special methods of their analysis and evaluation, and the processes and equipment by which they are converted into marketable products. He should be familiar also with the engineering and mechanical features of the pulp and paper mill and should have some knowledge of the great problems which those engaged in this industry must face and solve.

These features of the educational opportunity that lies before our universities implies an obligation on their part to select for the professorship in this department a man who is personally acquainted with both mill and material. It is not only important to select such a man on the inauguration of such a course but perhaps even more important that he should continue in intimate contact with the industry through frequent visits and occasional employment in mills so that the information he gives his students may be modern and reliable and particularly so that he may impart it with enthusiasm, which is vital to efficient teaching and which comes from contact with live wires and live issues.

There occasionally gets into a mill a technically trained man whose knowledge of the industry has been mostly, if not entirely derived from the careful study of books, which are of necessity often obsolete, at least in part, by the time they are issued, and who has had almost no opportunity to apply his technical training to an actual mill problem. Such a man is not only suffering a handicap from lack of previous contact but may even get in wrong with the men in the mill because it is quite impossible for him to appreciate their attitude. The guidance and advice of a teacher who has had actual experience and who is acquainted with manufacturing problems, and who can guide a student in a research investigation on a subject which will bring him in contact with the mill, is most important to the successful establishment and conduct of pulp and paper mill courses.

The Technical Section could be of great assistance in advising on the qualifications of a teacher as well as on the planning of a curriculum for students who intend to engage in pulp and paper making. The present seems to be the turning point in educational matters and the current of thought can not properly be guided by the educationist alone any more than a horse can be steered with one rein.

THE ROAD TO JAMES BAY.

Agitation is still proceeding in Ontario for the extension of the T. and N. O. Railway through Cochrane to James Bay. One of the main arguments for the new road is that the shipping of pulpwood from the new region will immediately put the road on a paying basis. This argument should be supported by reliable surveys before good money is sunk in a new road, which should not be built on a single such consideration. It is fortunate that the administration of the forests of Ontario is being put on a proper basis before this development takes place and it is sincerely to be hoped that proper regulations will be so strictly enforced that a repetition of the many disasters which accompanied the settlement of the country south of Cochrane will not be possible to the north. The province should also be on guard lest the woodlands be so exploited that the opportunity and greed for immediate revenue will simply strip the land and leave it barren of future forest crops. The provinces of Canada are not temporary affairs to pass out in 25, 100 or 1000 years, so a heavy obligation rests on each government during its tenure of office to safeguard present resources for future generations. If the new railway will open up a new source of revenue to the province, a new area for agricultural activity, and do it without destroying or endangering the forest and the lives of the pioneers to that land, it will be well.

NEW EDITOR OF "PAPER."

The last number of "Paper" has some new names on the title page. Our good friend Judge Moore is still there as contributing Editor, while Wm. B. Curtis is Managing Editor, Allen Sinsheimer is Editor and N. P. Winchell, Jr., is Associate Editor. The recent issue has a slightly different layout than usual which suggest a change from the previous technical character to the more 'popular' style.

IN LONG PANTS.

That the Pulp and Paper Magazine has outgrown its swaddling clothes seems to have escaped the attention of Mr. Hubbard, who contributes to Paper (April 21, 1920) an article on References for Paper Men from Library of Congress Index cards. One card, at least, needs revision. On page 204 we read that this Magazine is published monthly, in Toronto. That was correct prior to 1913. From 1913 to 1916, the Magazine was published bi-monthly, and since 1917, weekly, by the Industrial and Educational Press. The publisher's name is now Industrial and Educational Publishing Co., Ltd., in the town of Ste. Anne de Bellevue, Que., but with their own postal facilities, known as Gardenvale, Que.

COBWEBS.

The editor had the pleasure last week of a chat with Mr. O. Hylin, of the Lagerloef Trading Company, New York. Mr. Hylin gave a very interesting description of Finland and its possibilities as a pulp and paper producer. It means that this newly independent state of Europe is steadily getting on its feet economically and that with the prudent exploitation of the natural resources it is sure of steady growth and stable conditions. There are many lakes which serve as water storage for the waterpowers to drive pulp and paper mills and as a means of transport of the wood from the extensive forests to the mills. Finland is already showing indications of following the general trend of the development of a new country. For years rough logs and pulpwood have been exported to other countries for manufacture. Now the wood is being made into pulp and the tendency is to go the next step and turn it into the final product, paper and boards. The handling of the forests is along scientific lines similar to the control of the forests in Sweden, where trained foresters mark out for each operator just what trees he may cut in order to give him the quantities designed for his requirements. The inauguration of this sensible policy at this early stage in the development of Finland's great natural resources is an insurance for the future success of the industry in which Canadians are most vitally interested. Canada could well take a lesson from this Baltic land and immediately institute similar scientific regulations for the control of operations on both Crown and private lands. That is the only way that Canada can be sure of not being completely distanced in the pursuit of trade, which is a long distance race, in years to come. It may be difficult to overcome by public sentiment the handicap of the desire for immediate gain by the present generation but this is a matter not only for immediate and careful consideration but also for immediate and careful action.

This talk of a paper famine sounds a bit strange when one considers that paper mills are as busy as they have ever been. Famine is a word used to express the failure of a crop or the almost entire absence of supplies to meet normal consumption or even to supply less than normal demands. This definition entirely fails to represent the paper situation. Famine certainly is not the word to use as there is probably paper enough for normal demands and certainly enough if there were any measures of economy employed by paper users. The situation is tight, not as much by reason of under-production as because of inordinate and abnormal consumption.



This picture was taken by R. O. Sweezey, near the Moose River, which flows into James Bay. It is typical of the stand of timber along the rivers in that region. The cabin was made of logs from the area cut over. If the proposed railway to the Bay follows one river, instead of crossing many, it would seem that only a limited amount of wood will be available for transport. Wood, apparently, does not grow as well north of the height of land as south of that line.

Restrictions Upon the Use of Pulpwood Cut From Provincial Crown Lands

A Reply to Arguments Made Before the House Committee on Foreign Affairs at the Hearings on the Underwood Resolution Respecting the Importation of Pulpwood from Canada.

(Bulletin of the Canadian Pulp and Paper Association.)

The Underwood resolution, approved by the United States Senate and favorably reported to the House of Representatives by the House Committee on Foreign Affairs, providing for the appointment of a commission of five to consult with the Dominion or the Provincial Governments of Canada with a view to securing the unrestricted right to export from Canada pulpwood cut upon the Crown lands in Quebec, Ontario and New Brunswick, is based very largely upon a misunderstanding of the situation.

The text of the resolution in itself shows a complete ignorance of the underlying facts and most of its statements are at utter variance with the Canadian point of view. This is not all surprising when considered in connection with the arguments put forth by certain special interests before the authorities at Washington and which have since received wide publicity in the press of both countries.

Perhaps the most fallacious of all the statements advanced by some of those appealing for the passage of the Underwood resolution is that which has led the unitiated to infer that the so-called "embargo" upon the exportation of Canadian pulpwood is in any measure responsible for the present situation in regard to the supply of, and demand for, newsprint paper. It is assumed by many that Canada has quite recently put a stop to the exportation of unmanufactured pulpwood with the result that the paper mills of the United States dependent upon this country for the bulk of their raw material have suddenly and unwarrantably been deprived of pulpwood thereby reducing the output of newsprint paper and creating the condition of so-called famine which now exists. These are not the facts. In reality Canada has never placed an "embargo" upon the exportation of pulpwood. Only the Dominion parliament has power to enact such legislation and none has been enacted. Certain of the provinces, however, foreseeing the time when their supply of pulpwood would become exhausted if permitted to be exploited without restriction and being desirous, furthermore, of building up and encouraging the paper-making industry within their own borders, did create regulations requiring that no pulpwood should be permitted to be cut from their Crown lands except for the manufacture of pulp or paper within the Dominion. The British North American Act gives to these provinces complete sovereignty over their natural resources. The regulations complained of are not of recent origin. They were adopted more than ten years ago. They have no immediate bearing upon the present paper situation, the American mills being in full operation as they have been during all the years the regulations have been in force. They are neither discriminatory nor confiscatory in their character. They apply to all holders of timber leases alike —Canadian, American, British, Belgian and all others. They are based upon provisions contained in the original leases under which the several provincial governments reserved the right to make such regulations as they saw fit for the control of the lands and the use of the forests contained thereon. The courts have already passed upon and upheld their validity. The contentions of those who assert their vested rights have been invaded by reason of them are without foundation.

It was but natural that the private interests concerned should take advantage of the present situation in the paper market to press their alleged grievances upon the Government of the United States and to urge that Government to take measures for their relief. In doing so they have, of course, restricted themselves to only one side of the case, and unfortunately have, in so doing, departed from the facts in numerous instances and have given altogether a one-sided, erroneous and distorted view of the circumstances and conditions covering the question of Canada's supply of pulpwood and of the various provincial regulations governing its uses. The purpose of the present article, which is based upon official information combined with the most authentic data obtainable from official and other sources, is to correct some of the misstatements made before the Committee in Washington and to place Canada's side of the controversy in a truer, and, consequently, a more favorable light.

Does Not Affect Private Lands.

It is, of course, already understood that the existing regulations do not affect the exportation of pulpwood cut from lands in private ownership, which for many years past has averaged around one million cords annually, this being approximately one-fifth of the annual pulpwood consumption in the United States. The exports of pulpwood to the United States had increased in 1916 to over 1.3 million cords. Neither do the regulations affect the export from Canada of manufactured pulp, of which 473,849 tons went to the United States in 1917, this comprising approximately one-ninth of the pulp consumption of that country. Nor, again, do they affect the export of newsprint, of which, during the same year, 533,112 tons went from Canada to the United States, this comprising nearly four-fifths of Canada's production of newsprint. In 1919, the Canadian export of newsprint to the United States had risen to 624,304 tons, or approximately one-third of the newsprint consumed in and exported from the United States.

It may be in order here to remark that United States exports of newsprint to other countries amounted in 1919 to110,295 tons. The argument made before the committee in Washington sets forth that 63,000 tons can be accepted as the minimum by which production and importations of newsprint fell below consumption in the United States. It must be obvious that if a little over half of the exports of newsprint to other countries had been retained and utilized in the United States, no serious shortage of newsprint in that country would have occurred. As a matter of fact, there is, of course, a world-wide shortage of newsprint, as of most other articles of human consumption, due to war conditions, and prices have risen to much above those of pre-war times. American

manufacturers of newsprint have, quite naturally, sold in the best market, where not otherwise obligated by contracts, and some exports have resulted.

These figures quoted are from census statistics. They show clearly that, with the door wide open to the importation from Canada of pulp and newsprint, and with a greatly increased Canadian production in prospect, neither the paper manufacturers, as such, nor the publishers, have anything to fear from the natural desire of the Canadian provinces to benefit industrially by the manufacture within their own borders of the raw material from the greatest natural resources of which they are possessed.

That the provinces are well within their legal rights in restricting the use of pulpwood cut from their Crown lands seems unquestionable. The point at issue is whether the restrictions are reasonable and necessary for the legitimate protection of the public interest of Canada. That both angles of this question should be answered in the affirmative is the Canadian contention.

The cutting of raw pulpwood for export involves no permanent industrial development. The home manufacture of pulp and paper, on the other hand, means the building of factories, the employment of skilled labor, the development of new towns, the growth of cities, scope for increased immigration, better home markets for agricultural and manufactured products, the increased investment of domestic and foreign capital, and the increase of national prosperity in general. There is also the question of the conservation of Canada's pulpwood resources, to maintain the industrial plants already established and to induce the establishment of others in the future. The necessity of providing permanent supplies for the industry requiring so great an investment of capital is also an important factor and necessitates conservative forest management. Many millions of dollars of United States capital are already invested in the pulp and paper industry in Canada. This will be jeopardized, together with much Canadian capital, unless the continuity of supplies of raw material can be adequately maintained.

It is admitted that many of the United States manufacturers of woodpulp are in need of increased supplies of raw pulpwood, in view of the established fact that, as a result of destructive logging and the absence of adequate fire protection, the pulpwood forests of the Eastern States are rapidly approaching exhaustion. The conclusion does not necessarily follow, however, that it is reasonable to expect the provinces of Eastern Canada to make the enormous sacrifice that would be involved in foregoing the home manufacture of their Crown land pulpwood, in order to make up for past negligence by the States and by the timber owners there in not protecting or conserving their timber lands in order to maintain their productive capacity.

Some of the United States pulp mills undoubtedly still have available supplies of raw material for many years to come. Others presumably must ultimately either go out of business or transfer westward or to Canada, except insofar as they may be able to get supplies of pulpwood from Canadian lands in private ownership. The lumber industry has had to migrate from New England to the Lake States, thence to the South, and now to the Pacific Northwest. In the almost complete absence of forestry practice in the Eastern States, it is logical to expect that at least a part of the pulp and paper industry must, in the long run, migrate also. There are great opportunities for the manufacture of pulp and paper in the States of the Rocky Mountain region and of the Pacific Northwest. If lumber from these regions can be shipped for consumption in New England, as is now being done, surely the high prices prevailing in the pulp and paper industry will also justify similar shipments. The industry is already established in the Northwest and its further development there on a large scale can not be other than merely a matter of a little time.

It should be noted also that United States interests requiring supplies of pulp are now planning on the erection of additional pulp mills in Eastern Canada, as well as in Labrador. These developments, with others in prospect, may be relied upon to supply the requirements in the course of a little time. As a matter of fact, so far as Canadian pulpwood must be depended upon, it is to the advantage of the paper mills, publishers and the general public in the United States that it should be manufactured into pulp in Canada. So far as the publishers and the public are concerned, their immediate interests would be equally well provided for if the process of manufacture in Canada were carried to the point of actual production of newsprint, as is already being done on a large and increasing scale. Some of the owners of pulp mills, as such, are, of course, inevitably affected. The Federal Trade Commission of the United States is on record as stating that the cost of converting pulpwood into paper is much less in Canada than in the United States.

Canada is now the second best customer of the United States for goods manufactured in that country. In fact, the existing exchange situation, so seriously unfavorable to Canada, is at least largely due to the fact that Canada buys a much larger amount of goods in the United States than she sells there. There is, therefore no inherent anomaly or impropriety on the part of Canada in desiring to increase as greatly as possible the value of her exports to the United States, and this must mean the greatest possible production of manufactured articles. There is, further, no logical or proper basis for resentment on the part of the United States because of such a feeling by Canada.

Not Deprived of Rights

The Underwood resolution stresses the point that United States holders of pulpwood licenses in Canada have, by virtue of the later imposition of restrictions upon raw pulpwood, been caused hardship, great and irreparable injury being done them, by making valueless their large investments and by depriving them of the property interests of the wood to which they had been conveyed all property rights; also, that the wood standing and growing upon the 10,000 square miles of licensed Crown lands in Quebec held by these United States interests, if available for the use of such interests would be "sufficient in annual yield to relieve the present scarcity and prevent threatened exhaustion of pulpwood in the eastern part of the United States, to lower the cost of the raw material of the American newsprint industry, and to stabilize the price of newsprint paper to the consumer, besides assuring an additional supply of raw material that would justify investments for increased production, and affording the relief needed while awaiting the results of a National policy of forest conservation and reforestation."

To this it may be answered that the restrictions complained of have not, as a matter of actual fact,

deprived United States investors of their investments in Canada; they simply require them, as a matter of provincial policy, to carry the raw material through at least one stage of manufacture, namely, into wood pulp or lumber, etc., within Canada. Stumpage values have so greatly appreciated that the holder of any such license could, if he wished, readily realize a large profit upon his investment, by sale. Or he can provide for manufacture of the pulpwood into pulp or paper in Canada, as many United States concerns have done or are doing, including the International Paper Company, the chief complainant.

As has been stated, it is only the owner of a pulp mill dependent upon Canadian raw pulpwood, who is adversely affected to any serious extent, and he still has the privilege of competing for some part of the million cords of pulpwood cut annually from privately-owned lands in Canada and exported to the United States, as well as from his own lands, if he still has any such containing pulpwood.

It should again be emphasized that the restriction does not in the slightest degree, decrease the amount of pulp or newsprint available for use in the United States, and therefore does not affect either the paper manufacturer as such, the publisher or the general public. In fact, manufacture within Canada of Canadian pulpwood into wood pulp is distinctly to the advantage of the manufacturer of newsprint who also owns a pulp mill in Canada, because of the lower costs involved in such manufacture within the Dominion. Not only does the United States now receive the product of nearly all the Crown lands acquired in Canada by United States interests before the restrictions became effective, but a vast amount besides from Crown lands not so held, in addition to a very large proportion of the product of lands in private ownership. The question is whether a certain part of this pulpwood shall be manufactured into pulp while it is still in Canada, or not until after it has reached the United States. The charge of extreme general hardship and of decreased supplies and increased costs for the United States, by virtue of the restrictions, is therefore without substantial foundation.

At the Washington hearing, it was generally agreed that at least a very large factor in the present inadequacy of the newsprint supply is the excessive demand for advertising space in the newspapers. Some of the publishers traced part of this enlarged demand to the operation of the excess profits law, the implication being that many concerns were largely increasing their expenditures for advertising in order to reduce the amount of war taxes payable to the Federal Government. So far as this may be the case, the probability would seem that it is more or less of a temporary condition which will readjust itself in the course of a little time.

There is no record available of the shortage having been traced at the Washington hearing in part to the steadily increasing exports of newsprint from the United States to other countries (45 per cent greater in 1919 than in 1913), or to delay in the movement of pulpwood, pulp and paper from Canada to the United States, caused in part by disturbances of transportation due to labor unrest and in part by the fact that there are in the United States many thousands of Canadian freight cars, the return of which to Canada had been sought with only indifferent success.

Neither, apparently, was reference made at the hearing, to that fact that, so far as New York mills are concerned, the local shortage of pulpwood is partially due to the provision in the State constitution that no timber shall be cut within the Adirondack forest preserve, comprising 1,767,000 acres, which contains great quantities of material suitable for pulpwood. This great area is entirely withheld from exploitation, for park purposes; the people of the state having witnessed the devastating effects of lumbering followed by repeated fires, which have been responsible also for the destruction of so much of the pulpwood forests in other parts of the country, as also in Canada.

It seems quite clear, however, that the excess of demand for newsprint over the supply available, is after all, not so much due to actual shortage of raw material, as to the limitations of productive capacity of the pulp and paper mills. Generally speaking they have been running to capacity, but there are not enough of them to turn out the quantities demanded. This, however, is a condition which is rapidly being corrected.

U.S. Has Four Times Canada's Timber

So far as pulpwood supplies in the United States are concerned, it has been stated on good authority that they are sufficient in the Northeastern and Lake States for twenty years. Before that time, very considerable quantities of undersized material now growing on cut-over lands will have become available Should an adequate national policy of forestry be finally adopted, applicable to the Eastern States, the situation will gradually adjust itself and dependence upon Canadian supplies will gradually become less. While the immensity of Canada's pulpwood resources has been strongly emphasized of late, sight should not be lost of the fact that, after all, the United States has four to five times as much standing timber as has Canada. Further, other species of timber than spruce and balsam can be used in the manufacture of newsprint.

Again, there are large supplies of pulpwood on Crown Lands in Newfoundland, from which pulp or paper can be manufactured there for export to the Uniter States or elsewhere. Large areas of these lands are for sale and as thus available, when required, to help tide over the United States until its proposed national policy of forestry shall become effective.

The possibility of greatly increased development of the pulp and paper industry in the Western States and Alaska has already been mentioned.

With Regard to Coercion.

It has been suggested in some quarters that if the restrictions upon the use of Crown Lands pulpwood from Eastern Canada is not lifted, the United States might exercisee coercion by placing an embargo upon the shipment of coal and sulphur from the United States to Canada. The pulpwood provinces are without Coal resources and import large quantities from the United States, practically a ton of coal being required in the manufacture of each ton of paper. Sulphur is also an essential ingredient in the manufacture of paper, and comes mainly from the United States, though supplies are also available in Italy and elsewhere. The effect of such an embargo upon United States paper manufacturers, publishers and general public should be considered. Such action would necessarily cripple, at least temporarily, the manufacture of pulp and paper in Canada, and exports of these

articles to the United States would necessarily be greatly decreased, if not shut off, for lack of production, quite without any action by the Canadian Government. This would mean an era of greatly reduced supplies in the United States, with greatly inflated prices, and all in order to enable a small group of United States interests to manufacture a comparatively small amount of Canadian pulpwood in the United States instead of in Canada.

The Situation in Canada

If the facts of the Canadian pulpwood situation were anywhere as near as represented in the argument presented at Washington, there might conceivably be some basis for the claim that the restrictions on Crown Land pulpwood ought to be lifted, at least to some extent. However, there is no such relationship.

In that argument, the discussion covers Quebec, Ontario and New Brunswick, but goes into particular detail with reference to Quebec. It purports to set forth the United States viewpoint, but does not indicate what may be the Canadian viewpoint. A full discussion is obviously in the interest of all concerned, as tending to remove unjustifiable and unnecessary friction and feeling on both sides.

The fundamental assumption and the calculations upon which the argument in question is based, are so impossible as to carry their own refutation to the minds of any persons who are in any way familiar with the pulpwood situation in eastern Canada. It is, of course, greatly to be regretted that the extremely roseate view of the Canadian situation set forth by the argument does not accord with the facts.

The argument sets forth that the 44,000,000 acres of licensed Crown Lands in Quebec contain an estimated average stand of 5 cords to the acre, thus giving a total on these licensed lands of 224 million cords of wood. At an estimated annual growth of 4 per cent, the annual growth on the licensed Crown Lands would thus amount to 8,960,000 cords. Using the same basis of consumption the entire Crown Lands of Quebec, licensed an unlicensed, comprising 121,600,000 acres, would, at 5 cords per acre, contain a total stand of 608.

Note:—In the continuation of this article in the next issue, there will be a discussion of the forestry situation in Canada and its relation to this question.

TWO NEW MEN FOR A. W. P. Co. SALES.

The American Writing Paper Company announces further increases in the personnel of its Departments of Sales Promotion, Publicity, and Advertising: Mr. Almon W. Spaulding and Mr. William Robins, both of whom began their duties this week.

Mr. Spaulding recently directed the campaign of the Massachusetts Agricultural College which successfully raised $150,000 for the building now being erected as a memorial for forty-nine of the college men who were killed in the war. Before coming with the company he gathered experience in the advertising department of one of the latest Boston Department Stores.

Mr. William Robins' work in the Sales Promotion Department will include the systematizing of the large mailing lists which have grown to considerable proportions. He has had much advertising experience with Sperry and Hutchinson, and the "New York Times." For the past few months he has been associated with the O. J. Gude Co., one of the largest advertising agencies in the country.

HOW TO GROW A FOREST.

Two ways of comparatively cheap methods are open to assist natural reproduction. First, in logging, a number of seed trees shoud be left standing on every acre. The wind, birds and squirrels will scatter the seeds and reproduction is at once started.

Second, each year during the months of September and October , with a small crew of men go into the logging camps of the paper company or others, follow up the timber fellers and gather ripe seed cones from the class of timber you wish to reproduce; it may be the upland spruce (pica Engelmanni), hemlock (Tsuga Mertensiana), (Abies Nobilis) or silver fir (Abies Amabilis). These seed cones must be placed on racks in a building provided for that purpose, with a slow fire produced from a stove or stoves underneath these drying racks. After about a month of this artificial drying, the cones open up and the seed is easily extracted by several methods. The seed is then placed in coffee cans, sealed up and placed away in a dry cold place ready for planting.

February 1st your men take this seed, go upon the logged-off lands of the previous season's cutting, and carefully and systehatically sow the seeds; sowing seeds of the spruce along the creeks, north slopes and damp places, and the hemlock, noble and silver fir on the ridges and higher ground. Sow this seed just as careful as you would sow tthe seed of grain, among the old tree tops, logs, roads, brush and glades.

The rain or snow in February or March will beat or drive the seed into the ground and the first warm days of April or May will cause it to germinate and a young tree will surely rise. February and March are also months when the squirrel is yet held up, the birds have not yet made their appearance and the loss of fertile seeds will be small.

There is one great element of danger, viz., fire, which may get into the debris where your crop of timber which has been sown will be destroyed, but this is a chance you must take. If an old chopping escapes being burned when the land was logged, the chances for three years following the time for the fire occurring is very small, for the reason that after the land is logged, the needles and foliage soon drop off, vegetation at once springs up and the danger from fire is largely diminished.

If these logged-off lands could be burned the fall before you sow your seed, your chances of success would be much greater for the reason that the ground has been left clean of much of the debris.

The Government has not to our knowledge attempted to reforest any lands boredring close to the Coast, but they have done considerable planting in the Cascade range. They maintain a nursery a Carson, Wash,. where the conifer trees are produced from the seed sown in the seed beds and taken up at two and three years old and replanted in the Cascade Mountain district. Fifty-six acres were planted during October and November, 1919, in Satiam National Forest from these beds. They were planted by the grub hoe method, 8 feet apart or 625 trees to the acre.

If these trees survive thirty years hence, over 200 cords of wood may be cut from an acre.—T. H. Walker, in "Making Paper."

At six months a baby walrus will eat 50 pounds of codfish a day.

Control of Sulphite Cooking

Methods of Sulphite Cooking Control and Process Investigation.

By W. E. BYRON BAKER, The York Haven Paper Company, York Haven, Pa.

Since the last meeting of the Technical Association the writer has undertaken certain work on process control and investigation as a part of his duties and obligations as a member of the Sulphite Pulp Committee. In carrying on this work it was decided to treat the subject from two viewpoints, having for their objects or aims—

(a) The systematizing of the cooking process in order to realize increases in efficiency, production, and quality.

(b) The means of more intelligently investigating the adaptability of various woods for the sulphite process, and also suitably modifying the process to meet the characteristic demands of the various woods.

The first steps to be taken naturally consisted of investigating and determining the proper methods of control. Up to the present time the writer has succeeded in determining the value of certain methods and observations. A brief discussion of these will constitute this paper, and it is planned to submit further reports on the application of the methods and the interpretation of results at future meetings of the association.

A method is valuable or worthless for these purposes according to its fundamental relationship to the changes taking place in the digester, and the case with which the changes are observed, and the simplicity with which the constantly changing phenomena are recorded, visualized to the operator, and controlled at least in a degree according to his wishes.

The observations referred to are so closely linked to the method of control that they are generally spoken of and thought of as one and the same thing. These observations, serving as the basis of methods, are the more specific subject of this paper.

In the control of a sulphite process, and in investigating the rate at which the changes are taking place, there are nine observations of direct value. These are:

(a) Gauge Pressure (Total Pressure).

(b) Temperature.

(c) Gas tension, or pressure of dissolved sulphur dioxide.

(d) Density of liquor in the digester.

(e) Concentration of total sulphur dioxide present.

(f) Concentration of sulphur dioxide combined as sulphite (of lime).

(g) "Changed sulphur" concentration.

(h) Reversible or loosely combined sulphur dioxide present.

(i) Lime (and magnesia) present in the liquor.

The value of these observations is discussed in following paragraphs:—

Gauge Pressure.—Since the gauge pressure at any moment is a representation of the sum of two pressures—namely: that due to the pressure of steam at the temperature existing, and that due to the pressure of the dissolved gaseous sulphur dioxide under the same conditions, and since the latter is a clearly defined function of the concentration of the gas, it is evident that the continuous record of gauge pressure is very much more desirable than the information derived from the observation at intervals of a gauge of the ordinary indicating type.

Temperature.—The detrimental effect of high finishing temperatures on the character of the sulphite pulp produced is well known. Furthermore, the relationship existing between temperature and steam pressure, as a component of gauge pressure, as defined above, make a continuous record of temperature a very desirable and indeed indispensable observation. In fact, at the present time in most mills the cooking process is controlled entirely from the two records—temperature and gauge pressure. In ordinary cooking, where the character of the wood is not very variant, these are probably all the records necessary, but the insight into the control is greatly increased by making the third observation, which is

Gas Tension or Gas Pressure.—This is identical with the pressure of the dissolved sulphur dioxide at the prevailing temperature and pressure, and forms the second component of the gauge pressure. The observer must plot this curve, as well as those which follow, as there are no instruments known for these purposes. In plotting the curve reference is made to tables of the properties of saturated steam, and the gas pressure at any moment is the difference between the gauge pressure and the pressure of steam at the temperature prevailing. The gas pressure is a well defined function of the gas concentration, and follows in a general manner the gas laws, being somewhat analogous to the osmotic pressure of solution in this respect.

Liquor Density.—This curve indicates the specific gravity of the liquor at regular intervals during the process, the determination being made on the liquor cooled to 15 deg. cent., and results expressed by comparison with water at 4 deg. Cent. This curve should be plotted on millimeter paper, each ordinate millimeter representing one ten-thousandth variation in specific gravity. Under these conditions the true value of the curve becomes apparent, and it will be found to contain a minimum value some time after the relief valve on the digester is opened, and a maximum value some time prior to blowing the digester. The exact location of these limiting values expressed as coordinate numbers, time, of course, being considered the abscissa, and the general direction of the curve at any given time, constitute valuable indices of the progresse of the process and reaction taking place.

At this point it should be noted that all observations made upon the properties and constitution of the liquor during the cooking process should be made on liquor which has been thoroughly cooled during the sampling process by passage through a coil jacketed with running water.

In making specific gravity determinations the writer used a Westphal balance, but the operation may be simplified and time saved by the use of a specially constructed hydrometer, possessing the required degree of sensitivity and accuracy.

Concentration of Total Sulphur Dioxide.—These observations are made by iodine titrations on samples

*Addresses at Annual Meeting T. A. P. P. I.

of the cooled liquor, obtained as above. The results are plotted in the form of a curve, the shape of which indicates the progress of the cooking at various periods. As the cooking progresses, the end point of the titrations should be considered as the first blue coloration, so as to avoid interference of reversible sulphur dioxide.

Concentration of Sulphur Dioxide Combined as Sulphite of Lime.—This curve is valuable because it shows the rate of absorption of the "half-bound sulphurous acid," which is the portion actually available for direct combination with the lignin constitutents of the wood. This curve may be plotted from determinations of combined acid by the difference between iodine and soda titrations, but the results are affected by the error in the soda titration due to acidity present other than sulphurous acid. Because of this fact the amount of combined sulphur dioxide near the end of the cook has an apparent negative value. This error never exceeds approximately two-tenths per cent sulphur dioxide. The application of the Mitscherlich test in modified form may be found useful in this connection. It should be remembered that this test does not indicate the amount of lime present in the solution, but only what is present as sulphite (approximately).

Equally valuable and perhaps more strictly accurate results so far as theoretical considerations are concerned, are obtained by multiplying the above percentages by two, and calling the resulting figure "half-bound sulphur dioxide."

Changed Sulphur Concentration.—The changed sulphur concentration may be considered equal to the difference between the total sulphur content and the sulphur present in a form directly titratable by iodine. Unlike the other curves, this one rises instead of falls. The rate of formation or the rate of ascent of the curve, is a direct indication of the rate at which the characteristic pulp making reaction takes place in the digester.

In this determination the total sulphur may be determined by neutralizing the liquor, evaporating to dryness, heating the dried material with fuming nitric acid in a sealed tube until completely oxidized, and determining the sulphur as barium sulphate.

Further work is being done, having for its purpose the simplifying and shortening of the above method. While it yields very valuable data, it is a question whether it will ever be used for practical mill control, for obvious reasons. The curve will be found valuable in the investigation of new woods and processes on a semicommercial scale.

Reversible or Loosely Combined Sulphur Dioxide.—This determination is made by means of a second iodine titration made after treating the liquor with excess alkali, and reacidifying by the addition of hydrochloric acid equivalent to or in slight excess of the alkali used. The curve obtained will be of the rising type, and will sometimes be found to be oscillatory to a certain extent. More exact information concerning the sulphur present in this form, and the interpretation of its chemical deportment will form the subject of further investigation by the writer in the future.

Lime (and Megnesia) Present in the Liquor.—This may be determined on an aliquot portion of the above sample treated in a sealed tube, or on a separate sample by analyzing the ash. The former procedure is less time-consuming. The curve obtained will fall to a minimum, and again rise. The coordinate value, or location of the minimum is of importance.

The writer hopes to report at a future meeting relative to the application of the above methods, and the attendant results. The experimental work has already met with considerable success, and progress has been favorable. Much can be accomplished along these lines by the co-operation of all interested parties.

THE FOREST PRODUCTS LABORATORY DECENNIAL CELEBRATION

The Forest Products Laboratory was organized by the U. S. Forest Service in 1909 and formally opened in June, 1910. It is conducted in co-operation with the University of Wisconsin.

During the ten years of its existence the efforts of the laboratory have been devoted to the development of improved methods and processes for the better utilization of forest products of all kinds, and to the direct assistance of the industries concerned. Among the major lines of endeavor are the following:—

Pulp and paper, hardwood and softwood distillation, preservation of wood, decay and decay prevention, mechanical properties of wood, glues for wood, kiln drying and air seasoning, grading structural timbers, grading lumber, laminated construction, chemistry of wood, boxing, crating, packing, Needle and leaf oils, ethyl alcoholol from wood waste, wood finishes, aircraft parts, veneers and plywood, steam bending, identification of wood, Microscopy of wood.

During the war direct assistance was rendered the War and Navy Departments and various other branches of the Government in the solution of many important problems, particularly in connection with aircraft, gun-stocks, artillery wheels, escort wagons, and the boxing and crating of arms and stores for overseas shipment. It was necessary, throughout this period, to abandon all work on the regular peacetime program.

A good many men acquainted with the work of the laboratory have expressed the thought that the laboratory and the service rendered by it should receive some mark of recognition or appreciation from the industries which it serves. In response to this thought, the decennial celebration has been planned, and the General Committee organized to carry out the detailed arrangements.

The present plans call for a two-day program, including addresses by men in science, industry, and commerce: inspection of the laboratory; a banquet; and various other forms of instruction and entertainment. It is proposed to make a permanent record of the decennial in the form of a souvenir publication to contain all of the addresses and other relevant matter, including the names of those who can permit a permanent record of their co-operative contributions to be made.

Note:—The Editor has been asked to extend a cordial invitation to all readers of the Pulp and Paper Magazine to attend.

FINANCES HAVING A FLURRY IN JAPAN.

The producers of pulp in British Columbia who have been dealing with Japanese firms are taking a little more care just now in making shipments to that country. Although it is thought the present financial conditions are but temporary, and that an adjustment will be made at an early date, at the same time no chances are being taken in accepting orders.

The Main Points in the Quebec Timber License

The term "Timber Limits" comprises all forests usually called "timber limits," leased to various license-holders at different periods. The timber limits are exclusively leased by auction after a notice of at least thirty days, but it has always exceeded that delay. This auction bears upon a special amount called "bonus," which constitutes the fee for obtaining the license to cut exclusively on a specific area. In 1868, there were 19,000 square miles under license; from 1868, to 1919, 55,200 square miles were leased as timber limits. Owing to the sale of lots of land therein to settlers the area of the limits is now reduced to about 69,897 square miles.

All these forests are situated beyond the villages, in the upper basin of the St. Lawrence. They contain according to their location a fairly large variety of merchantable timber, such as: white pine, red pine, grey or banksian pine, spruce, balsam fir, cedar, hemlock, tamarac, birch, maple, etc.

The permit to cut timber granted the license-holders is valid for 12 months from the 1st of May. It may be renewed every year, provided the license-holder has complied with all the existing obligations or with such others as may be determined by the Lieutenant-Governor-in-Council.

The license is considered as negotiable security, but it can be transferred only with the consent of the Minister of Lands and Forests and after the payment of a fee of $20.00 per square mile. This system has enabled extensive limits to be concentrated and strong companies to be formed for manufacturing pulp and paper.

The principle conditions imposed on license-holders, are:—

1—To pay the bonus as set at the auction.

2—To pay a ground rent of $6.50 per square mile, before the 1st September of every year. (This amount will be raised to $8.00 per mile after 1923, for five years.)

3—To send before the 1st December, a statement of the quantities of timber it is proposed to cut, giving the places where they are to be cut and the persons who are to do the lumbering.

4—Not to fell any white or red pine trees under 13 inches and no spruce, cedar, maple trees, etc., under 12 inches, except swamp spruce, paper birch, balsam fir, poplar trees which can be cut at 7 inches, on the stump, measured 2 feet from the soil.

5—To have all the timber cut measured by a culler holding a certificate from the Board of Examiners appointed by the Government.

6—To allow all the operations to be inspected by the Provincial Forest rangers, to keep a shanty book in each camp, for recording the trees cut every day, their measurement, etc.

7—To practice as great economy as possible in the lumbering operations.

8—To produce a sworn report, before the 30th June, stating all the years' operations, both upon limits and upon private lands.

9—To pay a royalty of stumpage dues on all timber cut upon the limits according to the log rules adopted by the Department.

10—To protect the limits against fire, trespassers, etc.

11—To export no timber that is not manufactured in Canada, i.e., converted into pulp and paper, deals or boards or cut any other articles of trade or merchandise of which such timber is only the raw material. (Art. B. of Regulations.)

From 1867 to 1919, the forests under license have brought in the following amounts to the Province:

(a) Ground rents	$8,648,444.22
(b) Bonuses	3,666,312.96
(c) Transfer fees	343,529.69
(d) Royalties or dues on timber cut	31,812,403.59
(e) Interest on suspense accounts, penalties for illegal cutting, fire tax	1,072,768.68
Making a total of	$45,543,764.02

The revenue of the Department now exceeds $2,500,000.00 per annum.

The cut on the timber limits in the fiscal year during 1918 and 1919, amount to 800,923,286 feet board measure of spruce, balsam, jack-pine, hemlock, birch, poplar, saw-logs; 124,809,129 ft. board measure of white pine; 48,083,487 ft. board measure of red pine and hardwood; 168,851 railway ties; 12,975 cubic feet of square timber and minor quantities of other wood goods, such as poles, fire wood; so that the total cut was practically equal to one billion feet board measure per annum.

Below will be found a table giving the classification in 1913 of timber limits in the Province of Quebec, according to their extent:

Classification of Limits According to Area in 1913.

Area of Limits. sq. miles.	No. of License-holders.	T'l area in sq. miles.
0 to 50	54	1,790
51 to 100	33	2,265
101 to 500	73	19,788
501 to 1000	13	9,853
Over 1000	18	35,102
Totals	231	68,798

Stumpage Tariff.

All wood cut in virtue of a license during the lumbering seasons 1918-19 to 1922-23, both inclusive, and 1923-24 to 1927-28, both inclusive, is subject to the following charge:

	Years 1918-19 to 1922-1923.	1923-24 1927-28.
1—Square, waney or flat timber, per cu. ft.:		
(a) White pine, oak, hickory & walnut	0.08	0.10
(b) Red pine, elm, ash, cedar, basswood, birch, maple, tamarac	0.08	0.08
(c) Spruce, balsam, grey pine, or banksian pine, hemlock, white birch, aspen, poplar	0.04	0.06
2—Saw logs and boom and dimension timber in the raw state, per 1000 feet board measure:		
(a) White pine, oak, hickory, walnut	2.80	3.00
(b) Red pine, elm, ash, basswood, birch, maple, tamarac	2,00	2.00

(c) Spruce, balsam, grey pine or banksian, pine, hemlock, white birch, aspen, poplar	1.60	1.80
(d) Cedar	1.40	1.40
3—Poles more than 18 feet in length not exceeding 10 ins. in diameter at the small end (each):		
(a) 30 ft. and less in length	0.25	0.40
(b) 31 to 40 ft. in length	0.50	0.75
(c) 41 to 50 ft. in length	1.00	1.50
(d) 51 feet and over in length	2.00	3.00
4—Railway ties or sleepers not exceeding 9 feet in length (each):	0.10	0.10
5—All other wood goods, ad valorem	15 p.c.	15 p.c.

GREAT EASTERN STOCK ISSUE AND ASSETS.

There is being offered for subscription in the U.S. by Lawrence, Chamberlain and Co., New York, and C. I. Worcester and Co., Boston, an issue of $2,500,000 per per cent cumulative preferred stock of the company at 100 and accrued dividend with a bonus of 20 per cent of common stock.

In Canada the securities of the new company are likely to be placed on the market by Thornton, Davidson and Company, Limited.

The announcement states that the company holds 460 square miles (approximately 300,000 acres) of timber limits under license from the Crown and Gaspe County Province of Quebec, on the St. Lawrence River. The limits cover almost the entire drainage area of the Madeleine River, and practically all the timber is within three miles of driveable streams to carry the logs to the plant at the water power on the Madeleine River, about four miles from the St. Lawrence. The plant comprises a barking mill, a saw mill with capacity of 10,000,000 board feet a year, a ground-wood pulp mill with a capacity of 20,000 tons a year, and a water power development with 5,000 H.P. unit installed, and a total capacity of 27,000 H.P. The Company owns also a railway of 7½ miles from the plant to the St. Lawrence, with the necessary rolling stock and equipment, and the dock, shipping facilities, lighters, etc., at this terminal.

The tangible assets according to apprisal are $9,198,000 net worth. This is a value of $351.61 a share for the preferred stock and $157.25 a share the common stock.

It is estimated the company can earn $11.97 a share on the common.

PRICE BROS. WANT A FLIER

Quebec.—The firm of Price Brothers and Company, Ltd., has bought a seaplane in Vancouver to be used in connection with timber operations. This is a new departure in lumbering in the province, and will be noted with interest. The seaplane is being built by Hoffer Brothers. It has a spread of forty-two feet and a passenger capacity of two. It will be fitted with a Curtiss 100 h.p. engine. The firm is seeking the services of an aerial photographer to map out timber limits. It is planned by the company to photograph its limits from the air in order to obtain accurate aerial maps. It is specified that applicants for the position shall have done such work at the front.

The Brown Company granted a 20 per cent increase all around on April 4.

THE CURB.

(Contributed.)

Many a good horse has been spoiled by improper use of the curb when "breaking" the colt, because his spirited actions when first driven with an ordinary bit were not understood. The next time the colt went out he was on a curb bit. Every time he playfully broke into a gallop or showed signs of letting his hind legs emulate an aeroplane the curb cut him and he became subdued. It was good corrective treatment but it was too often over-done. He was too often kept on the curb until all his spirit had gone. He was "broken" all right, in more ways thon one.

Men, young men, are often like the young colt, apt to kick over the traces once in a while. The wise employer applies the curb sparingly. The poor handler of men applies it until he breaks the boy's spirit. When he has subdued him to machine-like humidity he puffs out his chest and remarks to his cronies that he "disciplined that young fellow. Eats out of my hand now."

Good employers of men don't break these young chaps, with a bit too much of the "Old Nick" in them. Correct them, guide them, direct their excess energy in the right path and you will reap your own reward in their increased usefulness. Break their spirit; "make them realize their place" and you will have a "born clerk" on your hands—a plodder, a rabbit, a routinist. He will be afraid to show iniative; he'll be afraid to even voice an idea of his own. Don't fool yourselves. These routinists, in-the-rut fellows aren't born clerks they are made clerks for life by unthinking, narrow-minded, narrow-guage employers.

Every big firm in the country is searching for high class executives today; men who will shoulder responsibility and discharge it in an efficient manner. If you have some young men in your organization who thinks beyond his job don't be so petty as to think he is treading on your toes. Give him rope, develop him and when your time comes to close the desk for the last time you can look backward with happiness in the knowledge that your work goes on. DON'T CURB. ENCOURAGE.—C. K.

AN IMPORTANT IMPROVEMENT IN WHEELER JET CONDENSERS

A new feature, the latest design in vertical jet condensers as manufactured by the Wheeler Condenser & Engineering Co., Carteret, N. J., is the vertically split casing of the tail pump.

This feature permits easy and quick removal or inspection of the pump rotor or other internal part. It is now simply a matter of removing the bolts and cover and uncoupling the rotor. Before this design was developed, considerable time was required to get at and remove the rotor.

The improvement is now being added to two types of jet condensers manufactured by this company—the vertical jet condenser and the rectangular type counter-current condenser.

Another feature worthy of note is the expansion joint between the pump and the condenser body. This joint is designed to take care of any changes in length due to temperature fluctuation. In some installations the expansion joint is not recommended, hence condensers are made with or without the joint, dedepending upon the conditions in the plant.

BRITISH TRADE NEWS

(From Our London Correspondent.)

London, May 4, 1920.—While French newspaper proprietors have arrived at a definite decision regarding the selling prices of their papers—the advance being 15 centimes—news comes from Rome that not only among paper workers, but in circles for the production of newspapers, there has been considerable discontent and a big strike has been averted. Through the intervention of Italian Deputies representatives of the paper industry and representatives of the workers have signed an agreement agreeing to terms which have prevented the total dislocation of mill work. It is hoped that all mills will be at work this week.

Norwegian Ways

The Government of Norway is requiring makers of newsprint in Norway to supply Norwegian newspapers with their full needs of paper at a price below cost. If they refuse they will not be permitted to continue their export. The result will be that warehouses will become overstocked with paper, and production must cease. Norway has a big export trade with Great Britain, Australia, and other British Dominions and Colonies, and big contracts are in existence, which will never be fulfilled if the Norwegian Government insist on their new condition. Some of the mills produce 125,000 tons of newsprint annually and the view of the Norwegian Government is that as high prices are obtainable abroad Norwegian papermakers can afford to invoice home customers at below cost. The same condition is to affect other classes of papers. Naturally when the information reached London it caused some consternation, as if Norway cuts off supplies the crisis would be serious in England. It is hoped, however, that the Norwegian Government have acted without a full and adequate contemplation of what their policy involves. There would then be a chance of putting things right.

The Outlook for Paper

The first annual general meeting of the shareholders of Wiggins, Teape & Co. (1919), Ltd., was held on the last day of April in London and Mr. P. W. Holden, the chairman, in a very able speech mentioned that the outlook of the paper trade, in company with other trades, is obscure, both as to competition they would have to meet and as to the cost of production. He should like to throw out a hint as to the best means of removing the element of speculation from future extensions, for their business had never stood still, and it was the intention of the directors to maintain the same progressive policy in the future. They had some 3,000 to 4,000 shareholders, and they all knew the registered watermarks which their most popular papers bear. If each one when ordering ledgers, day books, stationery, etc., would insist on one of these papers being used they would themselves become the best guarantee for the value of their shares. Without indulging in prophecy he would remark that trade in the current year had so far been very satisfactory. The position with regard to the market for photographic base paper remains much the same as when their prospectus was issued. They were still making it at Glory Mill, but as soon as the new mill is working they would be in a position confidently to move forward.

Mill Changes Hands

Mr. Holden also mentioned that after very careful consideration, Messrs. Wiggins, Teape & Co. had decided to enter into an agreement to purchase the business of the Hele Paper Company, Ltd., and this they have been able to do on terms which they consider very advantageous. The Hele Paper Company was old-established, sound, and very progressive. Besides the watermarks and goodwill, the property acquired consists of 23 acres of land, 32 cottages, two houses for resident directors and managers and a well equipped mill consisting of two papermaking machines. One of these was new in 1913, and has stood still practically ever since, owing to the lack of skilled labor during the war. It was only started up last February and, therefore, the output of this machine is extra tonnage on the market. He wanted to emphasize this fact, because it is of immense importance to us at the moment.

Manufacturing Conditions

Touching on the manufacturing side, Mr. Holden pointed out that his company were investigating more closely than they had ever done before every point at which loss of fibre and wastage in manufacturing occurs and are going very carefully into every detail of equipment. They had done much and hoped to do more, and they would not hesitate to spend money on any plant or other equipment which will increase the output, efficiency, and economical working of the mills, believing that in the future when we once again have to face competition from foreign countries, other things being equal, those mills will come out on top which are equipped with the most scientific and up-to-date plant. It would not be to the interest of the shareholders to state all they were going to do, and were now doing and planning, but he might mention the complete overhauling and reorganization of all their boiler plants to ensure the greatest possible economy in coal, and the sinking of an artesian bore at the Lancashire Mill, which is the first step towards increase and output there.

Newsprint and Pulp Situation

The newsprint position remains unchanged. Several newspapers announce this week an increase in their prices.

The pulp situation is also unchanged since I last wrote. There is a slight dullness in business and the recent jump in the cost of No. 1 Bleached Sulpshite has somewhat frightened buyers. Large consignments of chemical pulps are now reaching England from Canada. Prices are:

Bleached sulphite No. 1	£75
Easy bleaching sulphite	58
Newsprint sulphite	53
Groundwood (moist)	19
Groundwood (dry)	39

Notelets

Messers. Hepburn and Horsburgh, the managers and principal owners of the Hele Paper Mill, are joining Messrs. Wiggins, Teap & Co., Ltd., as directors. They are men of very wide experience and knowledge of paper manufacture.

Scandinavian newsprint is quoted at 16 cents a lb. in London to-day.

Mr. Hall Caine's interview in the "Pulp & Paper Magazine" has been read with great interest in England. It was notable for its lucidity and outspokenness.

Magnus Hanson, of the Swedish sulphite industry has died. He was a great man, and pulp loses a valuable pioneer.

Water Power Development In Canada

The Dominion Water Power Branch, Department of the Interior, and the Dominion Bureau of Statistics, Department of Trade and Commerce, have through co-operation, just completed an exhaustive census and analysis of the developed water power in Canada. The figures, which are complete to January 1st, 1920, are exceptionally interesting and are indicative of the marked manner in which the water power resources of the Dominion are being put to advantageous use. Practically every great industrial centre in Canada is now served with hydro-electrical energy and has within easy transmission distance ample reserves of water power. Active construction in hydro-electrical enterprise is fast linking up the few centres which are still unserved, and which have water power resources in their vicinity. In those localities where water power is not available, nature has bountifully supplied fuel reserves of coal, gas or oil.

According to a recent computation the water power resources of the British Empire have been placed at from 50 to 70 million horse power. This does not include such territories, formerly under control of the Central Powers, as will fall in future under British influence. To this total Canada contributes in the neighborhood of 20 million horse power. This figure represents the power available at sites at which more or less definite information is to hand. Continued investigation will undoubtedly add to this figure.

According to the statistics just compiled there is installed throughout the Dominion some 2,418,000 turbine or water-wheel horse power (see table) of which 2,215,000 horse power is actually and regularly employed in useful work. The larger figure includes the total installed capacity at full gate, including reserve units. It does not, however, include hydraulic exciter units. A large number of the plants now operating are designed for the addition of further units as the market demands. The ultimate capacity of such plants, together with that of new plants now under construction, total some 3,385,000 horse power.

Of the total power installed, 1,756,791 h.p. or 72.7 per cent is installed in central electric stations. By central electric stations are meant stations which are engaged in the development of electrical energy for sale and distribution. Central station power is sold for lighting, mining, electro-chemical and electro-metallurgical industry, milling and general manufacturing. it is apparent therefore, that the central station total listed in Column 3 includes a portion of the totals listed in Columns 4 and 5 as used in other industries. In the pulp and paper industry 473,265 h.p. is utilized of which 381,631 h.p. is generated directly from water in pulp and paper establishments while 91,634 h.p. is purchased from hydro central electric stations.

Hydro power used for other purposes and other industries may be listed as follows:—for lighting purposes 434,613 h.p.; in mining industry, 177,728 h.p.; in flour and grist mills, 42,736 h.p.; in lumber and saw mills, 37,918 h.p.; in other manufacturing industries, 172,955 h.p. These figures are evidence of the widespread manner in which the Dominion's water power resources are being applied to the furtherance of its industrial development. In further reference to the foregoing total of water power developed in Canada, it might be noted that during the fiscal year ending March 31st, 1919, there were exported from plants included in tabulation, 175,000 h.p. years.

The number and capacity of the water wheels and turbines installed, is of considerable interest. The total installation of 2,417,896 h.p. is comprised of 3,370 units of an average capacity of 716 h.p. While 2,244 of these units are of 100 h.p. or under, they contribute only 82,204 h.p. or 3.4 per cent to the total. A total of 1,845,427, or 76.3 per cent of the whole is contributed by units of 2000 h.p. and over; 1,391,025 h.p. or 57.6 per cent by units of 5,000 h.p. and over; 1,029,900 h.p.

Distribution of Developed Water Power in Canada by Provinces and by Use of Power, January 1st, 1920.

	DEVELOPED WATER POWER							
		Total Water-wheel & Turbine H.P. installed for use in						
	Total Waterwheel and Turbine H.P. installed	Central Electric Stations	Pulp and Paper industry	Other Manufacturing Industries	Total H.P. actually employed	Ultimate Designed Capacity of Installed Plants now-operating or under construction in H.P.	H.P. per 1000 Population	Undeveloped Water Power
1	2	3	4	5	6	7	8	9
Yukon	13,199	10,000	.....	.....	11,349	13,199	1,467	100,000
British Columbia	308,167	211,043	46,962	46,094	276,795	350,832	429	3,000,000
Alberta	32,992	32,580	.....	17	31,754	33,070	56	466,000
Saskatchewan	.....	.....	.....	.....	.....	.....	....	567,000
Manitoba	83,447	71,790	.....	.....	75,100	297,047	135	3,218,000
Ontario	1.015,726	794,621	158,095	99,230	934,015	1,460,920	360	5,800,000
Quebec	910,029	623,088	249,332	270,961	838,071	1,146,465	391	6,000,000
New Brunswick	18,080	9,378	2,693	6,009	16,657	29,115	49	300,000
Nova Scotia	34,323	4.064	16,183	12,276	23,359	52,202	66	100,000
Prince Edw. Island	1,933	227	.....	1,789	1,621	1,958	21	3,000
Totals	2,417,896	1,756,791	473,265	436,376	2,214,721	3,384,808	274	19,554,000

NOTE:—The central station power listed in Col. 3 is developed for sale. Part is sold to Pulp and Paper and other industries, and such part is included in Cols. 4 and 5 along with the power that is directly installed in these industries.

There were exported from plants included in the tabulation, 175,000 horse-power years in the year ending March 31st, 1919.

or 42.6 per cent by units of 10,000 h.p. and over; and 160,000 h.p. or 6.6 per cent by units of 20,000 h.p. and over. This table is illustrative of the modern tendency towards the installation of large units. Reference might be made in the connection to the 50,000 h.p. turbines which are contemplated for the new development of the Hydro Electric Power Commission at Queenston.

The central station industry has made great strides in Canada in recent years. A network of transmission systems, which are being rapidly extended from year to year, covers central and southwestern Ontario and southern Quebec. Other systems established in numerous centres from coast to coast are likewise rapidly extending their scope. Ninety-one point four per cent of the primary power used in the central stations throughout the Dominion is derived from water, evidencing in the striking manner the advantageous location of the water power resources to industrial centres.

The total installed water wheel and turbine horse power in hydro central electriic stations is 1,756,791 h.p. Fuel auxiliaries installed as stand-bys to these hydro stations brings the total installed primary capacity up to 1,873,989 h.p. connected to $1,449,180 k.v.a. dynamo capacity. The total capital invested in these central stations, inclusive of transmission and distribution systems, is $369,464,961 or an average of $210 per installed primary horse power.

Of special interest to engineers is the actual cost of construction of hydro-electric power stations, exclusive of transmission and distribution systems. The figures of 70 representative hydro-electric stations throughout the Dominion with an aggregate turbine installation of 745,797 horse power show a total construction cost of $50,740,468 (pre-war figures) or an average of $69.11 per installed horse power. This cost includes the capital invested in construction of dams, flumes, penstocks, and all hydraulic works, and of power stations and equipment. It excludes real estate and transmission and distribution equipment. The figure in brief represents the capital cost of construction at the power site.

With a water power development of 274 h.p. per thousand population, Canada stands well in the forefront in respect to availability and utilization of hydro power resources, being only surpassed in this respect by Norway. The enormous water power reserves still untouched form a substantial basis for the progressive exploitation and development of other natural resources, and, if properly co-ordinated with the development and utilization of the enormous fuel resources of the Dominion, are an assurance of continued industrial expansion and prosperity.

AMERICAN ITEMS.

Many sawmills and woodworking factories in Minnesota, Wisconsin and Michigan are closed as a result of a strike called by the International Timber Workers' Union. The men demanded an eight hour day with the prevailing wage scale. Reports received at Chicago indicate that at least 5,000 men are on strike throughout the district, as mills and factories in many of the less important centres were closed.

The remedy for the paper shortage, in the opinion of E. T. Meredith, Secretary of Agriculture, lies in the utilization and development of the forest and hydro-electric resources of Alaska. Recognizing in the paper situation an opportunity for the economic upbuilding of the territory, Mr. Meredith is offering co-operation in the establishment of paper mills by making available national forest pulpwood on terms that will provide a satisfactory operating basis. The Department of Agriculture is preparing to contract sufficient stumpage to supply paper mills for thirty years. The timber will be paid for from month to month as it is cut, obviating the necessity for large investments in raw materials. Mr. Meredith points out in his report on the subject, that Alaskan national forests probably contain 100,000,000 cords of timber suitable for the manufacture of newsprint and other grades of paper. Under careful management, he believes, these forests can produce annually 2,000,000 cords of pulpwood for all time, or enough to manufacture one-third of the pulp products now consumed in the United States.

The million dollar plant of the J. P. Lewis Paper Company at Watertown, N.Y., was swept last week by a stubborn fire which caused damages estimated at close to $200,000. Several of the machines were badly crippled while the store-house had a dozen or more carloads of finished paper were completely wrecked. Harry S. Lewis, principal owner, announced that repairs would be made at once.

JORDAN AND BEATER IN PAPERMAKING.

By MAX ZIMMERMAN.
Manager, The Charles Boldt Paper Mills, Cincinnati, Ohio.

In a contribution to the symposium on the extent to which the jordan can replace the beating engine in the manufacure of paper, at the annual meeting of the Technical Association of the Pulp and Paper Industry in New York on April 15, 1920, Mr. Zimmerman expressed himself as follows:

In regard to the question, "How far can a Jordan Replace a Beater in the Manufacture of Paper?" I would say this depends entirely on the grade of paper which a mill manufactures.

If a mill makes a high-grade of light weight paper the long beating process and shorter treatment in the jordan is the more satisfactory. Mainly, this process makes a much better close-up sheet and also a snappier and better finished sheet. On the other hand, if a mill makes heavier weights of high-grade paper, it is best to use the Jordan more extensively and do less work—in the paper, as this gives better formation and less crushed paper.

Now, with box board made on cylinder machines the opposite conditions prevail. Less work in the beater and more on the jordan has proved more satisfactory. The reason of this is that the raw material used in the manufacture of box board contains all kinds of fibre, from strawboard to bond paper. Therefore, by doing less beating and more work on the jordan the machine tender can regulate the length of the fibre for the particular weight of the board being run much quicker than he could by having a lot of stock beaten ahead in the beaters, which would be likely to give him all kinds of trouble in running long beaten stock on the paper machine.

T.A.P.P.I. TO MEET AT SARATOGA SPRINGS

Preliminary Program for Fall Meetings of T.A.P.P.I

For the Fall Meeting of the Technical Association of the Pulp and Paper Industry, which is to be held at the Grand Union Hotel, Saratoga Springs, New York, September 1, 2, and 3, 1920, an extensive program of mill visitation and excursions to points of interest in the Hudson Valley and Lake George region has been provided.

The Local Committee of Arrangements consists of Charles F. Rhodes, Superintendent of the Bureau of Tests, International Paper Company, Glens Falls, N.Y., chairman; C. A. Woodcock, Finch, Pruyn & Co., Glens Falls, N.Y., secretary-treasurer; George S. Withem, Jr., Union Bag and Paper Corporation, Hudson Falls, N.Y. and W. W. Cronkhite, General Electric Company, Schonochtady, N.Y.

At a meeting of this committee held at Glen Falls, on Wednesday, May 13, a tentative program was adopted.

The headquarters of the association will be at the Grand Union Hotel, which has made a special rate for TAPPI members of $6 to $8 a day on the American plan; the lower rate being for rooms without bath. For double room without bath, the rate will be $12 and with bath $14. The regular rates for the same accommodation during August would be from $10 to $25 a day. Members are requested to make their own hotel reservations, through Sanford N. Hall, President, American Stone Company, 596 Broadway, Saratoga Springs, N.Y., a member of TAPPI, will assist if any difficulties arise. In making reservations, members should be careful to specify that they are visiting Saratoga Springs to attend the TAPPI convention, as otherwise the special rates will not apply. All of the principal hotels in Saratoga Springs have agreed to a reduction of rates for members.

The business and technical sittings of the association will be held in the Casino, which is situated in a park immediately opposite the Grand Union Hotel. The Casino was celebrated in past years as a resort for the wealthy people who indulged in various games of chance, and the interior decorations and equipment of the building are unusually attractive.

It is expected that the meeting will be welcomed by the Mayor of Saratoga Springs, and after the business sessions are concluded late in the afternoon, the members and their lady guests will be taken on visits to the attractions of Saratoga Springs.

While the male members of the association are enjoying a banquet the first night of the meeting, entertainment will be provided for the ladies elsewhere.

The second day of the meeting, September 2, will be given up to mill visitations, those in attendance being divided into two groups, one of which will go to the Hudson River Mill of the International Paper Company, at Corinth, and the other to the mills of Finch, Pruyn & Co., at Glen Falls. All will get together at the Parish House in Glens Falls for luncheon at 12.30 on Thursday Sept, 2. After luncheon visits will be made to the Fenimore plant of the Union Bag & Paper Corpn., the Sandy Mill Iron & Brass Works and Standard wall Paper Company, at Hudson Falls. Under a rule of the association mill visitations are restricted to male members of the association, but it is planned to take the ladies of the party from Saratoga Springs to Lake George in special trolley cars, where they will be met by the party from the mills at Hudson Falls for an excursion on the steamer "Horican" of the Lake George Steamboat Company. From the head of the Lake through the Narrows and back to the steamboat landing. Horican was the title bestowed on Lake George by Fenimore Cooper, the novelist, and is a variant of an Italian name for the lake. A buffet luncheon will be served on board the "Horican," the members and their lady friends being guests of the paper manufacturers and allied industries of the Hudson River Valley. There will be a special band on board, probably that of the Union Bag and Paper Corporation. The start of the excursion on the lake will be made at 5 o'clock and the trip will last three and a half hours, making a delightful excursion on one of the most picturesque lakes in the United States. The return trip to Saratoga Springs will be made by automobiles, leaving lake George about 9 o'clock.

For the third day an excursion is planned for a visit to the General Electric Company's works at Schonoctady, where the visitors will be the guests of the Company at luncheon which will be served at one o'clock. For the trip through the plant of the General Electric Company at Schonoctady, the party will be divided into four groups, according to cards previously issued and each of these four groups will be divided into smaller parties who will be conducted through the plant by special guides. It is to be impressed upon the members that straggling will not be permitted, as the guides are under definite orders to get their parties through the different departments and out at the assembly point at stated times.

In the afternoon visits will be made to the felt mills of F. C. Huyck & Son and Albany Felt Company. Definite arrangements for these visits will be made later, since they are provided near the close of the meeting and can be taken in by members on their way home.

It will be well for members to note that the time schedule for meetings, luncheons and mill visitations is arranged according to the State Daylight Saving law, which is one hour in advance of railroad time. While the State law is observed generally in the cities and villages, train time is one hour later. It is expected that members coming from points as far distant as Chillicothe, Chio and points in Canada will make the trip to Saratoga Springs by automobile. Members who can provide accommodation in their motor cars for other visiting members are invited to communicate Company, 596 Broadway, Saratoga, N.Y.

It should be understood by the members that the reduced hotel rates will not apply until the evening before the day of meeting. Members arriving on August 31 will be able to secure accommodations for the evening of that day at the reduced rates, but any visitors who register earlier in the week will be charged full summer rates.

There are ample garage accommodation at Saratoga Springs, the Rose Ketchum Garage, opposite the trolley station, being capable of parking 150 cars, while the New Commercial Garage, on George street near the D. & H. Station has accommodation for fifty cars. Other garages conducted by J. N. Hodges and the J. B. White Motor Company can accommodate from fifteen to thirty cars at $1 a day.

The advantages of Saratoga Springs as a vacation place need hardly be mentioned to anybody familiar

with the great summer resorts of America. It is a city of hotels and boarding places, and all the hotels of Saratoga Springs are operated on the American plan with no allowance made for meals lost by excursions, banquets or luncheons. Members desiring a complete list of the hotels in Saratoga Springs should send a request to the Information Bureau of the Chamber of Commerce, but it is expected that every member will register at the association headquarters, the Grand Union Hotel, Broadway, which has a capacity of 900.

Sub-committees of the general committee are now in course of formation. Those thus far announced are Committee of Transportation, George S. Witham, Jr., chairman; Committee on Hotel and Garage Accommodations, Sanford M. Hall; Reception Committee, W. W. Cronkhite, chairman; Banquet and Entertainment Committee, F. T. E. Sisson, Racquette River Paper Company, Potsdam, N. Y., chairman; General Banquet Committee, Archie J. Kennedy, President, Sandy Hill Iron and Brass Works, Hudson Falls, N.Y., chairman.

CHEMICAL MEN VISIT GRAND MERE

An enjoyable trip to Grand'mere and Shawinigan Falls in which profitable study was mingled with entertainment, brought to a close on May 8th, the 1919-20 session of the Montreal Section of the Society of Chemical Industry. Leaving Montreal at 11.45 on Friday the party arrived at Grand'mere in time for breakfast at the Laurentide Inn, which was followed by a vist to the power house and pulp and paper plant of the Laurentide Company, conducted by Messrs. J. J. Brennan, Cunningham, Weldon, Webster and Woodward.

Proceeding to Shawinigan Falls at 1.00 p.m. the party had lunch at the Cascade Inn and proceeded to visit successively the Power House, the Belgo Canadian Pulp and Paper Company, Ltd., the Canadian Carbide Co., Ltd., and the Canadian Electro Products Co., Ltd., the party being in each case conducted and a demonstration given by one of the leading experts of the firm in question.

A meeting at the Shawinigan Technical Institute with addresses by H. W. Matheson, J. Stadler and R. A. Witherspoon, followed by dinner at the Cascade Inn, brought the day's program to a close. Some sixty people were present, under the chairmanship of C. H. Hazen, president of the Montreal Section of the Society of Chemical Industry. T. Wardleworth, proposed a vote of thanks to Mr. Matheson and his Shawinigan committee, for the hospitality extended to the society, and R. A. Witherspoon replied.

CANADIAN MILLS BLAMELESS

At a recent hearing before the Senate investigating committee, a representative of the New York Times said, a statement of his had been erroneously reported and gave the impression that Canadian paper mills were ganging. He repeated that the two contracts referred to were for small amounts, at an adjustable price, which has varied up to 8¼ cents. Both of these contracts, however, are with New York mills, not Canadian, and it was so stated. "The paper that the Times has procured in Canada has all come from the mills of the Canadian Export Company, and for this the Times has not paid higher than that company's contract price of 4½ cents.



This gathering with the well known figures of several Canadians in prominent places is indicative of the progressiveness of the Brompton Pulp and Paper Co., in breaking out into the American field. Here are two sturdy branches. The photograph was taken at the banquet of the combined sales organization of the Groveton Paper Co., Inc., and Claremont Paper Co., Inc., held at the Hotel Pennsylvania on the evening of April 14.

The names of those shown in the photograph reading from left to right are as follows:—C. L. Winter, J. R. Williams, W. F. Luking, L. J. Robertson, R. H. Bryan, W. C. Dawson, V. E. Fishburn, C. F. Steele, H. S. Ferguson, C. C. Wilson, I. S. Reynolds, J. A. Bothwell, Henry A. Wise, Ernest Rossiter, T. K. Davis, W. N. Munroe, J. J. Flanagan, C. H. McDuffee, C. I. Hill, K. H. Ways, G. M. Wetmore.

Technical Section

REVIEW OF RECENT LITERATURE.

K-7, 8. Cellulose hydrate; a contribution to the knowledge of the decomposition of mordanting salts by cellulose. Carl G. Schwalbe. Z. Angew Chem., **32,** 355-7 (1919). A discussion of the formation of cellulose hydrate in the beater and its characteristic colloidal properties. The adsorption of metallic salts by the hydrated cellulose and particularly of Al $(OH)_3$ from $Al_2(SO_4)_3$ soln. has a direct bearing upon the mordanting of colors for paper pulp. The fact that hydrolysis or oxidation furthers the adsorption of metallic bases explains why a better color is produced with aluminum sulfo acetate than by the use of free $Al_2(AC)_3$. The sulfoacetate suffers a decomposition into $Al(OH)_3$, HAC and free H_2SO_4; the latter hydrolyses the fibre to hydrocellulose, the presence of which effects a further adsorption of Al. On account of the stronger adsorption of the mordant the color is naturally more completely precipitated.—J.S.

A-1, B-1. How to distinguish douglas fir from Sitka spruce lumber. Pulp and Paper, 18, No. 3 p. 54 (1920). A method of distinguishing the two species of wood as presented by the Forest Products Laboratory at Madison, Wis. In general the Doublas fir is darker in color than Sitka spruce and has more pronounced annual rings. Of the two, Douglas fir is decidedly the more resinous. Differences are considered under the headings; Color, Annual Rings, Resin, Tangential Surface, Bar and Cell Walls.—N.C.

C-5, M-10. Fire protection of log piles. F. J. Hoxie, Pulp and Paper, **18,** No. 5, p. 105 (1920). An outline of the contributing causes for log pile fires including dry punk wood, fungus growth and faulty methods of piling. Three divisions in the control of fires are considered, precaution, extinguishing and separation of pile into smaller risks. Various kinds of fungus are considered and the conditions fostering their growth. (For discussion see Pulp and Paper, March 11, 1920.) —N. C.

M-0. How pulp flow is regulated. Pulp and Paper, **17,** No. 52, p. 1111 (1919). Describes installation and operation of Trimbey Regulator as installed in the Laurentide Company. The regulator measures the amount sulphite pulp furnished to the beater with the ground wood, thus eliminating the wet machine. —N.C.

R-0. Pulp and paper in Siberia. Paper, **25,** 746, (1919). A brief sketch of the present situation in Siberia as regards its paper supplies.—A.P.-C.

R-3. German technical association in session. Paper, **25,** 784, (1919). A brief account of the meeting of tthe German Ass. of Cellulose and paper Chemists, held Oct. 9, 1919.—A.P.-C.

R-13. Fall business conference and making of the Cost Association of the American Paper and Pulp Association. Paper, **25,** 623-32, 634, (1919). An account of the meeting.—A.P.-C.

R-14. Bureau of Standards benefits paper industry. Pulp and Paper, **18,** p. 96 (920). A resume of the Paper Laboratory of the Bureau of Standards. It outlines the routine testing, chemical, physical and miscroscopical. It presents the progress made in several research problems, as study of paper-making fibres; utilization of waste cotton linters; paper bags for lime and cement and other problems.—N.C.

R-1. The Varkaus Cellulose factory. Varkaus, Finland, "The Finnish Paper and Wood Industry" Oct. 31, 1919. Pulp & Paper, **18,** No. 8, p. 193, (1920). An account of the erection and description of the first Finnish cellulose factory, begun in 1915 and finished in 1919.—N.C.

K-2. Recovery of waste paraffined paper. Pulp & Paper, 18, No. 2, p. 38 (1920). It is estimated the United States waste daily amounts to 8-10 tons. The method as worked out by the Forest Products Laboratory consists in treating the shredded waste with petroleum oil solvent, recovering the paraffin and freeing the paper stock from solvent by a steaming process.—N.C.

K-7. Influence of the Hollander's construction on the sizing fastness of papers. Trans. from Der. Papier-Fabrikant. Pulp and Paper, **18,** No. 4, p. 74, (1920. The inadequacy of new Hollanders with large rolls and forced circulation compared to those of the old types in producing paper that was properly sized. The reason given is that the stock losses the disintegrating action brought about by the friction of the individual fibres obtained in the old type. This results in a lessening of the sizing action.—N.C.

M-0. Compressed air in the pulp and paper industry. F.A. McLean, Canadian Ingersoll, Rand Co. Pulp & Paper, **18,** No. 2, p. 31 (1920). A study of the advantage to be derived from the use of compressed air in the cleaning of machinery, especially motors, generators and boiler flues.—N. C.

R-1. Pulp and paper possibilities in New Brunswick. H. P. Timmerman, Indust. Co., Can. Pac. Ry. Pulp and Paper, **18,** No. 52, p. 1109 (1919). A plea for the erection of pulp mills in New Brunswick to transform part of the immense exportation of pulp wood into mechanical or chemical pulp, thus increasing the income of the province.—N.C.

B-2. Some startling facts about Canada's forests. Frank J. D. Barnjum. Pulp & Paper, **18,** No. 1, p. 3 (1920). A detailed consideration of the very serious condition of Canada's supply of wood for pulp. Statistics are given showing the inroads of exportation, the spruce bud worm and fire. A plea is made for an educative campaign to increase the appreciation of the value of the forests; for improvement of wasteful method of logging and for the establishment of an embargo or export duty on raw material taken from fee lands.—N.C.

M-4. Practical belt lacing directions. Pulp & Paper, **18,** No. 52, p. 1107 (1919.) Practical directions with illustrations for lacing belts by the "Hinge" and "Straight Stitch" methods.—N.C.

VOCATIONAL EDUCATION IN N. B.

Fredericton, N.B.—The Vocational Education board of New Brunswick, in their first annual report, which has been tabled in the Legislature, announces that a correspondence school for carrying on vocational education, will be established in New Brunswick and eventually it is the hope to establish a polytechnical institute.

UNITED STATES NOTES

Five hundred unskilled workers in the mills of the American Writing Paper Company at Holyoke, Mas. struck last week to enforce demands for a wage of 70 cents an hour. The strikers are members of an independent organization known as the Unity of Workers. They asked for an increase of 25 cents an hour several months ago when the Eagle Lodge of Papermakers were given an advance of 11 cents an hour. At that time the unskilled workers got an increase of 7 cents an hour, bringing their pay up to 56 cents an hour. The strikers are making every endeavor to extend their walkout to other mills in Holyoke.

William R. Hearst, publisher of the New York **American** and a score of other dailies, recently closed a deal whereby he became the owner of Dexter Sulphite and Paper Company, whose plant is located near Watertown, N. Y. The transaction was said to have involved several million dollars. The purchase included a timber tract of 20,000 acres. On returning from New York city following the deal's consummation, Dr. Clarence W. Campbell, vice-president and general manager of the Dexter Company, stated that there would be no change in the personnel of the company management. Dr. Campbell declined to give out any hint as to the figure put up by Mr. Hearst to acquire control of the plant.

The Union Bag and Paper Company, in a statement submitted to the New York Stock Exchange, shows net profits, after charges and Federal taxes, of $2,059,000 for the first four months of the present year. This is equivalent to $20.59 a share on the capital stock. Gross sales amounted to $5,055.00. After manufacturing costs and depreciation there was a net income of $1,183,000.

Airplane wireless forest fire patrol began last week in California with the departure of two detachments of five machines from Mather Field, Sacramento, for their bases at Red Bluff and Fresno. Not more than two machines will be sent out daily from each base.

The Division of Minimum Wage, Department of Labor and Industries of Massachusetts, has provisionally approved the determination of the wage board establish to recommend minimum rates of wages for women and girls employed in factories manufacturing paper boxes. A public hearing for all interested persons will be held on May 22 in the State House, Boston. The board recommends that the following minimum of wages be established for female employees of ordinary ability, whether time or piece rate workers: For experienced workers, $15.50 per week; for learners and apprentices who have reached the age of 16, $11; for all others $9. The board urges the adoption of this scale beginning July 1 next.

Dr. Helmer Key, editor-in-chief and publisher of the **Svenska Dagbladet, Stockholm,** discussing the woodpulp situation at a luncheon of the Swedish Chamber of Commerce at the Hotel Astor, New York, May 8, said that Sweden has better facilities for cheap production of paper and wood pulp products than Canada, and added that the extension of the Swedish output was practically dependent only upon the rapidity which new buildings can be erected at the mills and the speed with which additional machinery can be produced.

A stockholders' meeting, to be held at Portland, Maine, during the present week has been called by directors of the Continental Paper Bag Company. The purpose of the meeting is to vote on an increase of the company's capital stock and on the matter of changing the name of the corporation to the Continental Paper and Bag Mills. It is proposed to add $12,500,000 to the capital stock of which $5,000,000 shall be preferred and $7,500,000 common. The company's present stock totals $5,000,000, divided equally among preferred and common shares.

That the Maurice O'Meara Paper Company of New York City is maintaining its leadership as one of the Big Four of the paper world is revealed in the figures on exports and imports for the past year and for the first months of the present year. During 1919 the concern conducted 30 per cent of the export business in all paper, except newsprint, to Cuba, and 8 per cent of all the business, aside from newsprint, done with Latin America. In view of the large number of firms in the field, these figures easily place the O'Meara Company among the exporters in the country. In the import field, the company also leads. In January and February the firm received 90 per cent of all newsprint imported in the United States from Sweden. In March the Maurice O'Meara Company imported 70 per cent of all Sweden's exports to the United States.

A $25,000 addition to its plant in Springfield, Mass. is being erected for the United States Envelope Company. The Casper Ranger Construction Company of Springfield was awarded the contract for the work.

A bill creating a commission to assist in the purchase, sale, and distribution of newsprint paper in order to insure a supply to newspapers of limited circulation, was introduced in Congress last week by Representative McKinley of Illinois. The measure was referred to the House Committee on Interstate and Foreign Commerce. Another bill, calling for an increase in revenue by imposing a tax on certain sales of newsprint paper, was introduced by Representative Steenerson of Minnesota. This bill is now before the Ways and Means Committee.

Damage estimated at $10,000 resulted from a fire which destroyed the core and storage rooms of the Holyoke Machine Company, manufacturers of paper mill machinery.

Two division meetings are to be held this month by the National Association of Waste Material Dealers. The Western Division will get together at the Hotel Sherman, Chicago, Ill., May, 12, and on May 18, the Pacific division will meet at the Palace Hotel, San Francisco. The secretary and president of the association will be present at the Chicago meeting.

A friend of ours is troubled with indigestion, or in pulp mill language, digester trouble. He has come to the couclusion that there was too much soda in the liquor.

PULP AND PAPER NEWS

The annual meeting of the Canadian Casein Company was held in Toronto a few days ago. The company was formed by all the paper coating mills in Canada in 1916 for the purpose of encouraging the production of casein in the Dominion. Previous to the organization all the casein used in the paper plants came from South America, France and the United States. The grinding plant of the company is located at St. Johns, P. Q., which supplies about one third of the requirements of the Canadian trade. It was stated at the annual meeting that the past year had been a good one for the company and that prices for the product were well maintained, with a slight increase. W. C. Copping of St. Johns was elected President and General Manager; C. N. Ramsay, Vice-President; F. H. Gage, Secretary and I. H. Weldon, Treasurer.

The Ontario Legislature this week voted $10,000 to assist in meeting the expenses of the Canadian Press Association in connection with the Imperial Press Conference which meets in Canada this summer.

As a result of a conference held in Toronto this week between members of the Government and Sir Adam Beck, it is stated that the Government has either consented to, or expressed its intention of, giving consent to the location of the site of the Great Lakes Pulp and Paper Co., at Mission, near Fort William, instead of Bear Point, near Port Arthur. The Government, it is understood, is arranging to have Hydro power developed in the Nipegon transmitted to the Great Lakes Co. on the mouth of the Kaministiqua River, which would mean a slight increase in cost because of having to transmit the power from the Nipegon to Mission.

A survey of the printing industry of Toronto has been decided upon by the Master Printers' Association of the city. The survey will be in charge of I. R. Knowlton and E. A. Borden of Chicago and it is expected that the work will be completed in about six weeks.

The death is announced in Paris, Ont., of Charles W. Lawton, Editor and proprietor of The Paris Review. Deceased was born in Yorkshire, England in 1860 and came to Canada at the age of 21 years. His newspaper career started on the Mount Forest Confederate and later he was connected with the Beeton World. He also worked on the Orillia Times and before going to Paris to take over the Review he was night editor of the Toronto World. He purchased the Review in 1894. Mr. Lawton was prominent in the public affairs of Paris. Two sons and two daughters, together with his wife, survive.

The Hodge-Sherriff Paper Company's Toronto office, which was moved, following the fire in the McKinnon Building, is expected to be back in the old location this week, to which communications may be addressed thereafter. The old telephone number, Main 5781 is retained.

J. G. Gibson, of Toronto, Secretary of the Spanish River Pulp and Paper Mills, Limited, stated, when seen by the Pulp and Paper Magazine in regard to the rumor that the company were behind a deal for the establishment of a big pulp and paper mill at Fort William, that the matter had not even been mentioned at any of the meetings of the Board of Directors. A report from Port Arthur states that one of the largest pulp and paper mills in Canada is about to be erected near the Mission Terminals and that the deal was being engineered by T. H. R. Murphy, formerly engineer for the Port Arthur Pulp and Paper Company, and J. A. Sutherland, of Dayton, Ohio, who visited the district and had gone to report to their principals in the east. The rumor also stated that the plant would be of a four-machine type. Timber limits, it was stated, had been secured near Sioux Lookout.

The "Times" property on Bay Street, Toronto, has been acquired by the interests that recently secured the Jarvis property. The sale price is in the neighborhood of $190,000. Amelius Jarvis bought the property a number of years ago and leased it to the News Publishing Co. and later sold it to the Napier estate, of London, Eng., who are the present vendors.

The assignee of the World Newspaper Company, Toronto, is calling for tenders for the property of the Toronto World. The property is being offered for sale as a going concern and the assets are being submitted in five different parcels for the convenience of the purchaser. Tenders are to be in by June 4th.

Among those who will sail for England at the end of this month are C. H. McFarlane, of McFarlane, Son and Hodgson, Montreal and T. J. Stevenson, sales manager of the Riordon Pulp and Paper Company. During the absence of Mr. Stevenson, his duties will be looked after by George E. Challes, of Toronto.

W. J. Finlay, of the Strathcona Co., was in Boston a few days ago attending the funeral of his eldest sister, the late Miss Finlay.

Hugh Lewis, of the Port Arthur Pulp and Paper Company, was in Toronto during the week, conferring with the Provincial Paper people.

DeForest Coutts, representing the Whiting Paper Co., of Holyoke, Mass., was a business visitor in Toronto this week.

J. E. Pringle, an engineer, who is engaged on the construction of a sulphite pulp mill at Temiskaming, Que., had a narrow escape when with a companion, endeavoring to cross the Ottawa River, just above the Long Sault Rapids, their canoe caught in a cross rift and overturned. Fortunately both were strong swimmers and were able to make the shore.

The St. Catherines Standard has been turned into a limited liability company with a capital of $250,000. The provisional directors are W. B. Burgoyne, H. B. Burgoyne and M. L. Burgoyne.

The Kitchener Timber Company, Limited, has been granted incorporatino, with power to deal in the timber and pulp business. The company's authorized capital is $200,000 and the head office is at Montreal. Among the incorporators are W. W. Craig, merchant, John A. Crowe, manufacturer, W. A. Catton and James

A. Davis, brokers, and W. F. Alloway, broker, all of Montreal.

To carry on the general trade of printers and publishers the Birch-Hinds Company, Limited, with head office in Montreal, has been granted incorporation, with a capital stock of $50,000. The company is also empowered to take as a going concern the Birch-Press, now carried on at Montreal by Robert Birch.

A despatch from Winnipeg states that the newspaper deal by which the Telegram acquires the Tribune, is going through this week. The Telegram is to be a morning paper and R. L. Richardson M.P. delinquishes control of the Tribune. J. R. Smith of the firm of Davidson and Smith, grain buyers, are the owners of the Telegram.

The many friends of H. B. Donovan, Sales Manager of the Canada Paper Co., were sorry to miss him from his desk in Toronto this week. His absence for some days was due to indisposition.

PAPER MEN IN ENGINEERING WORKS.

It is announced that the organization of Dominion Engineering Works, Ltd., has been completed. This is the company which shareholders of Dominion Bridge recently authorized to take over its subsidary which was formed under the title of Dominion Engineering and Machinery to make paper manufacturing machinery and had secured a large contract from Laurentide. It will extend its operations to hydraulic machinery.

The following are the officers and directors: G. H. Duggan, President; A. J. Brown, K.C. , Vice-President; Julian C. Smith, Vice-President; W. F. Angus, Geo. Chahoon, Jr., Sir Herbert S. Holt, Phelps Johnson, J. M. McIntyre, Howard Murray, H. Birchard Taylor, F. L. Wanklyn, R. Montague Davy, Secretary-Treasurer.

SWEDISH FOREST DEPLORES U.S. WOOD WASTE

A. E. F. Schard, Swedish Forester, sent to the New York State College of Forestry in exchange for an American student to Sweden, is still in the United States.

An interesting letter has been received from Mr. Schard, in which he tells of his experiences in Cloquet, Minn., visiting saw, paper and pulp mills, box factories, toothpick factories and other plants using the product of the forest.

"I was most impressed," he said, "by the tremendous amount of waste than by the saw mill, planing mill and pulp mill. I was of course impressed by the latter, but more by the waste than by the amount of production and the terrible speed. The two weeks I spent in the lumber camps made me feel sorry for your forests. It was positively awful to see timber slaughtered in this way, and there is certainly a field for graduates from your college to try to bring the factories into better shape.

"If a Swedish lumberjack came directly from our camps to an American camp he would think he was in Heaven. Everything nice and clean, lots of good food, and still they were kicking. The lumbermen in the middle west and far west have had very much trouble with the I. W. W. especially among the Finns, and I really should have liked to get some of them under machine gun fire.

Sees Chance for Forestry.

"I have seen the most wonderful virgin stands of white pine and Norway pine and I should have given very much if they would let me make a nice thinning and show them with figures the result after twenty years. American foresters can do it. I envy my former fellow students for the splendid opportunities they have to conserve the tremendous resources of your great country."

GREAT EASTERN PAPER CO. ELECTS EXECUTIVE

At a meeting of the Great Eastern Paper Company at the week-end the following directors were elected.

Charles W. Mullen, president and general manager; W. M. Dobell, vice-president, late of Dobell, Beckett & Company; H. C. Foy, of H. R. Gooday & Co., lumber exporters Quebec; A. H. Cook, K.C., Quebec; Henry Holgate, consulting engineer, Montreal; Lawrence Chamberlain, investment banker, New York; John Mullen, pulp and paper manufacturer, Bangor, Me.; Fergus Murphy, secretary, lawyer, Quebec.

100 U.S. NEWSPAPERS JOIN CONSERVATION LEAGUE

Washington, May 17.—Representatives of more than 100 newspapers, meeting here today, formed the United States Publishers' Newsprint Conservation League.

FOREST FIRE MENACE IN MINNESOTA

Washington, May 17.—The Superior national forest, in Minnesota is threatened with destruction by forest fires, the United States Forestry Service has informed by telegraph today. Ten separate fires are burning in or near the preserve, said the despatch, which added that if present conditions should continue for 24 hours, the existence of the national forest would be imperilled.

FIRES NEAR DULUTH

Duluth, May 17.—Forest fires are again menacing the country to the north and northwest of Duluth, despite rains last night and early today.

Sir William Price is a provisional director of the Canadian Motors and Machine Company, Ltd., of Quebec, which has applied for letters patent.

NASHWAAK DAM BROKE—TRAIN WRECKED.

Following the heavy rain on May 9th, a dam on the Nashwaak River, owned by the Nashwaak Pulp and Paper Company gave way and the rush of logs thus released, tore away the embankment so that when the train came along the locomotive, tender and one freight car rolled down the embankment of almost fifty feet into the river.

The engineer and a brakeman were killed and the fireman badly scalded.

SPANISH RIVER ENLARGING PRODUCTION

The Spanish River Pulp and Paper Company are at present installing a new newsprint paper machine at their Sturgeon Falls plant. The new machine will have a daily capacity of fifty tons of paper, and will increase the company's annual output to about 180,000 tons.

Production at Sturgeon Falls will thus be brought up to 125 tons daily, while the Espanola mill produces 225 tons and the Soo plan 250 tons. Daily newsprint capacity will be brought up to 600 tons for the three mills.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, May 15.—Further increases this week in the price of paper lines such as book papers, ledgers and bonds, representing advances of 10 per cent on the higher and 5 per cent on the cheaper grades here featured an other otherwise unchanged market. These increased prices are contained in the price lists sent out by the mills and they became effective on Monday. They caused some of the dealers to do some figuring and searching of records, when the rather interesting discovery was made that since May of last year there has been an advance in some of these lines of 66½ per cent, from the jobber to the printer, and in some particular lines of book paper the increases during the year has has registered as high as 300 per cent. The ten and five per cent recorded this week cannot be considered material, as affecting sales, for the reason that orders are still being accepted subject to the price prevailing at time of shipment and the mills are not in a position to fill further orders for some weeks to come. So it is that price lists at the present time serve little purpose aside from furnishing some basic guide to printers on which to base estimates and even at that the printing trade is experiencing the greatest difficulty in fixing their price for job work in the present very unsettled condition of the market.

In hardly any line of paper has the situation improved in respect to shortage and inadequate deliveries. There is practically no coated board to be had in the country. All classes of book paper are exceedingly scarce and the tonnage being sent forward at the present time is being devoted to filling long-standing back orders. None of the warehouses have any stocks to speak of on hand and there is no stipulated price on what little stuff the dealers can get hold of. There is no let up on the tremendous demand for paper of all lines and, according to the paper dealers, the public is buying more than ever. Spring advertisiing campaigns in the papers and by circulars and catalogues are in full swing and a tremendous quantity of paper is being used.

Kraft and Manilas remain at 10 cents and are hard to get, while grey rag is an equally scarce article. Fibre is coming through somewhat more freely owing to the fact that this commodity can be made quicker, the screenings of the kraft pulp being used. Distributors in Toronto, however, were somewhat disquieted this week, by the announcement of the likelihood of the J. C. Wilson Co. shutting down for some days owing to the necessity of making repairs, which would seriously affect the needed supplies of manilas and fibres.

There is still a big scramble for wood, according to the Toronto representatives of the contracting firms, particularly among the U. S. purchasers, who are offering almost any price fo Canadian pulpwood. One American firm offered $2 a ton more to a local firm, in addition to what they were paying under contract, if the firm would make up a quota of the 10,000 cords which had been contracted for but couldn't be obtained. Peeled wood is ruling at $16.00 a cord on board car at shipping point and from the other side of the line bigger prices than that are being offered for spot lots, although the Canadian buyers, who are closer to the source of supply have, in some cases got the wood at a slightly lower rates than that quoted. Yet, it is reported that more than $30 has been paid for wood in order to keep mills running.

Newsprint manufacturers are still experiencing considerable difficulty in meeting the demands upon their resources and most of the smaller publishers particularly, are feeling the pinch of the shortage. There appears to be little ground, however, for the impression in some quarters that they would be left high and dry as the result of the big prices available to the Canadian mills from United States consumers. In order to allay any disquietude that may exist among the smaller publishers as to the prospect of future supplies and prices, one of the leading Canadian mills has written the publishers expressing regret that owing to the abnormal demand and mechanical limitations it had not been found possible to supply them freely, but that from July 1st to the end of the year they would take care of the users of sheet news to the same extent and on the same basis as during the corresponding period of last year, at the export price prevailing at the time of shipment. This action was taken on account of the many anxious enquiries from the newsprint consumers as to the outlook for supplies and prices and is indicative of the general attitude of the manufacturers towards the smaller con-

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 MURRAY HIL 8313 **NEW YORK**

We are always in the market and ready to pay good prices for

SULPHITES

Bleached and unbleached of Canadian manufacture Write and let us show you what we can do.

summers, who, generally speaking, will be as well looked after as the circumstances will permit.

During the week Toronto distributors for a big Canadian mill were offered 14½ cents per pound for sheet news for export to the States, but a large proportion of its product is going to the Canadian consumers at from 9c to 10½. The 14½ cents, of course, was an offer for spot lots. Roll news is being sold at $80 a ton to Canadian consumers and of course almost any price is obtainable for any that the mills may be in a position to ship across the line.

There is still a great shortage and a big demand for all classes of pulp, the ruling price for ground wood being $110. Sulphite news grade is quoted at $82.50 to $90 and easy bleaching has jumped from $120 to $163 to $170. Bleached sulphite is hard to get at from 8½ to 9½ cents per pound and while these are only nominal prices practically any price can be had by the mills if they can deliver anything outside of their contracts. Both chemical and mechanical pulps and ingredients are so scarce that this condition is reflected in the quality of paper being made in many instances. One dealer in discussing the shortage of raw material declared that there was evidence in the quality of paper delivered at times, that some of the mills were raking and scraping up almost anything that looked like pulp in order to keep their machines running. This, of course, is not a general condition for there are many mills that are keeping up the high standard of their product despite the adverse condition in respect to raw stock shortage.

All envelope, blank book and papeterie manufacturers are rushed with orders and the demand for their products keeps up, although there is general complaint that they are unable to get anything like the amount of stock they require to meet their needs. The same applies to the paper box and container branch of the paper industry, which is extremely busy, but hampered through inability to get sufficient board. All box board factories are considerably behind with their orders in this department also the cry is for raw stock.

NEW YORK MARKETS.

New York, May 15.—Demand for all kinds of paper continues pressing and there has been no visible improvement in the size of supplies available in this market. Shipments from mill centers have increased to an extent but the great bulk of paper arriving in New York during the present week has been on contract, and buyers seeking to obtain spot deliveries have met with fully as much difficulty in doing so as at any time during the railroad tie up. Many railway points are still embargoed and even those manufacturers situated on roads accepting freight have been prevented from shipping out usual tonnages of their product because of the car shortage. Then, too, even after supplies have been loaded and gotten under way, long delays are experienced before they arrive at destinations, and one of the main problems of consumers and jobbers in New York is to get paper out of the tangle existing at local freight terminals. In an effort to relieve the congestion here, many shippers are consigning paper to towns near New York, whence consignees are hauling it into the city by motor trucks.

Prices on all varieties of paper rule extremely strong and further advances have been scored in quite a number of cases. Demand for newsprint is very active notwithstanding that publishers in this and other large cities are keeping out of the spot market as buyers. Other consumers, however, appear to be endeavoring to take advantage of what would seem to be an opportunity for them to obtain supplies and are literally clamoring for print paper. Sales of newsprint in standard rolls on the spot have been recorded at 15 and 16 cents a pound within the week and there have been reports of transactions at even higher levels. Sheet news is practically not to be had, while side runs are something spoken of in the trade but scarcely to be found.

Book papers have again risen in price and the market for this class of paper rules very strong. Supercalendered book is now quoted at from 13 cents upward, with most sellers naming 14 to 15 cents, while machine finished book paper is selling at 12.50 cents up to 14 cents for spot lots. Coated book papers are extremely hard to locate in any corner of the market, mills having virtually no supply to offer for a long time and jobbers' stocks being almost totally depleted. Whether or not the loss in consumption of book papers during the railroad strike will have any effect on the market is doubtful. The probabilities are publishers will make up the loss by printing larger issues during the next few weeks, for the fact remains that the average periodical publisher could well afford to put out a much larger book if he had the necessary paper to run on. The acute situation in the book paper market is aptly illustrated by the action of one of the largest weekly magazines in the States in cutting off all deliveries into Canada and of refusing to accept subscriptions from Dominion readers. The sole reason for this procedure is the paper shortage and the resultant efforts on the part of the publisher in question to fill the domestic demand for his magizine.

Wrapping papers are in brisk demand and prices are steadily hardening No. 1 domestic kraft wrapping is selling at 11 to 12 cents a pound, No. 1 jute wrapping at 15 to 16 cents and bogus wrapping at 5.50 to 6 cents. Tissues are gradually moving upward in price and manufacturers are unable to cope with the demands made on them. No. 1 white tissue is quoted at around 1.70 cents, Manila tissue at 1.50 to 1.60 cents and kraft at 1.50 to 1.75 cents.

Fine papers are in a strong market position and quotations are constantly on the uptrend. Local jobbers have depleted their stocks and are confining their efforts to keeping regular customers supplied, while mills are sold so far ahead that they are mostly refusing to book additional orders. Prices are irregular for the reason that buyers are offering premiums to get paper; matters of cost being overlooked at present in the scramble to recover requirements.

Quotations on board, although having undergone no important change this week, still tend sharply upward despite reports that boxmakers have let up in buying to an extent. Plain chip board continues to be quoted by mills at $105 to $110 per ton and news board at $120 to $125.

GROUND WOOD—Mechanical woodpulp is in pointed demand and available supplies have shown little or no increase, which means that fully as large a part of the wants of buyers is going unfilled as heretofore. Grinders are hampered in their operations by failure to get shipments of pulpwood, and although weather conditions are daily becoming more favorable, it is doubtful whether the production has been extended. Consumers are bidding all manner of prices for spot

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

deliveries, as high as $120 per ton at shipping points being rumored paid during the past several days, yet even prices of this sort fail to bring out pulp for the reason that manufacturers haven't it to sell. A conservative quotational range on groundwood would be from $100 to $110 a ton at grinding plants, but there is but scant supply to be had at these or other figures, with the result prices are mainly nominal.

CHEMICAL PULP—Demand for chemical woodpulp continues active and such scattered offerings as are made find ready buyers irrespective of the quotations named. Consumers are so urgently in need of supplies apparently they are not stopping to consider what pulp costs them but are eagerly grabbing available lots whenever they are to be found. Very little foreign sulphite is being offered. Importers say that the prices ruling in Scandinavia are so far beyond a parity with our market values that it is difficult to put through sales here, and as far as can be ascertained there are no import houses bringing in pulp on their own behalf on the chance of being enabled to market it at a profit. Nominal quotations on foreign bleached sulphite range around 14 cents a pound ex dock Atlantic ports, while domestic bleached sulphite is quoted at from 9 cents upward, with as much as 11 cents named in some quarters. Newsprint sulphite is selling in the neighborhood of 7 cents per pound and reports have been heard of transactions at half a cent higher. Kraft is steadily strengthening in price and is no wquoted at 7 to 7.25 cents for Scandinavian kraft and 6.75 to 7 cents for domestic of standard No. 1 quality.

RAGS—Demand for certain grades of papermaking rags has broadened to a perceptible degree this week. Manufacturers have been actively in the market for white rags of practically all qualities, while roofing stock has met with a better sale. Judging from the way in which mills are purchasing whites, they are experiencing so much trouble in getting bleaching materials that they are centering their buying of rags more and more on white stock, thus eliminating the necessity of bleaching rags before they are used. Reports have been received of sales of old No. 1 whites of extra fine quality at 16 and 17 cents a pound, while about the minimum figure named by sellers on this description of rags is 14 cents. Even at these attractive values, dealers are making few sizable offerings, this being due, it is said, to the market being swept clean of large accumulations by the consistent movement of whites recently. Roofing rags are daily eliciting more interest from consumers and sales are going through involving large tonnages at a price basis of 3.00 to 3.75 cents a pound for No. 1 packing at shipping points. Thirds and blues are still mainly neglected and are quoted at between 4.75 and 5 cents for repacked stock. New cuttings are sought in good volume, with an especially brisk inquiry noted for white shirt cuttings, white lawns, unbleached musline and slight silesias.

PAPER STOCK—Most grades of old paper have advanced in price this week. The movement of supplies into consuming channels is hampered by shipping difficulties and is not yet normal, yet manufacturers have actively seeking supplies and are paying higher figures to get stock. One reason for this evidently is the tight position of wood pulp supplies, which causes paper mills to use larger quantities of waste paper, while another probably is that the decreased consumption of paper by daily newspaper and magazine publishers during the railway tie up has affected the supply of old paper No. 1 hard white shavings are now quoted at 6.75 to 7 cents a pound f.o.b. New York and most dealers are refusing to book orders under the higher level. Soft white shavings are held at 5.50 to 5.75 cents, while heavy No. 1 books and magazines have sold at 3.50 and 3.60 cents New York, recording a substantial advance. Folded newspapers are steadily moving upward in value and are quoted at around 2 cents a pound New York, while No. 1 mixed papers are freely fetching 1.65 cents and give promise of reaching higher points.

OLD ROPE AND BAGGING—Old Manila rope is firm in price and is freely inquired for by paper mills. Quotations are firm at a range of 7.75 to 8 cents for domestic rope and at around 7.25 cents for foreign rope. Strings are selling at 3.10 to 3.25 cents per pound f.o.b. New York. No. 1 scrap bagging is moving rather slowly and is available in good sized tonnages at 3.25 to 3.50 cents New York.

BRITISH PUBLISHERS PROTEST.

London, April 28—Newspaper publishers to-day planned to protest the action of the Norwegian Government requiring paper mills in that country to supply home newspapers fully at less than cost price, or halt operations.

Most British and French newspapers depend on Norwegian exporters for their supply of print paper. The action of the Norwegian authorities, publishers said, would force them to buy newsprint in Canada or elsewhere at higher prices.

Note: So Norway will attempt what failed in Canada. Perhaps the publishers are wiser there. We wonder how British publishers would feel and act if their confreres in Canada attempt another hold up of the papermakers here.

P. A. P. A.

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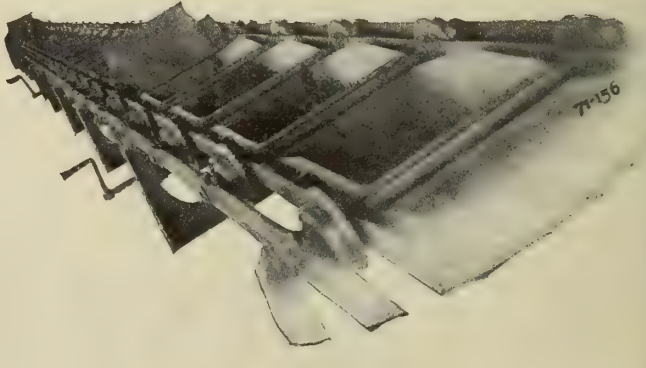
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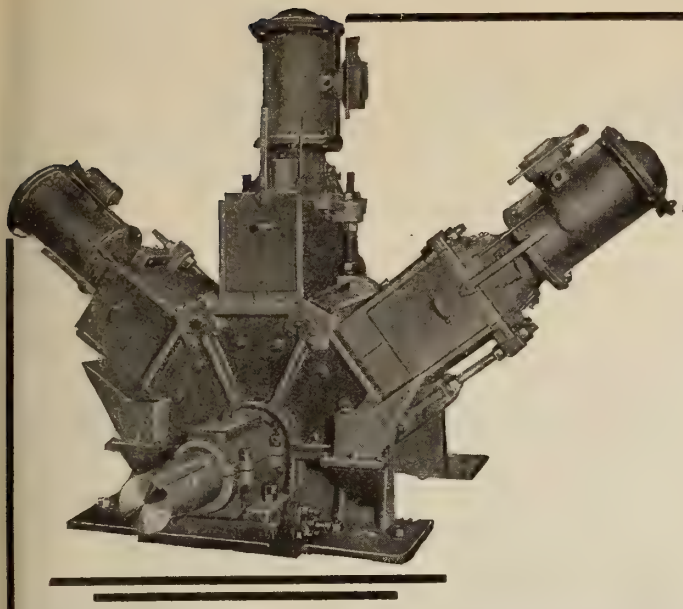
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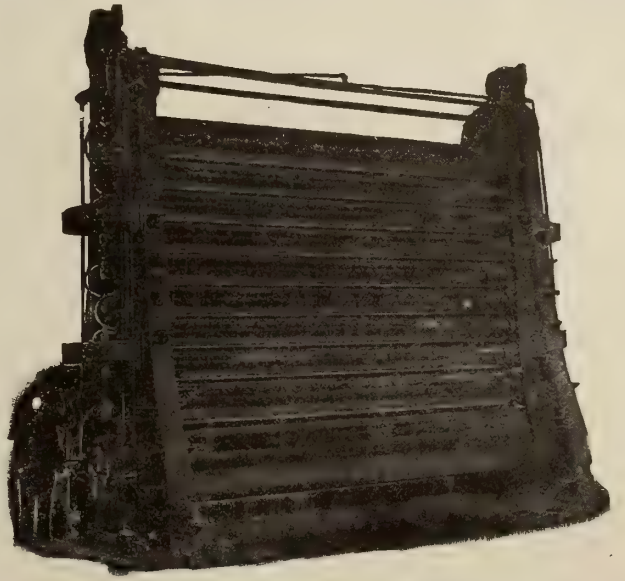
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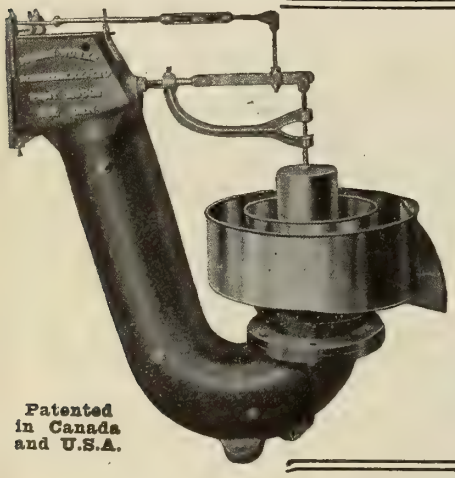
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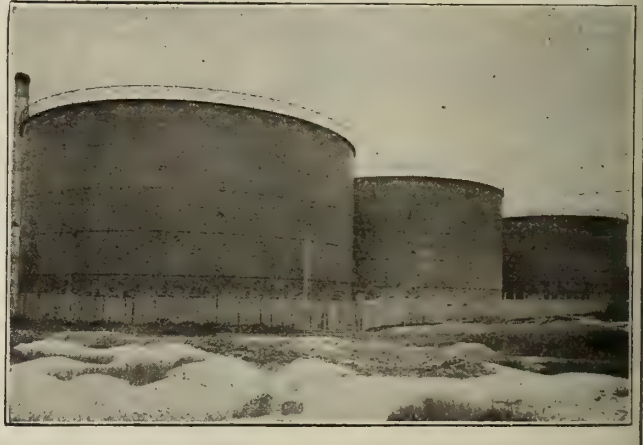
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Q., May 27, 1920. No. 22

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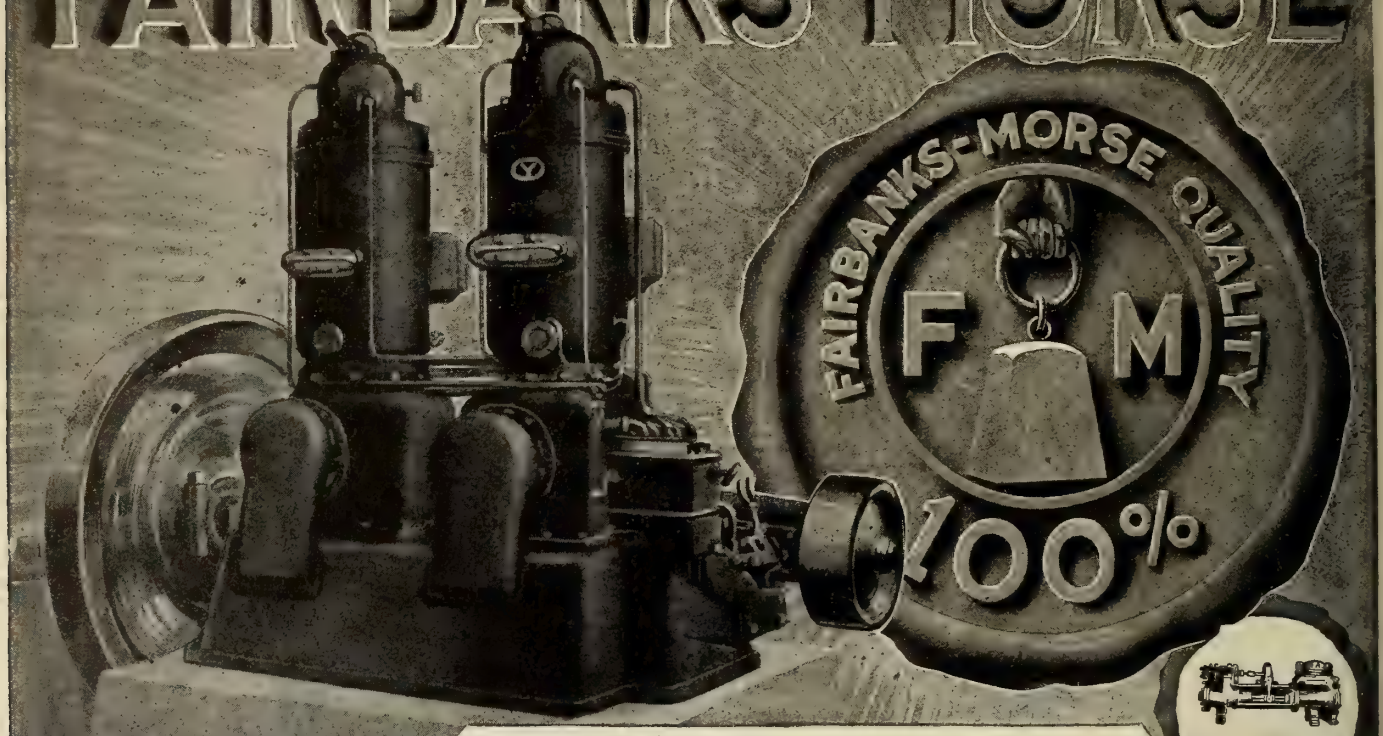
J. NEWELL STEPHENSON, M.S., Editor.

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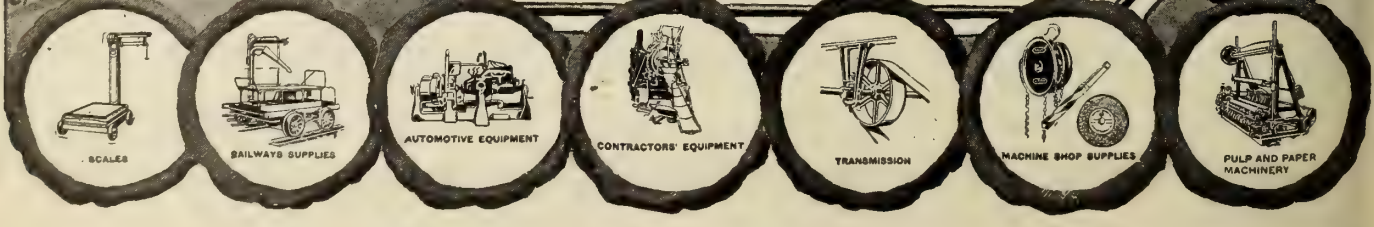
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-:- EDITORIAL -:-

STIRRING UP THE DEAD ONES.

Prof. J. A. Dale, in a recent talk to the chemists of Montreal made the significant statement that we should think more of the illimitableness of Canadian resourcefulness. Most discussions of Canadian development have been based upon conceptions of the natural resources of the Dominion and some of these conceptions have proved to be far from accurate, some of our natural resources having been grossly over-estimated as to their extent and value, while the extent of others no doubt goes far beyond any present indications. The greatest resource, however, is the resourcefulness of the people, as Prof. Dale remarked. The principal instrument for the development of it is the mind, and the keener and better trained the mind the greater and more rapid will be the development. Resourcefulness is largely the ability to use common sense, or the quality which the Yankees call gumption. It is possible, however, to increase very greatly the capacity for using this valuable characteristic by proper educational methods.

Practically everywhere the educational programs in present use, with the exeception, quite recent modifications, are the same that were used years and even generations ago. Geography is taught the same way; history the same way, except for adding the events of the more recent years as the title page gradually comes to indicate that the text book is no longer up-to-date and needs revision. Arithmetic still teaches the boy in the paper mill to estimate the amount of paper or carpet required for a room when he might just as well apply the principles of arithmetic to finding out the production of the paper machine, the percentage of waste in various departments or the cost of coal per ton of product. He might just as well be calculating the contents of a log or a digester as to be figuring on some assumed problem that means nothing to him. And how much better it would be if he could be taught to measure accurately before making his calculation. Much the same line of argument runs through the manner of teaching other subjects in the curriculum. Authors of text books have found it easy to put in combinations of figures where the introduction of some familiar objects from experience would be a potent factor in persuading the student to continue his school work. The teacher with initiative can of course, correct a good deal of this difficulty by supplementing the cut and dried (exceedingly dry) text books by applying to the lesson a few local and familiar examples.

The need for revision of school methods does not end with the primary departments. Improvement has begun there. While the arousing of interest among the younger pupils is important, it is even more important to keep up their enthusiasm. For the pupil who becomes weary of study and especially the one who feels that he cannot afford to go to a higher institution, the class-room becomes a prison at just about the time when he should be getting instruction that will be of the greatest economic value to him. With the introduction of compulsory school attendance laws, there rests a heavy and pressing obligation on the educational authorities to provide a type of training for the boys and girls at the critical age when many of them would ordinarily drop out of school work, and provide a kind of training that will not only keep them interested but be of the most direct and immediate use to them when they do leave the school-house for the workshop, store, office or home. To provide for the educational requirements of modern conditions the educationist is not alone responsible. In fact he can but plan and outline methods. It rests with the community to shoulder the greater responsibility of furnishing the means for carrying out the plans that the educational enthusiast is only too glad to work out for the improvement of our schools.

Vocational education is not only the great need of our industries because of the lack of intelligent and skilled workers but is a need of the workers themselves in order that they may be more efficient and, consequently, more productive, therefore capable of earning a greater financial return. The productiveness of our industries is very closely connected with the educational advantages that have been enjoyed by the workers as well as by the management. In order to provide the suitable vocational training which is called for by the principal activities of our various communities, there must first of all be suitably trained teachers and then there must be proper equipment. This, of course, means money temporarily out of the pockets of the present taxpayers, but it means a very greatly increased earning power for those who are thus provided with a suitable education, a type which not only makes the compulsory continued stay in school bearable but makes it attractive and productive.

Some time ago we had occasion to mention in a

similar connection the harmful effect of retaining on school boards and other bodies having educational authority, those who have not a proper and up-to-date appreciation of present day problems and the need for modern methods of meeting modern needs. It is said that human nature does not change, but the environment of the schoolboy today is not the same as the circumstances surrounding the boyhood of men who are now fifty to seventy years of age. In many cases it is men of the latter type who hold places on school boards, much to the misfortune of the boys and girls who must swallow the pills that these rusty old fogies prepare for them. There are some of these dear old men who are young in spirit and entirely up to the times, but there are many others who have long since gone to seed but who, having gone to seed, have failed to sow what should now be appearing as a flourishing crop of educational ideas and educated youth. Too many times appointments are made because of former prominence in educational matters, early ability in administrative affairs, political influence or personal friendship that endeavours to keep someone in the harness. In many cases it is apparent that the end sought, namely, the proper training of the pupil is entirely lost sight of. The idea of appointing school committeemen for life, while having the advantage of continuity of program has a distinct disadvantage of inducing some people just to sit by and let things drift. That might be all right if a current always meant progress, but in nearly every current there are eddies and the difficulty is that here and there we find communities where the educational eddy has been keeping the local schools going round and round in an ever narrowing circle while the broad stream of progress passes on. What is needed is a little educational engineering which will strengthen up the banks of the stream, remove some of the old snags and deepen the channel. We need to apply engineering methods to the problem so as to increase the power of this great current and get from it more and more service for the benefit of the community. It takes men with energy and enthusiasm to do work of this kind and there are many of them in each community who would be glad of the opportunity to do a work that they might be proud of in this most important branch of public service.

Vocational education is not the only feature of the problem that needs immediate and careful study and improvement, but with the ever-increasing tendency to raise the age limit for compulsory school attendance it is undoubtedly the most pressing of all our educational problems at the present time. We must begin at once to train the teachers, establish a salary standard, and provide the equipment that will be a credit to our country instead of permitting further continuation of the condition of affairs that, in many cases, is a public disgrace.

COBWEBS.

An interesting suggestion comes from our New York correspondent in the intimation that paper mills are buying white rags so as to save on the consumption of bleaching powder. The shortage and price of bleaching powder at the present time is very curious. Prior to the war bleaching powder was abundant and reasonable in price. During the war enormous quantities were required by the governments for the gas warfare that had been instituted and it was necessary to divert much of the chlorine previously used for paper making into military uses. A number of new plants were said to have been constructed to meet the demand of that time. What has become of them is a cause for wonder as there is now a rather tight situation and some pulp mills have even been obliged to curtail their production of bleached pulp because of the difficulty in getting supplies of bleaching powder. This is just another curious aftermath of the war where the pendulum has not only swung back to its mid-position but has travelled part way on the other swing.

The editor would have to take some lessons before he could very accurately estimate the number of cords of pulpwood on an acre, and would require a good deal of experience before he would submit figures confidently of the stand per acre on a thousand square miles, but those who do know the actual conditions in the Canadian forest are strongly of the opinion that two per cent is much nearer the annual increment of growth than 4 per cent is and also that five cords per acre is a bit too optimistic a figure to use in calculating available pulpwood.

Efforts are always successes. It is a greater thing to try without succeeding than to succeed without trying.—Ex.



Courtesy of "Le Digesteur".

Labor Unions -- Their Advantages and Possibilities

Big men, men of vision, broad minded men of the business and manufacturing world today, whether they be employers or employees, whether circumstances have placed them in the council chambers of capital or in the ranks of labor, realize that the future of our civilization depends on the inauguration of an era of peace and goodwill on earth to men in all grades of society. It is a curious commentary on the mass intelligence of the race, that it has taken nearly two thousand years for this primitive truth to sink into the dense mass consciousness of mankind. The realization of this great primal truth is working like a leaven of hope today in the matrix substance of civilization. In spite of the clamor and noisome energy of the noisy minority of red radicals, human society is showing a return to health, a recovery in circulation of the life giving fluid of good will, that is the very blood of our body politic. The effervescent disgrace of radical revolutionaries may even be considered the casting out, as it were, in the form of boils, of the impurities that have found a lodgment in our civilization, due to the natural greed and improvidence of mankind.

It is probably true, that to a large extent the survival of our present civilization, and its further progress towards a finer type, that seems to be now the augury of the future, may be dueto the union labor movement and its success in maintaining the rights of the laboring man. Had some such movement not obtained in the last one hundred years, there is little doubt that this present era of the history of man would have finished in a debacle of bloodshed and destruction similar to that which closed the history of ancient Rome. We modern nations would have succumbed under the inroads of the tribes from the great steppes of Eastern Europe and Asia, as did the Roman Patricians, who could not depend on the man-power of their slaves for the protection of the Empire.

It is an axiomatic truth, that as long as the actual practices of our religious life are more evidenced by precept than by example, that the inherent greediness of our nature will always be the most striking characteristic of our behavior.

Such a condition must result in a fermentation and culture of the germs of fatal political diseases. It follows, that unless we depart from the old ways, the history of dead and gone civilizations must be repeated in the case of the present.

The labor union movement, which we have assumed has acted largely as a preventative and a cure for the ills of society, has in the past and partly in the present been almost as disagreeable as the disease. In too large doses it can be as fatal. Let us try and determine the curative agent, that undoubtedly exists in this sociological remedy, so we can segregate it from the deleterious elements with which it is undoubtedly mixed.

The attitude of labor unions in the past has largely been a reflex of the attitude of the employers. These false attitudes have caused the mischief, that now shows so plainly. They exist because of the lack of effort on each side to understand the other. The partially justified want of confidence in the ulterior motives of the opposing force has prevented each from rationally looking for the possibilities of real mutual benefits, that like hidden but numerous nuggets of real gold are buried in the muck and dross of human cupidity now causing the misunderstandings and unnecessary quarrels of the present day.

As the labor unions increase in number, power and wealth, they are learning by experience some of the anxieties and risks that the business man or capitalist has to contend with. They are beginning to see how large a part the initiative of the employer of labor has had in the upbuilding of our civilization. They begin to understand the necessity for maintaining the inviolability of signed agreements. They are beginning to realize that business ethics are real, that they probably even now far transcend the limit of reliability and quality of the ethics of any other division of our communities. No firm in our days can expect to continue long in the business world that does not measure up to the requirements of its code of ethics.

On the other hand the employers of labor are grasping the truth, that the real unit of our civilization, if it is to endure, must be the human being and not the dollar. They are realising that a contented, enthusiastis employee can turn out more work in two days than a discontented workman in a week, and that the product also will be better.

It is becoming more evident every day, that when time is not an essential element in production, as it is for instance in the case of an automatic piece of machinery, that the value of labor as to quantity and quality cannot be measured by time, that it is not a commodity in this sense. Bonus systems in shops have shown how easily the employees can earn a week's salary in two days when the incentive to do their best exists. During the war the allied nations found unexpected sources of production in the ranks of laborers inspired by patriotism. The dormant creative instinct of the underling when allowed room to breathe, which is rarely the case under normal industrial conditions, achieved startling results. Employers now are beginning to realize that the artificial limitations of today that cramp the laborer's pocket book, leisure time, and initiative, are not by any means obtaining the results they were originally intended to produce.

As both sides of the industrial world are forced by facts and figures to reduce the number of misunderstandings that now divide them, the possibility of looking forward to a fairer, squarer world, with equality of opportunity for happiness for all, is conceivable.

It is probably a basic truth, that you cannot expect a human being to be morally healthy if he is not physically comfortable as far as is humanly possible. If a man is hungry, poorly clothed and housed uncomfortably he will not develop a very high grade of ethics. It is easy to be good when one is happy. Given ordinary comfort in living, freedom from anxiety, and any healthy human being will give honest service for value received. Low living and high thinking do not exist together in a cold climate, or in a civilization which has so largely increased the necessities of the civilised man, however well they may have travelled in double harness in Asia Minor two thousand years ago. There are places today on this old globe where nature is generous in warmth, shelter and food, and where custom requires but little raiment, but these delectable spots are not part of the labor problem, indeed they know nothing about it, and care less.

Before sketching the advantages and possibilities of a perfect paper makers' union, I will offer a few statements, which I believe to be descriptive of facts in the labor world today.

(1) The new recruit who is first starting in to learn a trade is a liability and not an asset for a period of time, which period varies in length according to the ability and industry of the individual. He must be paid during this period in excess of his earning ability measured according to present standards.

(2) There is always a certain percentage of beginners who never get beyond the liability stage of development. These employees are laid off in hard times, they go to swell the great army of the unemployable before their life is over. Not the unemployed, but the unemployable.

(3) That labor unions do not always consider that labor is not a commodity. They measure it in time and by number of men instead of by quality and quantity of actual service.

(4) That employers, through ignorance too often reward servility and inefficiency rather than independent manly service.

We could easily add to the above list, for the perusal of it instantly opens a train of thought that leads (in many directions.)

Let us now suppose that some day in the ranks of labor we shall find unions that do not measure labor as if it were a commodity of a fixed value, that such unions would be not only reliable in that their word would be as good as their bond—and their bond as good as a government bond,—but that their treatment to their own members would cause all craftsmen to wish to belong in their ranks. Let us consider what such a union would have to be in order to achieve the reputation and reliability defined above. To the writer's mind such a union, as a supplier of labor, would not only rank above any manufacturing establishment in the value of its product, but would also be a business organization of vast financial possibilities whose shares would always be quoted above par.

To achieve such an unassailable place in the business world the union would deliver quality of labor as specified, it would contract with an employer to deliver such labor and live up to the last jot and tittle of the terms of its contracts. In order to fulfill its obligations as a purveyor and controller of labor such a union would be forced to maintain a properly appointed office, including not only the clerical aid necessary to keep its collections and disbursements recorded, but also a competent business organization. For instance, its staff and its employment bureau would control the labor of the trade in much the same manner as the old trade guilds of the middle ages, to which no man could belong in a given grade without qualifying under the jealous eyes of a master craftsman.

Contractors, mills, and manufacturing establishments could rely on such a union to provide them with efficient help and, not only could, but would gladly, dispense with the services of their own employment agents. Such a union would insist that a member to maintain his standing in the trade or improve it, would have to stand on his record of ability with the customer as well as with the examiners of his union.

Such a union would maintain proper facilities in the way of training schools and instructors so the member who wished, could improve his rating and status in the union and therefore his earnings. The rating given a man by his union would then be a valuable certificate of worth in the eyes of all men in the business world. The member in good standing in such a union would then be independent of the personal prejudices for an employer. A papermakers' union for instance would supply any grade of paper maker in any quantity to any place on requisition, from the apprentice class to the mill superintendent grade. It is conceivable that a union of this character could so stabilize the paper making trade, that not only would wages be higher, and employment more constant, but the whole industry would be benefited and placed in an unassailable position with respect to foreign competitors. Let us suppose for instance, it was decided to increase the export trade of the U. S. into some foreign country, or to begin to open a new market. With such a union in charge of labor conditions, the first step would be to ask its advice and assistance. The business man, the capitalist, the entrepreneur could then afford to be holder and take greater risks if the labor element of his problems should be honestly handled by a reliable union more anxious to be right, than to prove itself right.

The sense of security such a union would give its members in good standing would largely increase their working efficiency. The protection it could give its members in their contract rights, their patent rights, etc., would be powerful. Its financial and business reputation would enable it to develop methods and processes to the benefit of the trade.

If the paper makers' union such as we here faintly sketch should exist strong and reliable, above the petty futile tricks evidenced by unconsidered and hasty action, it would not be long before a return of the old feeling of human companionship would ensue, the old sense of brotherhood, that was characteristic of the trade guilds of the middle ages when the sole qualification for membership was that the applicant be a good journeyman or a real master workman. Employment of labor would be then a measuring of actual value given for wages paid, as it was in the old days when workmen wrought with greatest care each hidden and unseen part.

The immense power such a union would exercise would depend on its character and reputation for square dealing, and it would necessitate in all probability the services of the best legal advice. Its control of the paper industry would probably necessitate strict government supervision of its internal affairs, but it would confine within its own limits all the labor troubles that are now fought in the open to the detriment of all concerned and such a limitation and localization of friction is surely greatly to be desired. Such a union by its existence would eliminate the present apparent advisability of making a firm's affairs the common knowledge of its employees in order to forestall labor troubles, evidently an annoying and almost impossible thing. Did you ever try to explain trigonometry to a day laborer? Such a union would decide in bulk similar questions that now make innumerable smaller disturbances in widely differing fields.

Let us hope that the present day unions will organize with such an aim in view, looking towards larger responsibility with a wider vision and so give us industrial peace and industrial security. Why should they be like some of the more illiberal employers and regard the industrial world as a battle field, where each man guards his own and so be unable to see the big guiding principles that alone can lead to peace on earth and good will among men? While this view maintains, then there is little hope, unless indeed both sides scale the heights and broaden their horizons, so compelling the great public they serve to respect them not only because of their size and number, but because of their quality and character.—J.W.B.

Restrictions Upon the Use of Pulpwood Cut From Provincial Crown Lands

A Reply to Arguments Made Before the House Commi ttee on Foreign Affairs at the Hearings on the Underwood Resolution Respecting the Importation of Pulp wood from Canada.

(Bulletin of the Canadian Pulp and Paper Association.)

The Situation in Canada.

If the facts of the Canadian pulpwood situation were anywhere near as represented in the argument presented at Washington, there might conceivably be some basis for the claim that the restrictions on Crown land pulpwood ought to be lifted, at least to some extent. However, there is no such relationship.

In that argument, the discussion covers Quebec, Ontario and New Brunswick, but goes into particular detail with reference to Quebec. It purports to set forth the United States viewpoint. but does not indicate what may be the Canadian viewpoint. A full discussion is obviously in the interest of all concerned, as tending to remove unjustifiable and unnecessary friction and feeling on both sides.

The fundamental assumptions and the calculations upon which the argument in question is based, are so impossible as to carry their own refutation to the minds of any persons who are in any way familiar with the pulpwood situation in Eastern Canada. It is, of course, greatly to be regretted that the extremely roseate view of the Canadian situation set forth by the argument does not accord with the facts.

The argument sets forth that the 44,800,000 acres of licensed Crown lands in Quebec contain an estimated average stand of 5 cords to the acre, thus giving a total stand on these licensed lands of 224 million cords of wood. At an estimated annual growth of 4 per cent, the annual growth on the licensed Crown lands would thus amount to 8,960,000 cords. Using the same basis of computation the entire Crown lands of Quebec, licensed and unlicensed, comprising 121,600,000 acres, would, at 5 cords per acre, contain a total stand of 608 million cords. At a growth rate of 4 per cent there would thus be a total annual production of 24,320,000 cords which may be removed without reducing the size of the forest or its value to the province. It is further set forth that should Quebec consent to lift her restrictions on Crown land wood, licenses of the more remote limits would be purchased at large bonus prices per square mile, and a provincial Crown timber revenue of $24,000,000 per year might be attained. It is argued also that labor in Quebec would share in the large expenditures that would be required to improve the rivers, build preparing plants and harvest the pulpwood in the enlarged operations.

The statement is also made that the same computation would apply with equal force to Ontario and New Brunswick, Quebec having been selected as the example on account of its proximity and its great forest wealth.

The further argument is advanced that, "it is a well-known fact that the cutting of the mature timber in a forest, thus opening the woodlands up to sun, light and air, promotes the growth of the standing trees." If all these assumptions are correct, the question may properly be asked why the extensive pulpwood areas in the Eastern States do not now contain a stand of 5 cords per acre, growing at the rate of 4 per cent per annum. The answer of course, is that logging has been carried on in a destructive way, and fires have followed the logging operations, completely destroying the productive capacity of the land over vast areas, and greatly reducing it on a large proportion of the remainder.

The same conditions of destructive logging have, as a matter of fact, obtained in past years over very large areas of forest in Quebec, Ontario and New Brunswick, and fires have here also taken their tolls and rendered great areas entirely or relatively barren. It is only during comparatively recent years that there has been any actual restriction upon methods of conducting logging operations in Quebec and New Brunswick, and there is even yet no such restriction in actual effect in Ontario. Not until about seven years ago was there any real beginning toward adequate fire protection in Quebec; in New Brunswick, there was no effective protection from fire previous to four years ago, and the work of forest protection was never organized on anything approaching an adequate basis in Ontario previous to three years ago. Even yet, forest protection lacks very much of being really adequate in any province of Canada. It is, therefore, literally true that until comparatively recent years, the same destructive conditions were operating in the forests of Eastern Canada that have now so nearly wiped out the former splendid forests of the Eastern States, and they are still operating in Canada to far too great an extent for the welfare of Canadian forests.

It must further be borne in mind that the areas of forest in Eastern Canada which are reasonably accessible to existing means of transportation have, to a very considerable extent, been culled over, or logged out, during the period since the earliest settlement of the country.. The original stand has thus, by cutting, and by fire, been reduced to a very material extent. Probably not less than one-fourth of the balsam in Quebec and one-third of the balsam in New Brunswick have been destroyed by the budworm during the past ten years.

A growth rate of 4 per cent is assumed in the argument submitted to the Committee at Washington. Reference is there made to "the generally accepted estimate of an annual growth of 4 per cent of a scientifically lumbered forest." It may be sufficient at this point simply to remark that, viewing the situation as a whole, there is no such thing as a scientifically lumbered forest of any material extent anywhere in Eastern Canada, as there has aso been nothing of the kind in the Eastern States. What might be the rate of growth on a large area of pulpwood lands under intensive scientific forestry practice has yet to be demonstrated. The practice of forestry is, as has been stated, still in its veriest infancy on Crown lands in Quebec and New Brunswick and is non-existent in Ontario. Reliance is placed for the most part upon diameter-limit regulation, which has been repeatedly shown to be ineffective in maintaining the productive capacity of mixed forests, particularly where only the valuable conifers are logged, leaving the less valuable hardwoods to take the ground in constantly increasing

proportion. Most certainly, there is no basis for the assumption of an average growth rate of four per cent throughout the entire Crown land area of Quebec, Ontario and New Brunswick.

With regard to the diameter limit system of regulation, Prof. H. H. Chapman, of the Yale Forest School, writing in the American Lumberman for July 10, 1909, said:—

"In deciding on the amount and kind of timber to leave standing, the owner may have in mind only the second crop. In this case he will remove all his old timber and large sizes, leaving only the smaller diameters, and might attempt the operation on the basis of a diameter limit high enough to secure a reserve of the size desired. But there are decided objections to this method, even from the standpoint of the second crop. A diameter limit ignores the two main factors which will give value to the second crop—soundness and ability to grow. It also ignores the matter of distribution or spacing of the trees left, upon which growth in the next period largely depends, and it tends to leave large blank areas which will not seed up, so that the seedling crop is not fully secured. The results of cutting to a diameter limit must therefore be very disappointing and the value secured at the end of twenty years must fall far below the results which might be secured on the same area, leaving the same amount of timber standing, providing an intelligent system of selection is used in the first cutting."

Along the same line, the following is quoted from an address entitled "Logging to a Fixed Diameter Limit in the Adirondack Forests," by Dr. H. P. Baker, then Dean of the New York State College of Forestry and now Secretary of the American Pulp and Paper Association:—

"The theory on which the idea of cutting of a rigid diameter limit is based as ordinarily advanced is that there are in every forest a lot of half-grown trees which in a short time will produce merchantable timber. Those of you who are familiar with the Adirondacks do not need to be told that in our virgin forests there are many trees below the usual diameter limit which may be very old and which if left exposed to wind and light might not stand windfall or live, to say nothing of growing in diameter, through the period until the next cutting. Again, there are many trees just above the fixed diameter limit which may be growing rapidly and which, if left until the next cutting, would put on a very large amount of timber and be much more valuable than at the time of cutting.

"Growth conditions in a virgin forest are always unsatisminds the fact that the fixed or rigid diameter limit The struggle for space and light is often tremendous with the resultant retarding of growth or resultant occupation of the soil by wrong species. Prof. Edwin F. McCarthy of the N.Y. State College of Forestry, while Acting Director of the State Ranger School at Wanakena, made several hundred complete stem analyses on the Proulx Cuttings near Cranberry Lake, in 1914. These analyses showed that the average spruce trees of that section of the Adirondacks require 100 years to reach five inches in diameter, breast-high, while the same trees are about 200 years old at maturity. That is, in the virgin forest the struggle through which the under-growth goes is too intense and it takes too long a time for the spruce to reach a minimum size and instead of it taking 200 years for the Adirondack spruce to reach maturity it should, on a proper carrying out of the selection system, be brought to maturity in from 80 to 120 years, depending upon soil and situation.

"This brief statement as to the advantages and disadvantages of fixed diameter limit I hope has left clearly in your factory. That is, a virgin forest, is not a profitable forest. has proven itself to be out of place in forest practice in this country. Necessarily, as long as the selection system is used there must be a selecting of the trees to be taken from the forest at the end of each cutting period, but progress in forestry is meaning the application of a trained as well as a common sense elastic diameter limit. (Guess-work in a sense is chief disadvantage of fixed diameter limit). There is everywhere a turning away from the rule of thumb methods in forestry to a greater use of the personal judgment of trained men and it is resulting in a very satisfactory working out of the selection system, where that is used.

"In marking to-day the individual tree is considered in all its relations. It is quite essential that we maintain a balance between the amount cut and that left in the forest. This balance need not be maintained over small areas but should be considered carefully over considerable areas. That is, in the taking out of injured, suppressed, or stunted trees below a theoretical limit, the ranger or forester should leave enough of the firm and thrifty trees above the limit to counter-balance those trees which he removed and which were below the limit, and to do this properly he must use judgment resulting from both training and experience in marking the trees."

These quotations are given simply to show that adherence to a rigid system of diameter limit regulation, such as is for the most part in effect on Crown lands in Quebec and New Brunswick, does not by any means constitute really advanced forestry practice. This is no reflection upon the provinces of Eastern Canada, of which Quebec is the most advanced, followed by New Brunswick. Ontario will no doubt make a beginning in the near future. Economic conditions restrict the rate at which the practice of forestry methods may be made effective, besides which it takes time to secure and develop an adequate staff of competent foresters and to build up, by patient research in the forest, a body of scientific knowledge upon which can be based a set of regulations for each type or condition of forest, and which shall at the same time be correct from the scientific viewpoint and practicable from the viewpoint of the operator. At the present time, merely a start has been made in gathering such specific knowledge, through research by the provincial Forest Services of Quebec, New Brunswick and Ontario, the Dominion Forestry Branch, the Laurentide Company, the Riordon Pulp and Paper Company, the Bathurst Lumber Company, the Abitibi Power and Paper Company, and the Commission of Conservation of Canada. The latter organization is co-operating in this work with the Forest Service of New Brunswick and with the several commercial companies mentioned.

Great emphasis is laid in the argument made at Washington, upon the statement by Premier Gouin of Quebec that **with proper management** there might be cut from licensed Crown lands in Quebec four times or even five times more than the one billion feet per year now being cut from such lands. The way in which this statement is used constitutes perhaps the most vital flaw in the whole line of argument advanced. An official statement issued by the Provincial Government at Quebec places the total cut from licensed Crown lands at approximately one billion feet board measure, roughly equivalent to two million cords. This, however, covers all species of timber, including spruce, balsam, jack pine, hemlock, white pine, red pine, birch, and poplar and other hardwoods, whether cut for lumber, pulpwood, railway ties, square timber, poles or firewood or for other purposes. That this is quite consistent with the statement of the Premier is shown by the following extract from his address, delivered at the annual dinner of the Canadian Pulp and Paper Association, reported at page 155 of the Pulp and Paper Magazine for January 12, 1920:

"We now cut about one billion feet of timber from our forty-five million acres of leased land, and I might tell you that with proper management we might cut four times or even five times more than this quantity without endangering the future of our supply. This, gentlemen, is from the lands under license. This does not include in any way the seventy-five million acres of land which is still free and belongs to the Crown."

The interests presenting their case at Washington immediately assumed, however, that this entire amount

is of **pulpwood species**, and the question might be asked as to whether the same vital fallacy extends also to their assumption as to the total contents of the stand, averaging five cords per acre over the entire Crown land area of the province. To have any bearing upon the present discussion, the estimate must obviously be limited to pulpwood species, and, more particularly, to those species which are actually being utilized on a large scale in the manufacture of newsprint. This point is discussed in the following pages.

It should be noted, further, that Premier Gouin's statement obviously refers to a possible condition in the more or less distant future, rather than to the present situation or even the immediate future. He also emphasizes the importance of utilizing the hardwoods, which is now generally regarded as economically impracticable on the more remote limits. Until the hardwoods in the mixed forests can be removed and utilized, the rate of growth of the pulpwood species can not approach the ideal suggested, quite aside from the lack of cutting regulations based upon the local conditions on each area and the lack of an adequate force of foresters to enforce such regulations were they in existence. Further, it takes a long period of time, even under the best management, for a depleted forest to be restored to a satisfactorily productive condition. It will thus be seen that the figures of possible growth quoted from Premier Gouin's address refer to a possible future ideal which may ultimately be attained, but which have no actual bearing, or only a partial one, upon the situation as it now exists.

Pulpwood in Quebec.

Let us consider now the estimates put forth as to the amounts of pulpwood timber in Quebec.

The point which should be considered in this discussion is not how much total wood volume there may be on the average acre, which is presumably the basis of the argument made before the Washington committee, but how much there is of the species which are suitable for the manufacture of newsprint. Speaking practically, this means spruce and balsam. While there are large quantities of jack pine and poplar, neither of these is a newsprint species, under existing methods of manufacture. Jack pine is used primarily in the manufacture of wrapping paper, and poplar in the manufacture of book papers.

Any reasonable discussion of the situation should also be restricted to timber which is actually accessible to existing means of transportation. It is undoubtedly true that there are large amounts of timber suitable for the manufacture of newsprint far beyond the reach of existing transportation. This is particularly the case in Ontario and Quebec.

The Provincial Forester of Quebec, Mr. G. C. Piche, estimates that there are in the entire province 360 million cords of pulpwood, including spruce, balsam, poplar and jack pine to four inches in diameter. This is based upon an area of 45 million acres of licensed Crown lands at 4 cords per acre, totalling 180 million cords; 75 million acres of unlicensed Crown lands at 2 cords per acre, totalling 150 million cords; and 6 million acres privately-owned lands at 5 cords per acre, totalling 30 million cords. These figures must, however, be reduced in order to determine the amounts of spruce and balsam. On licensed Crown lands, 80 per cent may, according to Mr. Piche, be assumed to be of these species, 50 per cent on the unlicensed Crown lands, and 100 per cent on privately-owned lands. This would give an estimate for spruce and balsam on licensed lands of say 145 million cords, on unlicensed lands 75 million cords, and on privately-owned lands 30 million cords, making a grand total of 250 million cords of spruce and balsam for the entire province. These are, of course, rough estimates, based upon incomplete data, but they are based upon the best information available, and there can be no possible question that they have a far better basis of fact than the figures given out in Washington, which indicate a total stand of 608,000,000 cords.

Not all of this timber is, however, accessible to existing means of transportation. Making a reasonable deduction for timber commercially inaccessible, we would have 140 million cords of spruce and balsam for licensed Crown lands, 45 million cords for unlicensed Crown lands, and 30 million cords for privately-owned lands, leaving a total of 215 million cords of commercially accessible spruce and balsam to 4 inches diameter.

If, however, we are to consider these estimates from the viewpoint of the number of years supply available, a further deduction must be made. In the first place, the province imposes a diameter limit of 7 inches upon balsam and swamp spruce and 12 inches upon all other spruce. Consequently, there is a very considerable amount of this timber, comprising the capital or growing stock, which is not allowed to be but because of this restriction. In the second place, there is always a shrinkage between the woods and the mill, due to unnecessary waste in logging, merchantable material left uncut which will be lost because of insects, decay or wind-fall before the next cut, logs stranded along the shores of lakes and streams, and logs lost by sinkage during the drive. To get at the amount of timber which may actually be available at the mill, it may conservatively be estimated that a deduction of at least one-third must be made, due to these several items of shrinkage.

If such a deduction be made, we would have of really available spruce and balsam, approximately 100 million cords on licensed Crown lands, 30 million cords

	Licensed Crown Lands	Unlicensed Crown Lands	Privately Owned Lands	Totals
	Cords	Cords	Cords	Cords
Spruce, balsam, poplar and jack pine to 4 inches diameter	180,000,000	150,000,000	30,000,000	360,000,000
Spruce and balsam only, to 4 inches diameter	145,000,000	75,000,000	30,000,000	250,000,000
Commercially accessible spruce and balsam to 4 inches diameter	140,000,000	45,000,000	30,000,000	215,000,000
Really available spruce and balsam, after deducting what cannot be cut under provincial regulations and for waste and loss in logging and driving, and for defective balsam	100,000,000	30,000,000	25,000,000	155,000,000

on unlicensed Crown lands and 25 million cords on privately-owned lands, or a total of 155 million cords.

According to the Dominion Bureau of Statistics, the 1918 cut of spruce and balsam in Quebec for pulpwood and lumber, was nearly three million cords. Of this amount, 885,772 cords was exported to the United States and may be credited to lands in private ownership. Also, a considerable volume of the wood from privately-owned lands was manufactured in Canada.

Taking the situation as a whole, with 155 million cords of actually available spruce and balsam, on the basis of delivery at the mill, and cut in 1918 of around 3 million cords, we would have, at the present time, the equivalent of 52 years supply.

Beyond this 52 years supply of available pulpwood, at the 1918 rate of cutting, dependence must necessarily be placed upon annual growth for the continuance of operations. As a matter of fact, the rate of cutting is increasing steadily, due to new developments and the extension of existing plants. In addition to the accelerated rate of cutting, it must be borne in mind that some fires will inevitably occur and that there will be serious losses from insects and decay. Balsam is particularly susceptible to attacks by the budworm and to injury by butt-rot and heart-rot. It is estimated for example, that around 25 per cent of the balsam in Quebec has been destroyed by the budworm in recent years, as already stated. .

The extension of existing means of transportation may of course be expected to open up new sources of supply, to a certain extent. There is, however, a distinct limit beyond which this will not be commercially feasible.

Considering first the 45 million acres of licensed Crown timber lands, it is reasonable to assume that of this area, not less than one-third will consist of water surface and of land areas rendered barren and unproductive by reason of repeated fires. This would leave 30 million acres of potentially productive land. If we assume an average annual rate of growth of one-tenth cord per acre, we would have a total annual production of 3 million cords for licensed lands. This necessarily assumes the existence of efficient fire protection which, of course, is for the most part already in existence with reference to licensed Crown lands This rate of growth can undoubtedly be increased when it is found possible to utilize the hardwoods which occur in mixture with the conifers, over large areas in the Province of Quebec. The hardwoods at the present are, for the most part, left uncut at the time of operation, and, by their shade and competition for soil moisture, greatly retard the growth of the young conifers beneath them. Further, the rate of growth can unquestionably be increased by the adoption of scientific methods regulating the cut. The diameter limit method of regulation, while incomparably better than no regulation at all, is still only a make shift and does not by any means take the place of the practice of real forestry, as already discussed.

There are reported to be 75 million acres of unlicensed Crown lands. A very considerable part of this area is beyond the reach of any existing means of transportation, and must necessarily be left out of any present consideration of the pulpwood situation. Of the remaining area of say 30 million acres which which may possibly be considered to be accessible to existing transportation, not less than one-third must be deducted for water surface and areas rendered barren by repeated fires. If may, therefore, reasonably be assumed, that we will have 20 million acres of unlicensed Crown lands which are within reach of transportation and which are in potentially productive condition. In the mature forest, which has not been cut over, the annual growth is balanced by decay, so that no material increase volume takes place. If, however, the area is intelligently cut over, and fires are kept out, there should be a material annual increase in the volume. Owing to the more northerly location of these lands, the rate of growth will be slower than on the licensed Crown lands. We may, therefore, assume roughly an average volume growth of one-twentieth cord per acre per year of available wood from unlicensed Crown lands. It must be repeated that this will become a net growth only under intelligent operation, coupled with effective fire protection.

There are six million acres of privately-owned lands. These are in the southern portion of the province where conditions for growth are most favorable. If we deduct one million acres for water surface and barrens, we have 5 million acres of possibly productive lands left. Assuming a growth rate of one-fifth cord per acre per year, we have a possible net increase of one million cords per year.

In connection with the question of the rate of growth, it may be noted that the United States National Conservation Commission report, issued in 1909, estimated that the yearly growth of woods in that country did not average more than 12 cubic feet or a little over one-seventh cord per acre. This report stated also that one-fourth of the standing timber is lost in logging, and that from each 1,000 feet of timber, which stood in the forest, an average of only 320 feet is used. This percentage of loss is, of course, very materially decreased in the case of pulpwood, although it would still apply to lumber production in Canada, the same as in the United States.

In British Columbia it has been estimated that growth is taking place at the rate of 100 board feet per acre per year, or approximately one-fifth cord, assuming 500 board feet as equivalent to one cord.

While the studies which are underway by the Commission of Conservation of Canada have not yet progressed enough to justify a final conclusion as to rate at which growth is taking place, it may at least be said that these investigations would, by no means, justify the assumption of a rate of growth more rapid than one-tenth cord per acre per year over the very large areas of licensed Crown lands. While there is, therefore, no adequate basis for the assumption made, it may at least be said that no one else has sufficient data to prove that the estimated rate of growth is too low. It should be borne in mind that this volume production is for spruce and balsam only, the hardwoods not being taken into consideration, since they are not pulpwood species from the viewpoint of newsprint production.

It must be remembered further that our forests are by no means in the most favorable condition to make a sustained growth after cutting, quite aside from the presence of over-shadowing hardwoods over very considerable areas of our pulpwood lands. This is due to the fact that, as the studies of the Commission of Conservation have shown, there is not a proportionate representation of the lower diameter class of trees, below merchantable size. Because of the suppression by the over-topping conifers and hardwoods, so large

a number of the seedlings and pole-sized trees have been killed out that, after logging, not enough of the next-smaller trees are left to take the places of the ones cut. As a result, a long period of careful handling will be necessary to restore the forest to a normal productive capacity. During the interval, the rate of volume production must necessarily be comparatively low.

On the basis of the foregoing discussion it might be possible, under proper management and production, to realize an annual growth of 3 million cords on licensed Crown lands, one million cords on unlicensed Crown lands, making a total of 5 million cords per year of accessible and available spruce and balsam in the entire province of Quebec.

Volume growth is often calculated from the viewpoint percentage of the existing stand or capital stock. From this viewpoint, there is no known basis for assuming an average volume production throughout Quebec at a greater annual rate than around two per cent. If we apply this percentage to the 215 million cords of commercially accessible spruce and balsam, as indicated in the foregoing table and discussion, we would have an annual production of 4.3 million cords of spruce and balsam. To secure an annual production of 5 million cords on lands accessible to existing means of transportation, it would be necessary to assume growth at the average rate of 2 1-3 per cent. Neither the studies of the Commission of Conservation nor any other known data would justify the assumption of a higher rate than this, over the very large area involved. An average rate of growth of 2 1-2 per cent is, as a matter of fact, more likely to be over the mark than under it. It will thus be seen that, from this viewpoint the probable annual growth checks closely with the calculations above made on the basis of average volume production per acre per year.

It cannot be too strongly or too many times emphasized that this volume production does not, in the mature virgin forest, become actual net production until the harvesting of the crop through the removal of the larger trees by logging, and unless such logging is carried on with some regard to leaving the area in a condition to produce something of value.

The object of this extended discussion is to show that the extremely optimistic assumptions of the argument made in Washington are not within the bounds of reason, and that any such wholesale increase in the rate of cutting as is advocated could only result in disaster to the province and to many of the industries and communities dependent upon the forest.

The proponents of the Underwood resolution stated in their argument at Washington that, "The owners of the Canadian paper mills can have no ground for complaint if the commission provided by the Underwood resolution succeeds in its labors, for they have already secured boundless limits of woodlands which provide not only for the indefinite supply of their mills at present capacity, but for as great an expansion as can be expected in the next generation."

While this may be true with regard to some concerns, it is by no means true of all in either Quebec or Ontario and still less true in New Brunswick. Already, mills in New Brunswick and Ontario are shipping spruce and balsam timber from Quebec for manufacture in those provinces, and some concerns in New Brunswick are taking up additional limits in Quebec with a view to manufacture in New Brunswick. Other companies will unquestionablly be compelled to secure additional limits on lands now unlicensed, as well as to purchase licensed lands from present holders, if their mills are to have adequate supplies of raw material. All the provinces can unquestionably utilize their remaining raw material for home manufacture, and need do so in the legitimate interest of their future development.

(To be Continued with reference to Ontario and Nova Scotia).

TECHNICAL QUESTIONS.

Question: For making rose, geranium, or coral-colored papers I use rhodamine; my customers complain that the paper bleeds. I have unsuccessfully tried the use of several mordants. Could somebody help me out?

Ans.: The last press before the dryers should exert no pressure. This can be done if you have three pairs of presses between the felt presses and the dryers. The first two dryers, the upper and the lower one, should not be too hot. Colored paper should never be heated suddenly to a high temperature when it reaches the dryers.—Trans. by A.P.-C.

BOLSHEVISATION OF PAPER MILLS IN SPAIN.

The Spaniards, as we know, are proverbially grave, and it may be that this national characteristic has accentuated the more ominous features of the present labor conditions in Spain. That the paper industry is threatened with an eruption of Bolshevism appears on the face of a series of articles in ERGOS, published at Valencia, and, rather oddly as it seems to us, devoted chiefly to social and economic questions. Any reader who looks in this publication for technical and manufacturing information, will have a most inadequate notion of this aspect of Spanish industry, for of the art and management of paper making there is not a word. We are well assured from this journal that the mills must be **Bolshevized,** if not actually, at least they must be simmering. The remedy for this state of things is apparently as unsatisfactory to the Spaniards as it would be to us, for it seems that it is simply the device of putting the workers and employers under the waterfall of criticism (catarata verbalista), that is to say, of angry cataracts of words. As ERGOS says (February 1) "In congress the debate on the social problem in Spain continues, and particularly in Barcelona. Already a source of orators of the most varied accomplishments have spoken. Among them Senor Lerroux and Senor Alvarez have made speeches which were surpassingly eloquent. Nevertheless no one has uttered a single concrete idea. It would be useless to search for it in the ocean of oratory. The verbal cataract which has been precipitated on the unpleasant social reality in Spain has swept up nothing more than vague conceptions, the usual topics, and commonplace Utopias".

This is an age of panaceas, and Socialism has been suggested as a cure. It has succeeded, for as our esteemed confrere says: "During the war there were many who phophesied the downfall of Socialism, because it did not prevent the conflict. Since the war, in view of the multiplied interventions of the State in economic life, it is said that Socialism will have an irresistible triumph. Which of these judgments is exact?" The answer is by no means practical, but the fact that it is so gravely and frequently discussed carries its own moral. For us it seems obvious that the true remedy for these ills is production and technical study. We trust that our contemporary will feel no more of these verbal cataracts than their spray.

U.S. Papermakers 3 Per Cent To Blame.

The Pulp and Paper Magazine and Col. W. E. Haskell of the International Paper Co. have struck up quite a correspondence of late. As the subject is the consideration of the best means for perpetuating the productiveness of the forest, especially in this corner of the continent, Col. Haskell's letter will be of interest to our readers.

We might add that the editor will be glad to have expressions of opinion from others on this important matter.

May 19, 1910.

Editor, PULP & PAPER MAGAZINE:

I beg to thank you for the space you so graciously accorded my explanation of the Purpose of the Underwood Resolution in the issue of your valuable magazine of May 13th, and have the temerity to ask for a few lines in support of the "four per cent increment", the object of the subtle animadversions of your editorial paragraph.

At the outset, I must admit the profligacy of my people in their use of the natural resources of their country. That we have been wasteful of nature's bounty canot be gainsaid, but nevertheless, I must maintain that, had our ancestors possessed in any degree, the present-day knowledge of forestry, or, had they foreseen the enormous demand in the future for all forest products, a spirit of conservation would have been engendered and the "four per cent increment" would have supplied sufficient annual forest growth to equal all annual demands upon the forests. But it is not generally known that the manufacturers of paper deserve less blame than many others for the devastation of the woodlands. Of the annual cut of timber in the United States of some 91 billion feet a year, the manufacture of newsprint is responsible for a scant one per cent and the entire pulp and paper industry of the country can be charged with barely three per cent.

As to the "four per cent increment", I desire to quote from the Ninth Annual Report of the Commission of Conservation of Ottawa and from Professor C. D. Howe of the Faculty of Forestry, University of Toronto, in his monograph entitled "Forest Regeneration on Certain Cut-over Pulpwood Lands in Quebec." In this brochure on page ten, he states as his conclusion from exhaustive studies made in the St. Maurice valley, it would take 70 years for a spruce tree 4 inches in diameter, to attain a diameter of 12 inches.

Let us see exactly what this means in growth percentage. A block of spruce, 1′ long and 4″ in diameter, contains 150.8 cubic inches. A block of spruce 1″ long and 12″ in diameter, contains 1357.2 cubic inches. Therefore, in 70 years a foot section of a 4″ spruce tree, would gain 1206.4 cubic inches in attaining a diameter of 12 inches.

This is an increase, in the 70 years, of 800 per cent, or an annual average increase of 11-3/7 per cent per annum. And in considering this astoundingly large percentage of annual growth, it must be remembered that this is simply circumferential growth and takes no account whatsoever of altitudinous increment.

It is commonly known that in a forest which is not lumbered, annual growth is about balanced by decay of matured trees, windfalls, and inroads of pests, but we are considering now forests scientifically lumbered under wise and scientific regulations. Such regulations are those which have been applied by the Department of Lands and Forests of Quebec, and in a measure, by the Department of Lands and Mines of Ontario and New Brunswick, respectively. Regarding forest increment in Quebec, that very able executive, Gustave C. Piche, Chief of the Forestry Service of the Department of Lands and Forests, states:

"A forest where operations are wisely carried on, shows an annual increment varying from 2 to 5 per cent, and even more per annum."

At the annual banquet of the Canadian Pulp and Paper Association at the Ritz-Carlton Hotel in Montreal last January, Sir Lomer Gouin in his very able and illuminating speech, among other things said:

"We now cut about one billion feet of timber from our 45 million acres of leased lands, and I might tell you, that with proper management, we might cut four times or even five times more than this quantity without endangering the future of our supply. This, gentlemen, is from the lands under license. This does not include in any way the 75 million acres of land which is still free and belongs to the Crown."

Assuming an average stand of 5 cords to the acre, an estimated annual increment of four per cent bears out the statement of the Premier.

It is, therefore, clear that the forest capital of Quebec can yield an enormous annual return in forest products without impairment, provided the forests are lumbered and lumbered wisely under the careful regulations of the Province. Only one desirous of fooling himself, or others, would claim that forest growth was a delusion.

While Uncle Sam must perforce cry "peccavi" to the charge of former wastefulness, it is reassuring to know that a nationwide plan is now in course of adoption in the United States looking to practical forest conservation and the reforestation of cut-over and denuded lands. It was left to the Committee on Forest Conservation of the American Paper and Pulp Association, of which I have the honor to be a member, to formulate a plan that has met with universal approval and which seems to harmonize the forest engineers of the Government, the private timberland owners, and all of the different manufacturers and users of forest products.

Backed by the press of the United States which is awakening the consciousness of the public to the interest of the public in the preservation and extension of our forests, this policy holds the promise eventually of the ideal condition of a safe balance of annual increment and annual consumption.

Yours very truly,
W. E. HASKELL.
Vice President,
INTERNATIONAL PAPER COMPANY.

BRITISH COLUMBIA COAST STEAMERS TIED UP

Vancouver, May 13.—Shipments of the output of the pulp mills on the Pacific Coast have been tied up for the past week by a strike of the deckhands and firemen of coastwise steamers. As the majority of the mills had plenty of supplies on hand, there was not much trouble from this source, but if the strike continues thoughout the month, it is liable to cause some inconvenience. One steamer went North last night as the stewards decided to stand by. It is hoped the trouble may be settled in a few days.

Compressed Air in the Pulp and Paper Industry

Part 4 (continued) Pumping with Compressed Air

By F. A. McLEAN, Canadian Ingersoll-Rand Co.,
Sherbrooke, Que.

DISPLACEMENT PUMPS

General Description.—The displacement pump is probably the simplest type of power-driven pumping machinery ever produced, consisting essentially of two barrels, or cylinders, which are filled and discharged alternately, the charge in each cylinder being directly displaced by the admission of the necessary volume of air through an automatically controlled valve. The principal requirement is that the tanks be submerged from 5 to 6 feet, which is not always possible to arrange. The cylinders are filled without the use of any power and are discharged with a minimum of loss through friction. There is no packing or other portion of the pump subject to leakage and it is not affected by dirt, grit, or semi-solids in the water.

Displacement pumps start and stop automatically and only use air in exact proportion to the volume of water discharged. Due to their extreme simplicity they require practically no repairs and little or no attention; many pumps in fact are operated for weeks without anyone bothering to look after them. They are usually built in sizes having capacities of up to 3,000 gallons per minute and the height to which they will lift water is limited only by the air pressure used. By the arrangements of several pumps in series, it is entirely feasible to raise liquids to almost any height without the use of excessive air pressure.

Application.—Up to the present the displacement pump has been more widely used in mine work than in other industries, for such work as pumping out the water which often gathers in sumps, dips and entries, or wherever it is possible to submerge the pump completely. Where total submergence has been possible it has proved very effective for discharging automatically seapage or leakage water in subways and tunnels and in the basements of factories and industrial plants, its utter indifference to dirt and grit making it of peculiar value for such work.

In a slightly modified form the displacement pump has been applied to handling and elevating pulp stock marl, paints, acids, alkalies and other heavy semi-fluids. Where the material handled is of a very corrosive nature it is customary to locate the air valve so that it is not brought into direct contact with the liquid or exposed to any vapours which may arise from it. For transferring pulp from one tank to another and for sewage ejection, the results obtained with these pumps have been very promising when conditions were favorable.

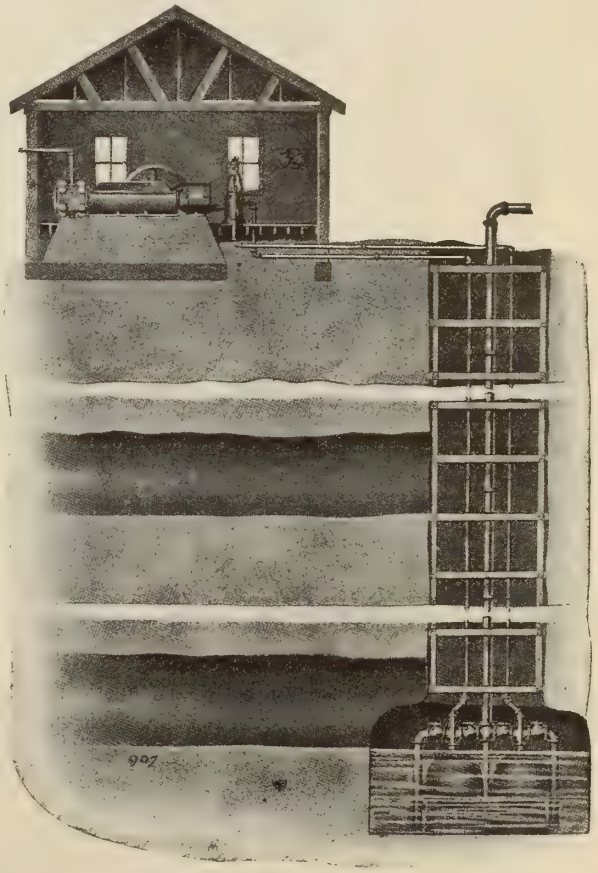
The displacement pump when used alone or in connection with an air lift will often solve the problem of obtaining a small water supply. The pump may be submerged in a river, lake or small pond, or in a reservoir filled with water from artesian wells by an air lift. In this case one compressor of the proper capacity will supply both the air lift and the displacement pump, making a system that is simple, efficient, and very economical in both installation and attendance costs.

THE RETURN AIR PUMPING SYSTEM

To overcome some of the disadvantages of the ordinary displacement pumps and still retain the large capacity, simplicity and convenience of this method of pumping, the Ingersoll-Rand Company brought out their Return Air Pumping System. In may be termed an expansion displacement pump and its principal advantage over the older forms of displacement pumps lies in the fact that the potential energy of expansion in the displacing air volume is perfectly applied instead of being wasted.

Essential Requirements of the System.—The Return Air Pumping System is a complete system of pumping in which the air after doing its work in one tank is returned to the compressor to do some work in the other tank. It consists of a closed circuit in which by a regular prearranged cycle of operations it is possible to compress, expand and recompress and re-expand one volume of air indefinitely, each cycle of compression and expansion corresponding with a discharge of the liquid in one of the pump tanks.

The essential requirements of the system are an air compressor driven by steam, electricity or any other form of power, as may be most convenient; a reversing switch located near the compressor; two air pipe lines leading from the compressor through the switch to one of the pump tanks; also two pump tanks, which are either submerged in the liquid to be pumped or arranged so as to be filled by syphonic action. Provi-

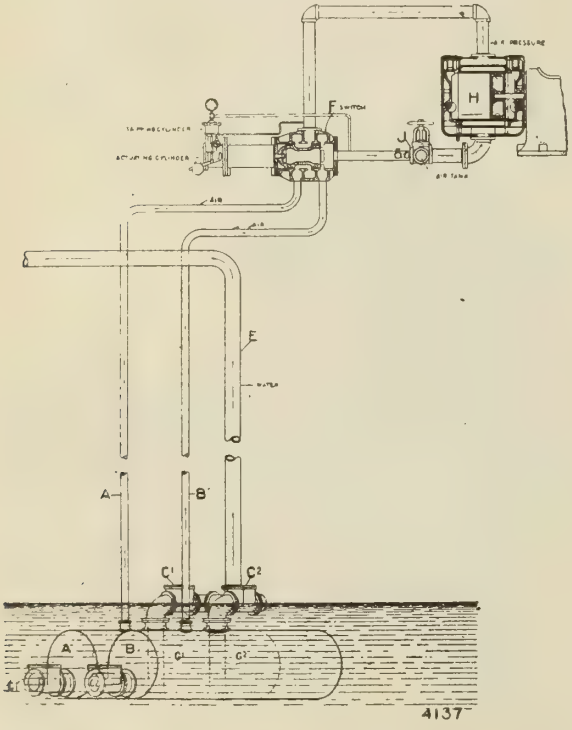


Sectional Drawing Illustrating Operating Principle of The Return Air System.

sion is made for automatically replacing the air which may be lost in each cycle action by leakage or absorption in the system or by operation of the switch.

Operating Principle.—The principle of the Return Air System is very simple; compressed air being led to a tank full of the fluid to be pumped; forcing it out through a suitable discharge pipe, through which its return is prevented by the use of a check valve. The air which has displaced the fluid from the tank is expanded back through the air line and switch, compressor intake valves, compressor cylinder and discharge valves, until equilibrium is retorted throughout the system which then contains a charge of air at a certain pressure above that of the atmosphere. This equalizing operation takes but a short time during which the compressor operates at no load as the pressure is balanced on each side of the piston. When equilibrium has been attained the compressor again takes on its load, compressing the air in the second tank and drawing air through its intake from the first tank and pipe line which are already under high pressure. As the pressure in the second tank is increased the fluid is discharged, and as pressure in the first tank is decreased the fluid enters.

The sequence of operations will be readily understood by reference to the lettered diagram in one of the accompanying illustrations; A and B are twin displacement tanks, completely submerged in the liquid to be raised, or, where this is not possible, filled by



A Diagrammatic Illustration of the "Return-Air" System.

syphonic action. A′ and B′ are the two air pipe lines containing the discharge check valves C1 and C2 which prevent the return of the liquid ejected. Check valves C1′ and C2′ prevent the discharge of the liquid through the inlet. E is the discharge pipe common to both tanks. The automatic switch F controls the pumping cycle. G1 and G2 are the tank risers. H is the air cylinder of the compressor, while J is the automatic compensating valve which keeps the system supplied with the proper amount of air. As shown in the diagram the compressor H is withdrawing the air from the tank B and compressing it in tank A. At the same time the fluid is entering tank B through the check valve C2′ while it is being ejected from tank A through its riser G1, check C and discharge pipe E. The apparatus is so arranged that when the tank B is completely filled, the switch F will be automatically operated, exactly reversing the cycle of operations, by allowing the air at full pressure in the tank A to expand through the switch F and the Compressor H into the pipe line B′ and the tank B, forcing the fluid out of the latter. The moment that the pressure in the tank A is reduced to a point where it is lower than the hydraulic head of the liquid in which it is submerged or from which it is siphoned, the fluid will enter the tank through the check valve C′ until the tank is completely filled, at which point the reversing switch F will again operate automatically, reversing the conditions for another cycle.

Automatic Switches.—There are two types of automatic switches which can be used with this system, the relative merits of each for a given installation depending on local conditions. The simplest type is simply an air operated piston valve similar to that used on rock drills, each throw of the valve corresponding with the filling of one tank. An auxiliary valve is thrown by atmospheric pressure on one end, overcoming a partial vacuum on the other end, the difference in pressure being secured as explained in the following: The system is so installed that normally the tanks are filled by gravity; thus the tank is filled with fluid as the air goes out, without any suction action. Thus when a tank is level full of water or other liquid the air in the pipe connected to that tank is normally at atmospheric pressure, and as the compressor continues to withdraw air from this pipe, a slight vacuum is created. The reversing switch being connected to this pipe, the partial vacuum on one end of the auxiliary valve is overcome by full atmospheric pressure on the operation of the auxiliary valve, which in turn throws the main valve. A recurrence of this action on the filling of the second tank reverses the switch for another cycle. Where circumstances require the tanks to be filled by siphon action, the switch may be so adjusted that it throws only when a higher vacuum is reached, thus making provision for additional lift on the intake.

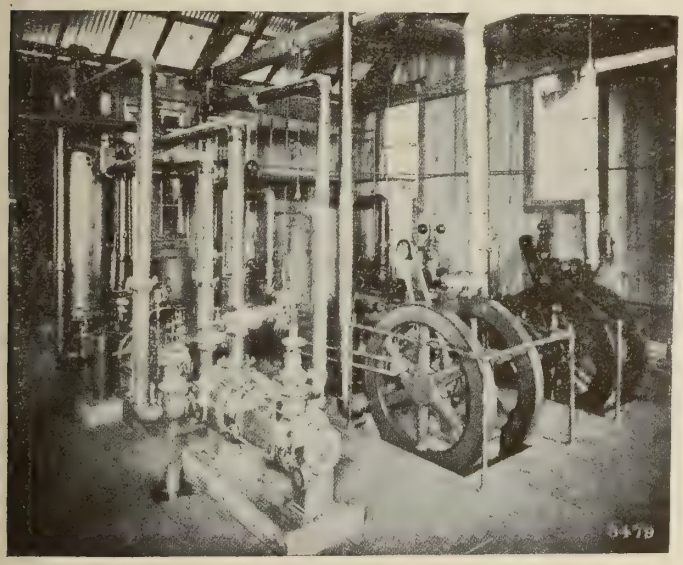
The second type of switch is well adapted for use with submerged tanks, and is known as the Difference-In-Pressure Switch. It is arranged so as to reverse automatically when the pressure in the tank being filled reaches the point where it is completely filled and there is no further necessity for reducing the air pressure. This arrangement confines the return of operation above the atmosphere, thus keeping the ratio of compression within the lowest limits and making it economical for use with submerged tanks. The question as to which of these switches should be used for a given installation will depend on local problems, and in making a decision the purchaser should be governed by the advice and experience of the maker of the equipment.

Compensating For Leakage.—Where the first mentioned switch is in use, there will always be a slight amount of air lost through the operation of the switch. Leakage and absorption of the air by the water will also consume a small amount of air. To compensate automatically for these losses is the function of the compensating valve J, which is simply an atmospheric

check valve which opens when a partial vacuum is created on its inner face. This will occur at a point in the cycle where the pressure drops below the permissible vacuum, thus indicating that the charge in the system is insufficient. A globe valve placed just outside the valve J. is adjusted to admit the right amount of air to maintain the operative conditions at the highest efficiency. Losses through absorption, leakage, and the operation of the switch are compensated for, when the Difference-in-Pressure Switch is used, by a small auxiliary air pump or compressor called a booster, which automatically makes up for the losses in the system.

Starting the Return Air System.—On starting, the system operates during the first cycle as an ordinary displacement pump, the compressor H taking its air at atmospheric pressure through the valve J and its accompanying globe valve which is, of course, fully opened on starting. As soon as the required pressure is built up in the system, the check valve closes automatically and the cycle of compression and expansion begins, and the globe valve adjusted to admit the right quantity of air.

Efficiency of the System.—The Return Air System under normal conditions will show an average efficiency of about 55 per cent. Some installations have, however, shown 60 per cent and never, even under very



View of the Power Plant. Return-Air System showing Compressors and Switches.

unfavorable conditions, has an efficiency of less than 40 per cent been shown. These figures represent the actual ratio of water raised to the I.H.P. of the compressor steam cylinder with all losses included. It will not be difficult with these percentages as a basis to figure the actual power cost in a given case, in which all local conditions are definitely known, such as the price of coal per ton and the total cost of boiler feed water. When careful consideration is given to these figures, it will be readily seen that from the standpoint of fuel economy alone, the Return Air System is well worth consideration.

Application of the System.—The Return Air Pumping System being of very simple construction is readily taken care of by the average engineer and is easily installed. Once it is put into operation it is entirely automatic, yet may be instantly and completely controlled from the compressor room, no matter how far away it may be. As there are no stuffing boxes, glands, pistons, or plungers, in contact with the fluid to be pumped, and no delicate parts liable to become corroded or abraded, the system has been widely adopted for use in handling chemical solutions in salt works, bleacheries, tanneries, etc., and for the transferring of semi-fluids in pulp mills, cement mills, glass factories, etc., as well as for the elevation of sewage in industrial plants and small towns. Excessive submergence only tends to improve the efficiency of the system, and no oil is required at the pump.

CONCLUSION.

It may be said in conclusion that the subject of pumping with compressed air is a very important one which has not been given the attention it would seem to warrant either by consulting engineers in general, or by the makers of compressed air equipment. It is worthy of close study and is at present receiving more consideration than has often been the case in the past. A combination of engineering knowledge and sound practical experience is necessary in working out the details of a given installation if the best results are to be obtained. This fact, however, should not deter anyone from investigating the relative merits of compressed air pumping for a particular installation, as practically all manufacturers of compressed air machinery are at all times ready to co-operate with their customers in a very staisfactory manner. From the foregoing, it will be seen that water can be lifted with compressed air with excellent results and high economy in may places where the best of steam or electrically driven equipment would be at a disadvantage.

BEAVERBOARD MILL AT THOROLD.

Thorold, Ontario. With the removal of the Sales and Administration offices of the Beaver Company Limited, manufacturers of "Beaver Board," to Thorold, of May 1, the latter place has become the centre of the largest wallboard facilities in the world. Ever since Beaver Board was introduced to Canada a little more than ten years ago, the company have operated a fibre mill, together with the administration offices at Ottawa.

At the outset, one hundred and eighty miles of Northern Ontario timber land was acquired to assure a dependable supply of spruce logs and logging camps and rossing mills installed by the company.

So rapidly did the demand for "Beaver Board" increase that in 1918 the capacity of the mill at Thorold was doubled, making it the largest fibre wallboard mill in the world.

Now as a further aid to production and efficiency, the Beaver Company have transferred their finishing plant and administration offices to Thorold. This move concentrates the entire manufacturing operations at one point. It saves shipping the single ply stock from Thorold to Ottawa, cuts freight costs, speeds up production and reduces manufacturing expenses.

The new finishing plant at Thorold is a thoroughly modern building of steel and concrete construction, 125 feet by 362 feet, completely equipped with the latest machinery. The new laminating machine alone provides employment for one hundred additional men.

An imposing building, 48 feet by 80 feet, constructed of brick, wood and concrete will be used entirely for the administration staff, and is thoroughly modern in design and equipment.

POOR PAPER STOCK PACKING CONDEMNED

The following editorial from the Daily Mill Stock Reporter for April 24, is interesting, not only in itself, but also from the very strong argument it presents for a legitimate activity of the paper-makers' organizations. It reads:

Abuses in the packing of raw material for paper mills have been referred to by The Daily Mill Stock Reporter at frequent intervals in the past and we have vigorously condemned the practices indulged in by not only some disreputable dealers, but by manufacturers as well, and from our point of view the deliberate packing of inferior material, with intent to defraud, is on a par with the rejection of satisfactory packing of stock by mills on a declining market.

We have also pointed out to paper manufacturers the advisability of confining their purchases of raw material to packers of good repute, whose acquaintanceship and knowledge of small packers are such as to enable them to use discrimination in obtaining material for their mill customers. While this is the policy we recommend to manufacturers, the jobber or large dealer must follow the same procedure and exercise extreme caution in distributing his orders to small packers and collectors. Injudicious placing of business without discrimination between good and bad is equally as poor business on the part of the jobber as it is on the part of the mill.

The fact that a great many paper manufacturers prefer to place their orders for raw stock with large and responsible packers for redistribution through the packing trade should in itself make it compulsory on the part of these large dealers to protect their mill clients against inferior packing by discriminating in the Nth degree when purchasing supplies for direct shipment to mills. There are hundreds of small packers throughout the country and particularly in the large cities who possibly out of ignorance, but doubtless more out of greed, will deliberately pack and ship material that is as foreign to what their orders call for as would be the delivery of bricks against an order for pianos, and it is such packers that the middleman must guard his mill customers against.

The appended communication, submitted to us by the Leshner Paper Stock Company, of Hamilton, Ohio, and New York, from the Paul A. Sorg Paper Company, paper manufacturers of Middletown, Ohio, in connection with the subject of inferior packing of paper stock is self-explanatory,, and should prove of educational benefit not only to the small packer, but to the large one as well. Fraudulent packing, in the end, reflects on the packer because his stock is looked on with suspicion, and in many cases is refused by responsible dealers, as well as by consuming mills. If concerns of a type which perpetrate such frauds as that alluded to in the following letter were prosecuted by trade associations, steps forward would be taken to bring the paper stock industry to a level where it properly belongs, and would result in untold benefit to both packers and manufacturers.

The letter follows:

April 1. 1920

Leshner Paper Stock Co., Inc.,
Hamilton, Ohio.

Gentlemen:

The 47 bales of Kraft Papers covered by your invoice of March 22, No. 8571, we are obliged to reject, as per our conversation over 'phone. You say you purchased this, that it is not your own packing. In commenting on this, we wish to state that we think whoever packed it is worse than a thief. Honesty is not known to him. It was a deliberate act on the part of this packer to defraud. The outsides of the bales were fixed very nicely. Inside, about everything imaginable was included, boxboard, floor sweepings, envelopes, waste paper of various kinds, and so much dirt and trash that there is no way to use this stock without re-sorting.

Whoever your packer is, he should be ostracized from good society. In fact, he should be taken out and shot. The quicker the paper trade is rid of such frauds, the better for all concerned. The prices paid for this commodity today warrant some consideration when it comes to packing.

This trash caused us to ruin a lot of paper for the reason that the stock was to be used in a special run which came on in the night time and the help got some of it into the beaters before the foreman discovered it. He was simply judging the outside appearance and thought everything was all right, depending upon you as an honest packer to produce what your samples indicated.

Someone will have a pretty heavy loss to pay by the time we are through with this and we hope the fellow that shipped the stock will lose four times what it cost you or us.

THE PAUL A. SORG PAPER CO.,
M. T. Hartley,
Vice-President.

SYRACUSE FOREST WEEK SUCCESSFUL.

That the First Annual Forest Week of the New York State College of Forestry was a success was shown by the fact that many of those who attended the conference departed urging that it be given recognition as a fixed event on the college program, promising to return next year not alone, but bringing others to the session.

With the railroad strike at its crisis, causing many to fear to get far from their headquarters, it was not surprising that many who wished to attend could not be here. The attendance, particularly on Lumbermen's day, however, justified the experiment, unique in forestry work, of devoting five days to conferences on various phases of the forest problem of New York state.

That it will be repeated another year is already settled. Some changes may be made in methods of holding the different conferences, based on the experience gained from the first conference, but Forest Week is already recognized as a definite item in the program of the college year.

Five different groups were represented. On Monday, those attending were only those who had made definite plans for extensive public forest planting this year. Tuesday was devoted to the woodlot problem, while Wednesday was lumbermen's day. Thursday was given over to the recreational problem, the training of camp leaders in proper use of the forest, and the closing day, Friday, Forest Day, was given to the Empire Forest Products association.

"Fire prevention is the duty of every citizen," says the Safety League.

Control Equipment for Sulphite Mills[1]

By E. R. BARKER.
Boston, Mass.

Since its inception fifty years ago the sulphite industry has passed through many periods of development. The early plants, though designed and supervised by chemists, were inefficient and wasteful, not being operated along scientific control. The sulphite industry today is entering a period of automatic control, especially in the departments where the chemical processes are carried out. Automatic control of the sulphur burning, and automatic control of the raw acid making will soon be followed by automatic control of the cooking process, so that eventually all the processes used in reducing wood to fibre will be controlled by ingenious devices. The human factor will disappear and standard conditions in each stage of the process will produce a uniformity of product not dreamed of in the early days.

In the early days intermittent acid tests furnished about all the scientfic data. Even as late as 1900 many mills tested their bisulphite liquor with a hydrometer and operated their sulphur burners, digesters and reclaiming equipment by "rule-of-thumb" methods. The old school of cooks and acid makers claimed they could tell the test of the acid by the odor.

Many years of work were necessary before the importance of gas analyses and temperatures were appreciated and the operatives naturally made such tests only when they felt that the desired test could be obtained.

About 1900 the first indicating automatic gas testing machines were introduced and so far as I am aware this type of apparatus was only used in one mill. This apparatus consisted of a gas balance through which a continuous stream of gas from the sulphur burns was passed. The gas passed through purifying and drying apparatus before it entered the bulb of the balance, and the percentage of SO_2 was indicated on a scale. Certain tars and resinous impurities in the gas, not removed by the purifying apparatus, deposited on the bulb of the gas balance adding sufficient weight to make the apparatus indicate too high a test. Frequent cleanings and readjustments were necessary to make the readings reliable.

The advantages of reliable data along these lines were soon appreciated. Recording attachments were soon perfected and gas testing machines like the "Sarco" and "Mono" were installed in many plants with good success.

Perhaps the greatest service derived from the early indicating and recording pyrometers and gas testing machines was the demonstration of the weak points in our whole system of combustion of sulphur. The proper temperature of combustion, size and design of combustion chambers and the advantages of automatic feed for the burners were all determined from the data thus obtained. Hand firing of the sulphur burners either with dry or melted sulphur was shown to be very inefficient until now we have automatic feeds for both dry and melted sulphur.

[1]Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, April 15, 1920.

Dry Sulphur Feeds.

The first dry sulphur feed to be used extensively was the worm conveyor type sold by the manufacturers of rotary sulphur burners. While this was quite an advance over hand firing it does not give a continuous even feed to the burner. Close regulation is impossible and the resulting gas tests vary within wide limits.

The "Thompson" method of dry sulphur feed, while rather complicated mechanically and expensive to install, does feed dry sulphur uniformly and positively. This apparatus consists of a hopper with adjustable slide and table at the discharge so arranged that a definite quantity of dry sulphur can be fed into a reciprocating conveyor which pushes it into the burner. This device has given excellent results for a long time in the mill where it is installed.

A simpler and cheaper type of dry sulphur feed will undoubtedly soon be devised as I understand that the problem is now being worked out.

Melted Sulphur Feeds.

The advantages of using melted sulphur have long been known. The apparatus for melting and the system of piping to the burners was successfully designed long ago. Dirt and impurities in the sulphur have been the great source of trouble. To obtain the most uniform conditions of burning we must feed the sulphur continuously to our burners. The rate of flow must be uniform. The usual size of burner requires such a small stream of melted sulphur that a very small amount of dirt will clog the valve and upset our well laid plans. When the flow stops, the sulphur freezes in the valve or in the piping to still further add to our troubles.

The Crandon Attachment for Feeding Melted Sulphur is a very clever and practical device for maintaining a constant uniform flow of melted sulphur to rotary burners. This device is attached to the regulating valve about the burner and is so arranged that at each revolution of the burner, the valve is opened, flushed out and closed (either wholly or partly at the option of the operator). This device has been in successful operation for about three months, has given most excellent results and has a very bright future of usefulness. So far as I know it is the only successful device along this line to date.

Crandon Sulphur Detector.

Sublimed sulphur has been the cause of more trouble, hard work and worry than any other one thing in a sulphite mill. The causes of sublimation and the remedies therefor are well known even to the lowest paid man in the acid plant. Experience has taught him to play safe and take no chances with this enemy of efficiency and in most mills this caution has resulted in lower gas tests than are possible with the equipment used. Too close attention to the details of his job is irksome to most men, but if an individual or device tells him when conditions are wrong he will readily make the adjustments necessary to keep his plant operating efficiently.

The Crandon Sulphur Detector gives this service. Taking advantage of the well-known fact that sub-

limed sulphur will adhere to a glass tube suspended in the gas, we have in this device such a glass tube hung in the cold gas and suspended by a wire from a scale beam. Sublimed sulphur deposits on the glass tube adding enough weight to tip the scale beam thus closing an electric circuit, which operates through a relay to ring a large gong. The gong rings until the operator removes the glass tube and wipes off the sulphur.

This device, very simple in construction and positive in action, gives the alarm when sublimation first starts and before it can do serious harm. With its use very close regulation of the burners is possible resulting in high gas tests and freedom from clogging of the gas coolers and pipes.

You will, therefore, see from the foregoing that simple, practical and efficient devices are now available for overcoming sulphur burning troubles. Any mill not producing uniform gas containing over 15 percent of sulphur dioxide at all times is not properly equipped and is wastefully operated and managed.

Acid Controls.

In making acid in limestone towers it is usually easy to obtain a high percentage of free sulphurous acid. The temperature of the water and gas together with the physical properties of the limestone have a direct bearing on the percentage of combined or base in the solution. Most mills are assured of a reasonably uniform grade of limestone, and the temperature of the gas can be regulated quite closely by the amount of water used on the gas coolers. The water to the towers varies from 33° Fahr. in winter to 80° Fahr. in summer unless means are used for regulation.

Suitable equipment is now available and being used for automatically controlling the temperature of the water. One such consists of a tank in which hot and cold water are mixed in correct proportions to give the required temperature in winter. With refrigerated water this device can be used to control temperatures in summer. A thermostat submerged in the water operates the valves on the hot and cold water supply pipes, and very close regulation of temperature is obtained. The hot water for such an equipment can be very cheaply obtained from the relief coolers in winter.

The quantity of water to the limestone system or of milk-of-lime to the milk-of-lime system is cleverly controlled automatically by means of the Crandon System of Acid Control. The apparatus now in use is based in principle on the variations in electrical conductivity of bisulphite solutions of different concentrations. Two electrodes are placed in the bisulphite solution and a constant very small amount of current passes between them. As the conductivity of the solution changes with the strength of concentration more or less current passes between the electrodes. This varying current operates a solenoid attached to a scale beam. The tipping of the scale beam in either direction closes a circuit which either opens or closes the motor-operated valve on the water or limewater supply pipe to the system.

When correctly installed and adjusted this apparatus gives very close regulation of the strength of the bisulphite solution. It is however a very complicated and delicate apparatus to install and operate and must be tended occasionally by a man of greater mechanical ability than the average sulphite mill superintendent.

A very much simpler process of acid control, than the above, based on specific gravity, is now in process of development and is very promising. Further information regarding this will be available soon.

Digester Control.

Apparatus to control the cooking process is naturally the next development to be expected. The use of recording instruments for digester temperatures and pressures is so common that very few mills try to operate without them. The cooking of the pulp from the data thus obtained, the use of pressure gauges on the relief lines, together with the wide variety of ways of cooking and relieving have thrown much light on the cooking process. The tendency of all this is to standardize the cooking process which will produce a standard pulp.

Control of chips, steam and acid is now possible with available equipment. Cooking processes are so well understood that automatic control only awaits inventive genious for its successful accomplishment.

An electric control system for regulating the steam supply to the digester and relief from it at predetermined rates is now in process of development and satisfactory solution of the problems involved can soon be expected.

Dooley's Acid Filling System.

A simple and unique method of filling digesters with acid has been under development for some time and patent has just been allowed. In this system the acid is put through a steam pipe, connection being made just below the steam operating valve. The acid control valve is located above the level of acid in the digester so when the filling is complete it is not in contact with the acid. The valve is of solid type with swinging yoke and hand plate and is so readily accessible that a pulp gasket is put in after each charge of acid. This insures perfect tightness and prevents any steam from leaking back into the acid pipe. No gas escapes from the digester when the acid is pumped in. The filling process is all handled from the working floor of the digester house. The saving in sulphur and improvement in working conditions, together with the lessened cost for maintenance are very profitable features.

STRENGTH TEST FOR CAESIN

Cumberland Mills, Me., November 20, 1919.

Editor Paper Trade Journal:

I have read with much interest that portion of Mr. H. L. Derby's address on casein which you published in the November 13th issue of the Paper Trade Journal. The part of the address which leads me to write to you relates to the strength test which is recommended by A. O. Dahlberg of the Department of Agriculture. It may interest Mr. Derby, and possibly also Mr. Dahlberg, to know that this test was worked out in the laboratory of S. D. Warren Company over twenty years ago. It was used at first as a test for hide glues but has been employed regularly as a test for casein for at least fifteen years. The procedure as described by Mr. Dahlberg differs in no essential detail from that originally worked out and first published by the writer in the Pulp and Paper Magazine of Canada for March 1, 1914.

In Mr. Dahlberg's publication, Bulletin No 661, on casein no mention is made of the origin of this test and I take the liberty of calling the matter to your attention in the hope that you will give it publicity so that credit may be given where it is due.

Very truly yours,

E. SUTERMEISTER,

Chemical Laboratory, S. D. Warren Company.

The Evolution of the Brown Company

Canadians as well as Americans will be interested in the following story of the growth of a great pulp concern which has mills in both countries.

The man most responsible for the growth and prosperty of the Brown Company, Mr. W. W. Brown, was born at Clinton, Maine, and started in business at Bangor, dealing in ship knees. Later he moved to Portland and opened a small office on one of the wharves. While carrying on this business he was approached by Mr. J. B. Brown, of the Brown, Little and Winslow Company, who asked him to come to Berlin and take charge of their saw mill property, which they had organized in 1852 under the name of the Berlin Mills Company.

Mr. W. W. Brown decided to take the step and come to Berlin. In 1868 he purchased a controlling interest and continued to purchase until he owned nearly all of the stock. His attention was devoted entirely to the saw mill for twenty years. During this time he improved the mill and seeing the advantage of finishing the lumber here, rather than shipping it through to be finished by others, the window frame mill was started as a branch industry at Portland in 1897. Later this mill burned and was started up again at Berlin. The products of the saw mill are long lumber, laths, shingles, and clapboards.

At the end of 20 years Mr. W. W. Brown started up the Riverside Pulp Mill which is still standing. It is from this junction that the great growth of the Brown Company started forth. Since they were engaged in the manufacture of the paper making material, they were irresistably drawn into the paper business, after which follows the Chemical Pulp business with its manifold by-products as we now see. The Riverside Paper Mill was consequently established.

At this time T. P. Burgess and George Burgess came into Berlin and interested Mr. Brown in a new kind of pulp to be made by the sulphite process. The Riverside Mill obtained the sulphite from the Burgess Sulphite Fibre Co., and ground wood pulp from the Riverside Pulp Mill.

Encouraged by the success of the Riverside Mill, the Company decided to go into the news print business on a large scale, and in 1904 started the Cascade Mill, one of the largest news print mills in the world, and this was considered quite a factor in the news print business until conditions of selling and the vast power resources of their Canadian timber property turned the minds of the management towards Canada. The new paper, Kraft, was just then becoming popular, and seeing the opportunities a large sulphate mill was built at La Tuque in 1910 and the Cascade Mill gradually turned over from a News Mill to a Kraft Paper Mill. The Kraft paper is called Nibroc, after the man who successfully carries on the manufacture of this paper. Nibroc Kraft is noted for the same qualities as the man referred to, sturdiness and dependability. The great strength of the sulphate pulp soon suggested its use for making pipes and tubes. In 1913 a plant was started with this in view.

As the chemical industries have developed and shown great progress in all lines, it is not to be wondered at that the chemical manufacture of pulp should show great changes. The Sulphite method of making wood pulp is entirely chemical. The method is cheap and consequently very profitable. The Burgess Sulphite Mill is even more profitable than any other mill on account of the facility of obtaining bleach liquor and thus turning out bleached pulp, which has a better market and a higher price than unbleached pulp. On account of this factor, together with its good management, the Burgess Sulphite Mill has grown to be the largest pulp mill in the world, and furnishes 70 per cent. of the bleached pulp on the market.

It was not until 1909 that the Burgess became interested in other products than pulp. The first product started in the manufacture of caustic, which had hitherto run into the river.

The electrolysis of brine results in the formation of chlorine, caustic soda, and hydrogen. The caustic plant proved to be a profitable enterprise, and to increase its production meant finding means to use more chlorine in other ways than bleaching pulp, in order to release more caustic. To that end, the chloroform plant was started in 1909, the Sulphur Chloride in 1917, and the carbon tetrachloride in 1918. So that a further use of chloride might be had, the acetic anhydride plant, which uses sulphur chloride as a raw material, was started in 1918. Finding it necessary to neutralize the caustic left in the salt, which comes away from the caustic evaporation, the use of hydrochloric acid was started, but it was found that the chlorine available could easily be turned into hydrochloric acid, a plant was made to manufacture that acid in 1913, instead of having to purchase it from other makers.

The caustic being taken case of, the attention of the chemists was drawn to the hydrogen, a by-product of the manufacture of chlorine, which floated away in the air. In 1914 a plant was started to bring the hydrogen in contact with a vegetable oil, to make a hard edible fat, or butter and lard suubstitute. At first cottonseed oil was used. Other concerns such as the Crisco plant used cottonseed oil in a similar product. As usual the Brown Company was not satisfied to have their product of no better quality than the other manufacturers, so now they press the oil out of peanuts, and the latest product of the Brown Company is the finished, world-renowned lard substitute, Kream Krisp.

From 1852 to 1917 the Company operated under the name of Berlin Mills Company, but the evil effects of the awful war began early in 1916 to be felt even in our own community, distant though it was from the scene of conflict. In putting their latest product, Kream Krisp, on the market, a great deal of feeling was shown by export customers against the use of anything which savored in any way of Germany, and they protested against the name "Berlin" most strenuously. So much opposition was found that the Company decided to change the name of Berlin Mills Company to Brown Company. On Nov. 30, 1917, this change went into effect. So now all of the plants mentioned come under the name of the Brown Company.—From The Brown Bulletin.

Hello, Oleo. Glad to see you are to stay on for another year, thanks to a partial recovery of human intelligence on the part of Parliament. We still have hopes of having a body of legislators with enough common sense to give you a permanent position in Canadian culinary quarters.

TREES GROW IN FORTY YEARS IN N. B.

Hon. Mr. Smith, Minister of Crown Lands for New Brunswick, has initiated an experiment of a novel character, the results of which should throw an important light on the problems of forest conservation. Scientific forestry in New Brunswick is still in its infancy, and there is little reliable knowledge of the effects on the future growth of the dense spruce forests of the present methods of logging, brush burning, etc. So the Minister has caused an area of 507 acres to be set aside as a permanent experimental plot. Through the co-operation of the licensee the area is being logged in various ways and to different diameter cutting. In some parts the brush is burned. Observations and measurements of the results of the year to year are taken.

Dr. C. D. Howe of the Conservation Commission of Canada who has had charge of this work for the last two years calls it the Forest. Regeneration Survey. Its objects, briefly defined, are:

First, to determine the number of small balsam and spruce trees that remain on cut-over unburned areas in relation to the time of cutting, for example, 40, 20 or 10 years; in relation to the degree of culling, for example, lightly, moderately, or severely; in relation to the number of times culled, that is, culled once, twice or three times; in relation to the type, for example, pure soft woods or mixed hardwoods and softwoods.

Second, to determine the rate of growth of such balsam and spruce with the intention of securing sufficient data to make a reasonably accurate forecast of the amount of the next crop in terms of board feet and cords and the time when the next cutting might take place.

As a result of his observations Dr. Howe has already arrived at tentative conclusions, which are of considerable interest in view of the enormous demand for pulp wood, and the Government's present interest in the problem of water-power development as a means of encouraging pulp and paper making as well as other industries.

"On one plot," he says, "the spruce grew at the rate of 15 board feet per acre during 40 years, while balsam yielded one cord of pulp wood in 17 years for the entire age of the trees, though since the area was logged in 1879 the growth has been at the rate of one cord per acre in seven years; so if this is representative and if no allowance be made for windfalls, deterioration, and death by disease, 600 feet of spruce and 6 cords of pulp wood could be removed continuously at 40 year periods if the proper amount of the smaller diameter classes were present. This was not the case with spruce, though the balsam was well established, there being 850 saplings per acre to replace the 200 trees, and 3,000 balsam seedlings to replace the saplings as they pass into the tree class. If it were not for the ravages of disease, at present an unknown quantity, it could be safely predicted that areas which this class represent will pass from spruce to balsam lands. As will be seen later, all the plots tell the same story. This explains the rapid and extensive development of the spruce budworm in the Province. Although called the spruce budworm, it prefers to feed on balsam and balsam is becoming increasingly prevalent in our forest. As a matter of protection from future epidemic of the budworm, as well as from a business standpoint of encouraging the more valuable species, it is high time extensive experiments were made to develop a system of logging operations that would tend to exclude the balsam and stimulate the regeneration and growth of spruce."

SAFETY FIRST—GOGGLES

So much has been written, spoken at conventions and safety first meetings, rules and warnings drawn up and issued to foremen and employees, that one would naturally think the topic had been exhausted, that every industrial worker knew just exactly when, where, and how to use his goggles, as equally well as when he knew he was hungry or wished to go to bed; but the lamentable fact remains even with all this knowledge a very great many, either through wilful neglect or careless passiveness, will persist in doing hazardous eye-jobs without troubling to make any eye protection, even when, as in this plant, goggles are provided free and placed readily to hand for immediate use; and, further, they know they are breaking a strict mill rule by not using goggles whenever the occasion demands their use. The getting away repeatedly with this chance-taking is not that they will always be immune from injury, for some day, sooner or later, they will more than "get it in the eye," regrets will be too late for an eye lost for ever, and what more pathetic sight is there than a sightless man? Just ponder what a fearful price to have to pay, if the cause was entirely through some little neglect is not providing proper eye protection, when engaged upon the job which cost him his vision. Unfortunately some will not even profit from the example of another's misfortune; and we cite a case that happened in our own mill but recently, where men engaged in chipping concrete had no eye protection at all, and they with full knowledge knew that only the day previously a fellow workman, while cutting rivets, met with a serious injury and also that he was not wearing goggles. Don't wait until bad luck knocks at your own door, but rather, use your own natural instinct for personal safety and don't break mill rules. Hand to your foreman all mushroomed tools and beware of the ever-present danger when using the emery wheel. Never allow a mate to monkey with your eyes, for it is monkeying to attempt to remove chips or grit with the ofttimes too-ready toothpick, match or dirty handkerchief; but do report at the First Aid Office to be sent to the surgeon to do this for you and thus avoid infection through misdirected though good-intentional maltreatment.

Of all industrial eye injuries, 70 per cent are due to avoidable causes. With our foremen's co-operation in insisting upon their men carrying out faithfully the goggle wearing order, there is absolutely no reason why our plant should not become an eye-safe one. Foremen and men, it's up to you.—The Digesteur.

The Japanese say "east-north" instead of "north-east," and "west-south" instead of "south-west."

Bad temper is like the scorpion which stings itself. Every fit of anger injures most the soul that indulges in it.

BRITISH TRADE NEWS

London, 11th May, 1920.—The shortage of newsprint is causing considerable discussion in England at the present moment. It is not a discussion confined to the pulp and paper men, but the debate is side-tracked from trade journals to the daily newspapers by the public and members of Parliament. This is certainly an unusual discussion from a public point of view and the more the question of the shortage of newsprint is thrashed out the greater becomes the feeling that we are on the verge of a famine.

Sir Richard Cooper proposes to ask the President of the Trade Board in the House of Commons the following question:—"Will he state what steps he is taking to protect the country from a famine in paper supplies; is he aware that it is impossible to dispose of waste paper in bulk, and has he any information to show that a monopoly exists in the supply of any or all ordinary qualities of paper?"

Never in the history of the paper and pulp industries has such attention been given to paper and this contention is vindicated by the foregoing question being addressed on the question of paper in the House to the Trade Board President. The repy will be interesting and the pulp and paper men are rocking with laughter over the monopoly part of the question. No doubt the answer will be short and sweet in purely Parliamentary synopsis form.

But, while the discussion is going on about the shortage of paper. S. Macnamara, the Labor Minister, is pointing out that Science must still go ahead. We want research, he says "research and more research." He taught it 36 years ago and he is preaching it again today.

Tropical Grasses for Pulp.

Then Sir Harry Johnston writes to the "Times" a letter saying:—"I think it is generally agreed that if literature came to an end for lack of paper, and if the great forests of the temperature zone disappeared—as experts say they will—in twenty-five years, under the demand for wood pulp, civilized humanity would be facing disaster in several directions."

Under these circumstances, Sir Harry Johnston suggests that chemists and manufacturers of paper should again turn their attention to the grasses and reeds of tropical Africa. where the supply is well-nigh inexhaustible. He recalls the experiments in paper making out of the grasses and reeds of the sudd which were being tried in the Bahr-al-Ghazal province of the Sudan when war broke out.

Now it so happens that Mr. William Raitt, F.C.S., Consulting Cellulose Expert to the Indian Government, is on a holiday at present in London. Articles on his research work on bamboo and grasses for pulp have appeared in the "Pulp and Paper Magazine" some years ago and he has been interviewed for his opinions on the suggestion thrown out by Sir Harry Johnston. His opinion carries some weight, as he has had 25 years experience searching for raw materials for paper-making in India and as a result of his successful efforts occupies the high position he does today.

Grasses no Proposition.

Mr. Raitt says he can see no permanent solution of the oft-recurring difficulty of paper-makers' supplies except in these waste animal growths of our tropical and sub-tropical forests. We have in India grasses similar to those spoken of by Sir Harry Johnston, and a considerable amount of research work on them has been done by the Forest Research Institute of India with the view of utilizing them for paper-making. We have not yet arrived at complete success owing to certain practical difficulties.

The experiments on the grasses and reeds of the sudd in the Bahr-al-Ghazal province had, he thought a similar result, as might be expected, seeing that in physical and chemical characteristics they are exactly similar to the Savannah grasses in India.

While, then, these grasses promise a very large source of supply for the future, they cannot at present be recommended as a practical proposition. He thinks that eventually the difficulties will be overcome, but at present the field for a new source of supply is held by the bamboo. The difficulties that he has found with grasses do not occur in the case of the bamboo, and such difficulties as there were have been overcome. It can now be said, in fact, that there remain no practical difficulties in transforming bamboo into pulp and here is promise of a large supply under conditions, which, compared with a material like wood. are permanent, for while wood takes from 30 to 50 years to grow, bamboo renews itself annually.

In Burmah particularly, the transport conditions for it—and transport, it must be remembered, was always a serious matter in this industry—cannot be surpassed. In many places indeed the whole transport in and out of the mill can be accomplished on inland tidal water.

Readers of the "Pulp and Paper Magazine" who have followed Mr. Raitt's research work in India will be interested in his pronouncement that he has overcome all the difficulties for converting bamboo into pulp. As a matter of fact he is after machinery at present in England and I hear that the mills in India are doing very well with the bamboo pulp.

Newspaper Proprietors Gloomy.

Some time ago Lord Burnham, one of the big London newspaper owners, remarked in a speech that there would have to be more research for raw materials. He has a reply in the work Mr. Raitt has achieved in India.

This week Lord Riddell, another newspaper owner, said they were passing through a serious phase. Paper was 6d. a pound today and they were all using up their present stocks. If the papers were called on to produce their publications with paper at the current price of 12 cents it would be a difficult matter for them to carry on at a profit.

Mr. Valentine Knapp, President of the Newspaper Society, says he has heard of contracts being made at 16 cents a lb. and buyers were told that the price would very likely rise to 18 cents a lb. in a short time. Certainly if the Provincial newspapers in England met with disaster owing to the high cost of paper, the country itself would suffer.



PICTURESQUE SITE OF RAPID FALLS MILL AND OFFICE OF THE McLEOD PULP CO., LIVERPOOL, N.S.

PULP AND PAPER NEWS

The announcement was made this week that a new fifty-ton newsprint paper machine has been ordered for the Sturgeon Falls plant of the Spanish River Pulp and Paper Mills, Limited. Two new machines of one hundred tons capacity were announced recently which will bring the respective capacity of the three mills up to the following anticipated output: Sturgeon Falls, 175 tons: Espanola, 225 tons: Sault Ste. Marie, 250 tons. The construction and installation of the new machines will require about six months to complete. It is expected that by the end of the present year the company will have a total capacity of 650 tons of newsprint daily.

Toronto job printers met last Saturday night and accepted the 10 per cent bonus offered by the Master Printers' Association, as an amendment to the wage agreement, which does not expire until 1921. The committee, which was appointed to obtain an increase over the ten per cent., was instructed to make further demands on the Association, if the cost of living increased.

The annual meeting of the Canadian Press Association, Inc., will be held in the King Edward Hotel, Toronto, on June 4th, commencing at 4 P.M. The annual meeting of the Canadian Daily Newspaper Association will not be held until Oct. 14th. The dates for the Weekly Newspapers Association are June 3 and 4 at the same place. As part of the entertainment feature of the Weekly branch of the organization, a trip to Niagara Falls on Saturday and to the Roycroft Shops at East Aurora, N. Y. is scheduled.

Mr. P. B. Wilson, of the Spanish River Pulp and Paper Co., Ltd., spent a few days in Toronto this week.

George Erskine, Toronto representative of the George H. Mead Company, has returned from Dayton, Ohio, where he spent some days conferring with the principals of his company. He also visited the Abitibi mills and spent some time with relatives east of Montreal.

Burroughs and Company (Eastern) Limited, has been granted incorporation with power to carry on business as publishers, paper box manufacturers, lithographers, wholesale stationers, etc. The company, whose head office is at Montreal, is capitalized at $50,000. Calgary barristers are named as the incorporators.

W. F. Christie, of John Christie and Co., rag and paper stocks, Toronto, has returned from a business trip to the mills in Quebec.

It is understood that the Lincoln Paper Mills are contemplating an extension to their sulphite plant at Merriton, and the installation of another digester. The present output is 40 tons daily and when the contemplated additions are made the capacity will be increased to from 65 to 70 tons per day. About half of the sulphite output will be bleached.

The Waterous Engine Works Co., Limited, Brantford, Ont., have an order on their books at present for six eight-plate screens for the Lime House Paper Board Mills, London, England.

The Dominion Loose Leaf Co., Toronto, is contemplating an addition to their premises, which will give them 40,000 square feet of floor space. The company was incorporated in 1913 under a provincial charter as the Dominion Printing and Loose Leaf Co. with a capital stock of $50,000 and a floor space of 280 square feet. Expansion was the watch-word and later a federal charter was secured and the company name changed. Enlargement is now made necessary by the big volume of business coming to the firm.

The Macgregor Paper Company, Limited, Spadina Avenue, Toronto, has closed its doors for stock-taking and will not reopen as a limited company. O. P. Macgregor, who started the business 28 years ago, and has been carrying on the manufacture of paper bags, twine, etc., states that owing to the difficulty in procuring stock he has decided to go out of business and take a rest. Two men, Charles McArthur and W. H. Morgan, who have been associated with Mr. Macgregor for twelve or fourteen years, will carry on the business, but the Macgregor Paper Company, Limited, as it has existed for twenty eight years, is no more.

Lietrum Harvey, who has been attending McGill University, has jointed the Toronto office staff of the George H. Mead Company, in the Bank of Hamilton Building.

R. H. Craig, of the traffic department of the Spanish River Pulp and Paper Co., at the Soo, was in Toronto this week, endeavoring to get the railways to send through some empties to the mills. He states that the shortage of cars is handicapping operations to a considerable extent.

The Copp, Clarke Publishing Company, Ltd. of Toronto, have leased the first floor of the new Spadina Building on Spadina Avenue, Toronto, and will utilise it for storage of books.

J. J. Herbert, superintendent of the Interlake Tissue Mills, Ltd., was in Montreal this week seeing the Dominion Bridge Company in regard to the new machine being built for the company. The new machine will be 148 inches wide with 140 inches trim and will increase the present capacity by 15 to 20 tons per day.

Mr. Wright, of Smith, Davidson and Wright, paper jobbers, Vancouver, B. C. was in Toronto this week calling on the trade.

J. Hewitt, President of the Paper Sales Company, Limited, Toronto, has returned from a business trip to Boston. Mr. Hewitt states that the Maine mills are paying $110 for groundwood pulp and are glad to get it at the price.

The general and annual meeting of the Canadian Press, Limited, was held in Toronto on Wednesday of this week when proposals for an improved cable service, to be entirely in the control of the Canadian Press, were advanced. The Canadian newspapers, as a body, although grateful to the British Government for its offer of financial aid, decided that they could not, in self-respect, burden the British tax-payer, but were prepared, from their own resources, and by continuation of aid received from the Ottawa Government,

to develop a service of inter-Imperial cable news. Directors were elected as follows:

Maritime Division—G. Fred Pearson, Halifax Chronicle, and J. D. Black, Fredericton Gleaner.

Western Division—E. H. Macklin, Manitoba Free Press; R. L. Richardson, Winnipeg Tribune; Burford Hooke, Regina Leader; J. H. Woods, Calgary Herald, and Griffith Hughes, Victoria Times.

Ontario and Quebec Division—H. Gagnon, Quebec City Le Soleil; C. F. Crandall, Montreal Star; John Scott, Montreal Gazette; Norman Smith, Ottawa Journal; Stewart Lyon, Toronto Globe, Irving E. Robertson Toronto Telegram; T. H. Preston, Brantford Expositor, and H. H. Pickett, London Advertiser.

At a subsequent meeting of the Board of Directors the following officers were re-elected unanimously; President, Norman Smith; First Vice-President, E. H. Macklin; Second Vice-President, G. Fred Pearson.

C. O. Knowles, General Manager since the organization of the new association in 1917, resigned to become Assistant Managing Editor of The Toronto Telegram, and P. F. B. Livesay, Assistant General Manager since 1917, with headquarters in Winnipeg, and Acting General Manager since last November, was appointed General Manager.

At a dinner at the King Edward Hotel, Toronto, on May 20th, the reorganized Toronto Advertising Club, designed to boost Toronto and to keep a sharp lookout for fake advertisements, was gotten under way. Another object is to elevate the standard of the advertising profession. Delegates were elected to attnd the convention in Indianapolis next month of the International Association of Advertisers. The president is W. G. Steward.



O. F. BRYANT JOINS LAURENTIDE.

The former staff of the Forest Products Laboratories is being pretty thoroughly distributed among the Canadian paper mills. Some time ago, O. F. Bryant who was in charge of the pulp and paper division resigned to take a position with Bennett, Limited, manufacturers of leather board. Dr. J. S. Bates, superintendent of the Laboratories, followed the example and joined the staff of Price Brothers. Then R. W. Hovey who succeeded Mr. Bryant in the pulp and paper division went up to Iroquois Falls with the Abitibi Company. Now Mr. Bryant has gone up the St. Maurice to Grand'Mere and writes that he is in the Research Department and while has has not any particular title expects to find enough to keep him busy as a chemical engineer. For the present he is assuming a bachelor role at the Laurentide Inn.

PACIFIC PULPS, LIMITED

Mr. W. M. Harrison, formerly sales manager for the Whalen Pulp and Paper Mills, Limited, has now opened an office of his own, and will operate under the name of Pacific Pulps Limited.

Mr. Harrison was sales manager with the Whalen firm for the past three years, and previous to that was connected with the purchasing department of the same firm. He is well known to the trade, and is particularly familiar with foreign business.

The new firm will handle British Columbia Pulp, both sulphite and kraft. The total output of the Beaver Cover plant will be handled by this firm, and also a considerable proportion of several other mills on the coast.

In connection with the paper and pulp mill business Mr. Harrison will also handle machine clothing, wires and felts, and various other pulp mill supplies.

The new firm feels that the West Coast mills have an advantage over the East Coast firms in being able to make C. I. F. shipments to almost any part of the world.

NEW PRICE OF NEWSPRINT

New York, May 25.—While it is admitted that some advance in newsprint prices to customers of International Paper Company will go into effect July 1, it is not expected that the increase will reach anything like $30 a ton as reported in market gossip. No intimation is forthcoming from the company as to the quotations for the third quarter, but it would not be surprising if a 10 per cent. advance, $10 a ton, is agreed upon between the company and publishers. Present contracts price is $100 a ton. Newsprint for spot delivery in the open market is selling from $200 to $300 a ton.

According to figures furnished by International Paper Company peeled wood is today selling at $34 a cord delivered at the mill, compared with less than $25 last year. Approximately 1 3-10 tons of wood are consumed in the manufacture of a ton of newsprint. The cost of labor has advanced from $8.68 a ton in 1915 to $25 under the new wage scale, which went into effect May 1 last.

The extraction of turpentine from Douglas fir, a new industry in forest products, has been established on Cortez island by a number of ranchers, and a company is being organized to actively develop the business. A royalty of one dollar per barrel is asked by owners of timber and it is estimated that about eight barrels of pitch is the average production per acre. No tree smaller than ten inches in diameter is tapped and some of the larger trees yield great returns, one producing 48 gallons at one tapping. About two-thirds of a gallon of high grade turpentine is obtained from a gallon of sap, the residue being commercially marketable.

UNITED STATES NOTES

Large timber areas in the lower Adirondacks were seriously menaced by forest fires that raged last week in the northern sections of Herkimer and Hamilton counties, New York. The conflagrations continued for three days while residents, under the direction of forest rangers and wardens battled desperately to stem them. In a statement announcing that the flames had been either extinguished or controlled, State Conservation Commissioner Pratt cautioned Adirondacks visitors against carelessness in the handling of matches and camp fires. The lack of rain in a fortnight or more, in the opinion of woodsmen, had caused a thorough drying out of the forests which, they add, are in the worst condition they have known them to be in the last five years. Advices telegraphed to the United States Forestry Service at Washington told of the destruction last week of large tracts of timber in the country to the north and northwest of Duluth where ten separate fires were burning and seriously menacing the national forest preserves. At last accounts these were not under control and some of them were assuming real serious proportions.

Despite the efforts of the officials of the American Writing Paper Company to get the striking paper workers in their local divisions at Holyoke to return to work pending an adjustment of the wage question that caused them to walk out two weeks ago, the trouble has extended to all independent mills in Holyoke and vicinity. As a result over 1,000 more paper workers have joined the walkout. Production, according to statements issued by the manufacturers, has been unaffected thus far by the walkout, though they readily concede that the spread of the trouble will result in curtailing their output. Present indications are that an amicable re-adjustment of the wage scale is likely to result from conferences now being held between the union mill workers and the manufacturers. The workers' demand consist of 14 cents additional wages per hour making their salary 70 cents an hour instead of 56 cents, the present rate.

Shuttleworth, Keiler & Co., manufacturers of paper bags, have bought at auction the Legget Building, located at the junction of West Broadway, Franklin and Varick streets, New York city. The property is a nine story structure containing 55,000 square feet, situated in a good location from the standpoint of transit facilities. $181,000 was the price paid. After renovations and alterations have been completed, the property will be occupied as a plant for the manufacture of paper bags and other paper products.

The Interlake Pulp and Paper Company at Appleton, Wis., is having plans for a two-story general machine and repair shop, to cost $50,000.

The Federal Trade Commission has published the first volume of its decisions of findings, orders and conference rulings. Bound copies may be obtained from the Superintendent of Public Documents, Washington, D. C., for $1.50 a piece. The volume includes all cases passed on by the commission from March 16, 1915, to June 30, 1919. The printing of the volume entailed considerable expense and for that reason the commission adopted the policy of the Interstate Commerce Commission in not making general public distribution of the volume.

The Senate manufacturers' sub-committee which has been investigating the print paper situation brought its hearings to a close last week. While some report will undoubtedly be made, it is not likely that Congress will frame any legislation relative to the newsprint situation at this time.

Opposition to regulation of newsprint prices was expressed by the newly organized United States Publishers' Newsprint Conservation League, representing more than 100 smaller newspapers east of the Mississippi. This was embodied in a report submitted to the sub-committee by Senator Deed of Missouri. The report predicted that price regulations would result in suspension of 400 dailies and 5,000 weeklies. Small publishers would benefit if large publishers would keep out of the spot paper market and if manufacturers would allot contracts to smaller publications, the report added.

Approval of the plan for an increase in the authorized amount of the common and preferred stock of the Continental Paper & Bag Company was voted at a special stockholders' meeting held May 19 in the company offices at Portland, Maine. The amount of the common stock was increased from $2,500,0000 to $7,500,000 and the preferred was raised from $2,500,000 to $5,000,000. It was also voted to change the name of the company to Continental Paper & Bag Mills.

Speaking at the annual convention of the Wholesale Stationers' Association of the United States, held last week at St. Louis, R. P. Andrews of Washington, D. C., president of the National Paper Trade Association of the United States, asserted that the principal blame for the paper shortage rested with the government because of the attitude which it had adopted toward the paper making industry. "Wood pulp and raw materials could be had if we had the mills to make them into paper," said Mr. Andrews, "but capital cannot be induced to invest in paper mills while they are threatened with government control as soon as their mills are ready to operate. We would have these mills if capital was assured of being let alone." Mr. Andrews gave it as his own opinion that the foundation was laid for the shortage of news print paper when the reciprocity bill was put through with Canada. Since that time, he said, there have been practically no newsprint paper mills built in the United States.

J. W. Dillencourt, who until recently was associated in an executive capacity with the American Manufacturing Company, has become supervisor of the Cordage Section of the Whitaker Paper Company. In announcing Mr. Dillencourt's appointment, the company dwells upon his record in manufacturing and in the jobbing end of the cordage business expressing itself as satisfied that its management has acquired the services of a man who rates high in the industry and whose experience, training and acquaintanceship with the sources of supply and with the trade qualify him to run an organization such as the one he now heads with the Whitaker Paper Company.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, May 22.—There are only very slight indications of the usual spring lull in the paper trade, while the recent rapid gains in paper stocks on the exchanges are a commentary on the prosperity of the industry. Shortage of paper stocks of practically all lines and continued great demand still feature the market, and these features are accompanied by rising prices in all branches of the industry. Very little paper is to be found in the warehouses and what comes in is frequently turned over in a day. Paper makers are hampered through the continued scarcity of raw stock and particularly in the newsprint and book paper lines they are a considerable distance from meeting the tremendous demands that are being made upon their resources, while jobbers are rationing out what stocks they can get and resorting to subterfuges in order to forestall orders. In some cases prices have been fixed at a figure admittedly for the purpose of causing an easing-off of orders, thus allowing the arrears of shipments to be overtaken.

Pulp Prices.

There is no diminution in the demand for all classes of pulp and paper manufacturers are offering almost any price for spot lots. The standard price for groundwood pulp, however, is $100, but it is very hard to get at that figure, or any other figure. Bleached sulphite is selling as high as $175 a ton and easy bleaching brings from $140 to $150 per ton. Offers for bleached sulphite were made this week as high as $200 a ton, and it is stated that a small quantity was turned over at that figure. One pulp manufacturer stated that he had absolutely nothing for May delivery and only a few cars could be sent out for June, aside from those that were tied up under contract. The demand for kraft pulp is not quite so keen, one firm reporting to Pulp and Paper Magazine that they had lost an order at 7c, the customer having bought at 6c.

Wrapping Papers Up.

The week saw another advance in the prices of some lines of wrapping papers. Grey browns went up three-quarters of a cent. "B" manilas a quarter of a cent and No. 1 manila and fibres one cent a pound on car load lots. On grey rag and white wrapping the price is now 9c on car load lots, $9.75 on one ton lots and over and $10.75 on small lots; on "B" manilas the prices are $9.25 on car load lots, $10.00 on ton lots and $11.00 on small lots and on No. 1 manila, fibre, and fibre kraft, $11 for car load lots, $12.00 for ton lots and $13.00 for smaller lots are quoted. At the beginning of the year grey rag and white wrapping were selling at 5¼c in car lots to jobbers and the price is now 9c; "B" manilas jumped from $5.60 to $9.25; No. 1 manila and fibre went from $7.35 to $11.00 and kraft, which was 9c at the beginning or the year, is now quoted as high as 12c, and there is practically none available.

Book Papers.

In no other branch of the paper trade is the shortage so marked as in that of book papers. There are practically no stocks on hand, and the same applies to bonds and ledgers. Sales of No. 1 coated book are being made at 16½c; No. 2 is selling at 15½c, No. 3 at 14½c and colored at from 16¾c to 20c. No. 1 book is selling at $12, No. 2 at $11.85, No. 3 at $10.75. The lowest priced writing paper is No. 1, which is quoted at 12c to 15c. Sulphite bonds are quoted at 15c.

Tissues.

A new scale of prices for tissues came into effect this week, there being a slight increase in most lines. Plain tissue napkins, which were quoted at 75c, are now 85c. plain natural crepes have gone from $1.00 to $1.20; plain, 13½ x 13½ crepe $1.30 to $1.40. Interlake napkins, banded in one hundreds, two process bleached crepe, are now quoted at from $1.50 to $1.60, and the same line folded, $1.60 to $1.70. Sulphite tissue wrapping 27 to 35 pounds, is quoted at from 11c to 12c, and semi-bleached sulphite wrapping is selling at from 11½c to 13c for 27 lb. weight. No change is recorded in the price of toilet papers.

Tag Manilas.

One half a cent a pound represented the advance on tag manilas this week, the product now being quoted at 10½c. Sulphite tag, which was selling at 13c is now 13½c. Cheap bristol is also up half a cent, and there is a slight increase in envelope manila.

Box Board Industry.

The boxboard industry continues to develop to an unusual extent, and demands are coming in constantly for containers for lines of goods hitherto sold in bulk.

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Write us when you have any surplus of **Ground Wood** Bleached or Unbleached. We are always in the market.

The supply of boxboard is nowhere near sufficient for the manufacturers of the standard lines of containers, let alone the taking on of any new lines and the board manufacturers are months behind with their orders. Prices of the various lines remain unchanged, although there is talk of further advances owing to the scarcity of raw material chiefly. So far, the project mooted some little time ago for a new box board mill at Toronto, by a leading Canadian manufacturing company, has not materialized, but the prospects are that it will eventually come.

Newsprint.

Records in the Toronto office of one of the big paper companies indicate that during the past week the production of newsprint has been a little above normal, although none of the mills are looking for business. While production has been a little better, there is still a large under-delivery, which has off-set the slightly increased production and has no effect upon the relationship between supply and demand. One mill has been offered within the past few days as high as 12c in American funds for roll newsprint, and offers of 10c are frequent, but there is very little available for shipment at these profitable prices.

Rag and Paper Stocks.

Rag and paper stock dealers report that stocks, particularly in the paper market are beginning to move a little more freely as the embargoes have been lifted considerably during the past week. No. 1 print manila has undergone an advance from $2.00 to $2.25, and this is the only material change during the week. Rag stock prices remain unchanged.

Rag and Paper Stock Prices.

No. 1 shirt cuttings			19c
No. 1 unbleached cotton cuttings			16c
No. 1 fancy shirt cuttings			13½c
No. 1 blue overall cuttings			13½c
Bleached shoe clip			15c
White cotton hosiery cuttings			17½c
Light colored hosiery cuttings			13½c
New light flannellette cuttings			13½c
No. 2 white shirt cuttings			13c
City thirds and blues (repacked), No. 15			5¼
Flocks and satinettes			$3.75
Tailor rags			$3.75
Gunny bagging			4c
Manila rope			8c
No. 1 white envelope cuttings	$5.75		$5.25
No. 1 soft white shavings	$5.50		$5.00
White Blanks	$3.50		$3.25
Heavy Ledger Stock	$3.80	$3.90	$3.75
No. 1 magazine	$3.50	$3.27	$3.50
No. 1 book stock	$3.00	$2.80	$2.50
No. 1 Manilas			$3.25
No. 1 print Manila			$2.25
Folded news	$2.15	$2.00	$1.90
Over issue, news			$2.25
Kraft			$3.75
No. 1 clean mixed papers	$1.70	$1.65	$1.60

NEW YORK MARKETS.

New York, May 22.—The inevitable reaction, following the long and steady climb of prices, has at last made its appearance in a good many commodities, textiles and clothing in particular, but there is as yet no sign of easiness in the paper market where demand continues fully as voluminous as recently and prices on as high levels. In fact, there have been further advances reported in quotations on some kinds of paper, and it can be stated that there is a large potential demand remaining unfilled, manufacturers being altogether unable to cope with the demands of buyers. Whether or not the reactionary tendency in other commodity lines wil affect the paper situation is problematical, but taking a most conservative view of conditions, it can be said that there seems little probability that it will, at least for a long time. There is no question that the paper market as it exists today is a distinctly healthy market. One frequently hears expressions of opinion about prices being too high, etc., but it is generally and openly conceded that demand is making prices, and that demand is and has been for some time far in excess of the output of paper mills in this country, together with the supplies imported from Canada and elsewhere. Until the consumption of paper is reduced, it is therefore unlikely that any material easing off in paper prices will occur, irrespective of the situation in other manufactured commodities.

Probably the feature of the market during the current week has been the sales of book papers at new high price levels. Machine finished book has sold at 15.50 cents per pound f.o.b. mills, and it is reliably reported that most manufacturers are refusing to consider orders from open market buyers at under this figure. Offered supplies are very light for the reason that manufacturers have the great bulk of their production sold for months ahead, and are declining to enter into commitments further off. Super book papers are quoted at anywhere from 15 cents a pound up to 18 cents, depending on the grade and time of delivery, while coated book papers are priced at between 18 and 20 cents at mills.

The newsprint market continues strong to an extreme. Publishers in large cities are keeping out of the spot market as far as their needs will permit, and yet transactions are repeatedly reported between such buyers and mills at full quoted spot prices. For example, it is understood on high authority that a certain Chicago publisher a few days ago placed an order with a Canadian mill for a tonnage said to amount to 20,000 tons of newsprint for delivery over the next several months at a figure of 15.50 cents per pound. Deals of this character would indicate that while large consumers contend they are "laying low" as buyers, they are in reality leaving no stone unturned in their efforts to recover their requirements and are absorbing supplies whenever found available.

Fine papers are in steady demand and prices are constantly rising. About the lowest price quoted on bonds at present is 18 cents per pound, and only a cheap grade paper is to be had at this figure. Bond papers of widely known watermarks which not so long ago were being marketed at less than 10 cents are today fetching 22 and 23 cents a pound, and manufacturers cannot begin to satisfy the demands made on them. Local jobbing houses have little or nothing in the way of sizeable amounts of fine papers in stock. Warehouses are practically empty, and shipments from mills are being distributed among printers and other consumers as quickly as they arrive. It has really reached a point where buyers must wait their turn to get paper from mills, with the result that dealers and consumers are endeavoring to keep orders on file with manufacturers a long way ahead so that they can be assured of steady shipments.

There is a very firm tone to board prices and sales have been recorded at additional slight gains. News

WOOD PULP TRADING CO., Ltd.

Rio de Janerio, Brazil.

501 Fifth Avenue, Astor Trust Building
Cor. of 42nd Street
NEW YORK CITY

Buenos Aires, Argentine.

Exporters of Pulp and Paper

board has sold at $125, and in some cases, at $130 per ton, while plain chip board is bringing $110 to $115. The paper box business has slowed up to an extent, which is a usual condition at this season, yet demand for boards rules brisk and boxmakers are taking in all the supply they find available.

Tissues and wrappings are in steady call and prices hold firm. No. 1 white tissue is quoted at between $1.60 and $1.75 and No. 1 domestic kraft wrapping is readily selling at 11 cents a pound.

GROUND WOOD—Firmness prevails in the ground wood market and demand shows no let up. If anything, demand is gaining momentum as the requirements of customers increase and they find it harder to locate available stocks. Grinders are working at as full capacity as present conditions will allow but are having much difficulty in effecting deliveries owing to the railroad congestion, which brings buyers who otherwise would be out of the market actively into view in search for supplies. No. 1 spruce pulp continues to be quoted at $100 to $110 per ton at producing mills, but as a matter of fact, market values are purely nominal. Sellers having ground wood on hand which they can immediately deliver are enabled to obtain almost any figure within reason, so pressing is the need of consumers.

CHEMICAL PULP—Demand for chemical woodpulp shows no abatement and quotations are firmly maintained. Such lots as are offered in the open market find ready buyers irrespective of the prices asked. and there is a large potential demand going unfilled. Most manufacturers are definitely out of the market as sellers, either needing all of their supplies for their own use or else having foresold the full amounts that they direct to transient buyers, and, as regards some grades, it is indeed a problem to locate available stocks. Newsprint sulphite is readily fetching around 7 cents a pound and No. 1 domestic kraft 6.75 cents. Bleached sulphite is nominally quotable at around 14 cents ex dock for foreign grades at 11 cents for No. 1 domestic bleached. There is practically no soda pulp to be had in the open market and but occasional lots of Mitscherlich and easy bleaching sulphites are offered.

RAGS—A good business has been done in papermaking rags this week and such changes in prices as have occurred have been in an upward direction. White rags are still the most actively sought class of stock and mills are paying premiums for choice packing of whites. Sales of old No. 1 repacked whites have been made in some instances at 17 cents a pound, and at even higher figures, while about the lowest figure at which such rags can be bought on today's market is 14 cents. Demand for blues has picked up a bit and repacked thirds and blues have sold at 4.75 and 5 cents per pound at shipping points. Roofing rags are in steady request and are bringing around 3.60 to 3.75 cents a pound f.o.b. New York for No. 1 packing, while western felt mills are reported granting prices slightly above these. New cuttings are quotably steady and are moving toward mills in consistently good volume.

PAPER STOCK—The uptrend in old paper values has continued throughout this week and some new high price levels have been established. Demand is active and consumers seem to be overlooking matters of price in an effort to cover their wants. Dealers and packers assert that it is becoming quite a difficult problem to accumulate usual tonnage of most grades. This condition it is being said, is due to the tight supply situation in new paper and the resultant decreased output of waste paper. Whatever is the supply condition, it is plain to be seen that board mills and other consumers are using large amounts of paper stock, doubtless on account of the trouble they are having in getting wood pulp, and offerings are quickly snapped up at full quoted figures. Shavings are especially firm in price, and No. 1 hard whites have sold at 7 cents a pound f.o.b. New York and No. 1 soft whites at 6 cents. Flat stock is quotable at a basis of about 3.75 cents at shipping points for No. 1 heavy books and is moving actively to both eastern and western mills. Folded newspapers have sold at 2 cents New York and No. 1 mixed paper at 1.80 cents, while No. 1 old kraft paper has advanced to 4 cents per pound at shipping points. Manilas and ledgers are firm and actively sought.

OLD ROPE AND BAGGING—A consistent demand for old rope and sales are going through involving good-sized tonnages at prices ranging close to 8.75 cents a pound for No. 1 domestic Manila rope, and about a quarter to a half cent less for foreign rope. Old bagging is in but routine movement and No. 1 scrap is freely available at 3.25 cents per pound. Gunny is comparatively quiet at a quotable basis of 3.50 cents at shipping points.

"PULP AND PAPER'S" REPLY.

In the course of his reply to Col. Haskell's letter on page 568, the Editor said:

The subject under discussion is one of the utmost importance to both Canada and the United States. In fact it is difficult to discuss it without taking into consideration the conditions on both sides of the line. It happens that several of the points mentioned in the communication which we take pleasure in reproducing in the current issue of the Pulp and Paper Magazine are also referred to in the bulletin which is now being distributed by the Canadian Pulp and Paper Association on the subject of the Provincial restrictions on the cutting of pulpwood from crown lands. I am glad to note that your experience supports the assertion that in the virgin forest losses by decay and disease practically balance the annual increment. Of course, disastrous fires locally upset the balance entirely at the same time that they destroy the forest itself. That of course, has occurred in large areas of the Canadian forest and consequently largely reduce the annual increment when calculated for the whole forest area.

I am glad also to note that you perceive that it is only on operations which are "wisely carried on", as Mr. Piche says, that the annual increment can be assumed to be materially above 2 per cent. You have noted the same sentiment among the remarks of Sir Lomer Gouin and doubtless in dictating your letter you subconsciously emphasized the words "with proper management."

I am sure that you are as anxious as we are to have the matter thoroughly understood and amicably adjusted because you too doubtless have in mind the reservation of the forests for future generations rather than merely granting such concessions and making such regulations as will simply favor the money making opportunities of the present generation.

Editor, PULP & PAPER MAGAZINE.



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The first and worst of all the cruelties inflicted on horses is the perpetual jerking of the reins, which is in evidence all over the city and from every degree of driver—jerk, jerk, yank and twitch all day long, leaving horribly mangled tongues and lip angles, bruised bars and broken jaws, and entailing frightful suffering from the abuse of the most delicate and sensitive members, remarks the New York Herald. The lower jaw is a bundle of nerves and paper skin, utterly defenceless against the brute on the seat, who knows that when the whip falls dead on the reeking body, the scientific jerking of the bit will bring effort after effort from the spent and suffering horse."

EXCHANGE SITUATION GOOD FOR CANADA

Vancouver is reaping some good from the exchange situation. There have been several instances lately where equipment firms from the U. S. have made arrangements to build machinery and equipment in British Columbia. Some of these have been figuring on this for some time past. Present conditions hastened previous plans. Exchange conditions have also benefitted local firms in many ways.

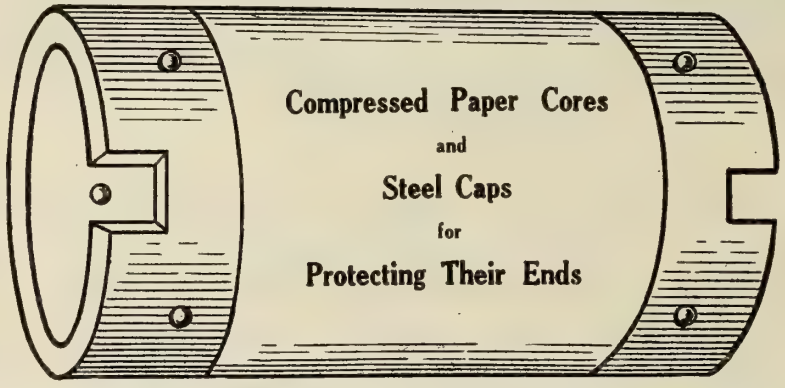
CORNER IN PRINT PAPER

Washington, May 22.—Charges of a "corner" in print paper were made recently by the Senate committee investigating the paper shortage by Cortland Smith, of New York, president of the American Press Association.

Mr. Smith testified that print paper manufacturers were in a conspiracy to regulate both production and prices.

WRITE FOR SAMPLES

Dept. C.



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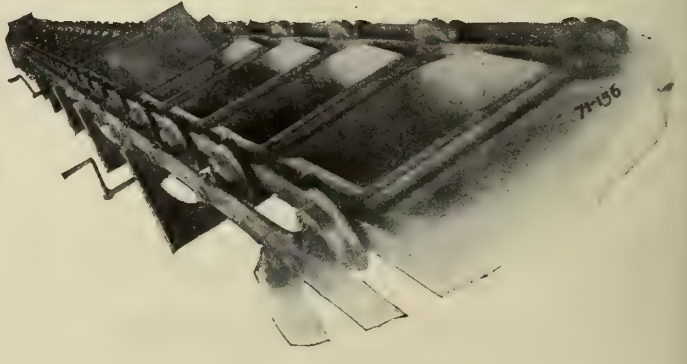
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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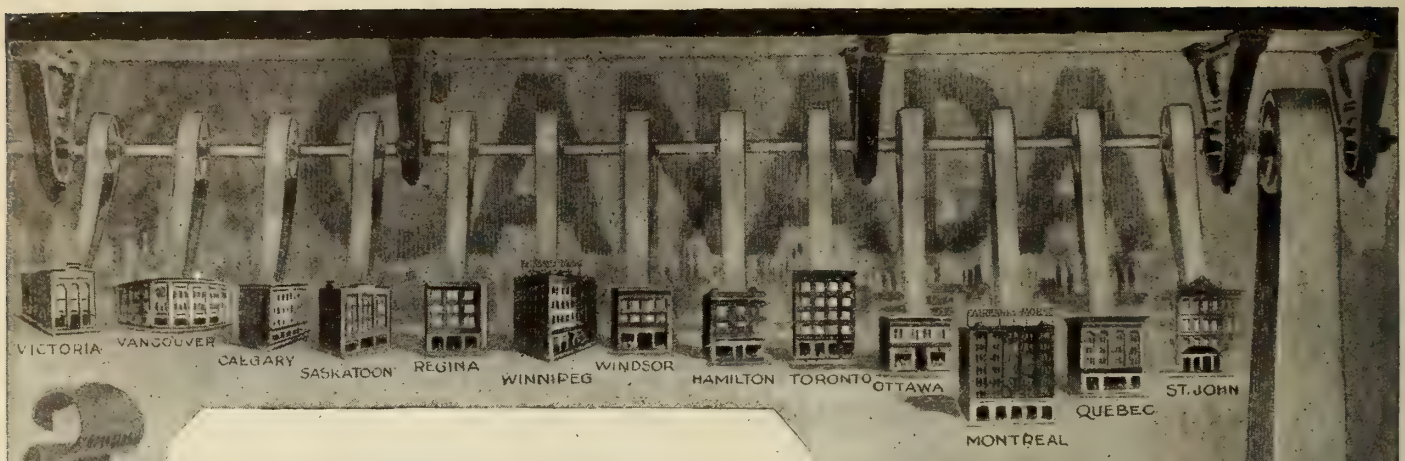
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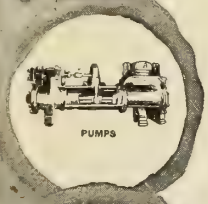
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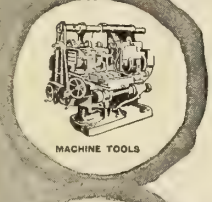
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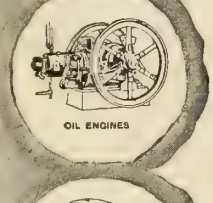
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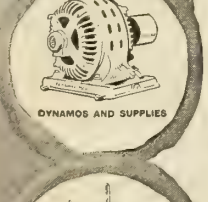
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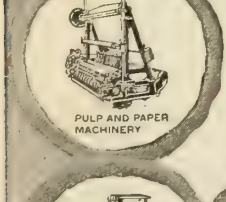


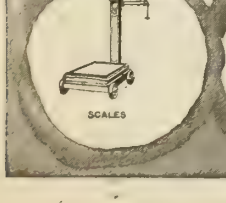


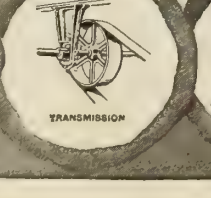




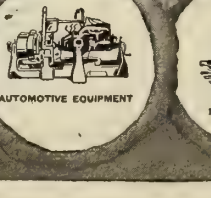


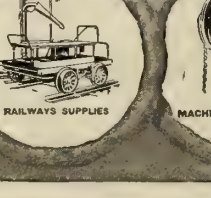
















-:- EDITORIAL -:-

IT ISN'T DONE THAT WAY.

When Gen. Townshend was offered a harem by the Turks to help him spend more pleasantly his days of captivity, he declined the offer without hurting the feelings of his host by stating that "it was not done that way in his club." It might be mentioned in connection with reports of the discussion of the famous Underwood Resolution, in which big stick methods are openly advocated, that friendly negotiations are not done that way.

Throughout the references to the matter there is a lax use of the word 'embargo' which does not apply to the situation because there is no actual embargo even though the effect of restrictions, which is the proper word to use, have the effect of an embargo. The use of this word is likely to lead many to the assumption that the Dominion Government is a party to the matter in dispute. This is not the case.

Furthermore, the Resolution and the consideration that it has been given do not mention the similarity between the action of provinces and the action of the states of the Union. New York State, for instance, (which, by the way, is not mentioned, at least according to dispatches on the House Committee's resolution, as a pulp producing state) has placed even more rigorous restriction on state owned forest than has any province. It would be quite as proper for the Dominion of Canada to demand that pulpwood from the state owned lands of New York be made available for export to Canadian mills as for the United States Government to put into effect some of the actions mentioned in connection with the Underwood Resolution. Vain efforts have already been made by the New York State manufacturers to have released some of the mature timber in the Adirondacks which is thus uselessly tied up.

As has been repeatedly stated in Canadian publications, the Provincial Governments are not withholding from use a single stick of timber or pulpwood which should be available for manufacturing purposes. They only require that the manufacturing be done within the boundaries of the Dominion. New York State, if there is to be any proper reference to a dog in the manger attitude, should be cited for its policy of going so far as to prevent badly needed mature timber which will otherwise decay, from being used by anybody and under any conditions.

Some Canadian newspapers, among the many who greatly regret the attitude of the Americans, are inclined to draw back their lips just a little bit and reply with something akin to a growl at threats of embargoes against the Canadian people for supplies that are not even limited to the use of pulp and paper mills. The outcome of the whole matter is one of great moment and at present there are indications of possibly strained relations. There have been a few such occasions in the past, one of which involved another natural resource, the fisheries, but all difficulties so far have been adjusted without forceful persuasion. Some of these matters have involved the offices of the British Foreign Office and it is possible that the present question may also be an occasion for action through London. If this is the case we can see the possibilities for very serious difficulties between the British Empire and the United States and would strongly advocate the settlement of the matter by letting it drop.

GENERAL CURRIE IS PRINCIPAL.

The disappointment that swept through educational circles in Canada because of the resignation of Sir Auckland Geddes as principal of McGill University is turned to satisfaction over the choice of General Sir Arthur Currie for this post. The selection of a military man to head a university is not without precedent. One of the most successful and beloved leaders in educational work was Gen. Amasa Walker who served for many years as president of the Massachusetts Institute of Technology, during one of the most critical periods in the life of that institution. General Currie comes to McGill at a critical time in its life. Educational work and methods are in a state of flux. It may be an advantage to keep them in this condition rather than to have them solidify into what may prove to be an undesirable state of rigidity. Whatever be the final form, the new principal of McGill will have much to do, not only with the future of McGill University but his influence will be felt throughout educational circles in the Dominion.

Perhaps the greatest tendency of the day and one which General Currie, with his experience in the world, will be able to appreciate keenly and guide wisely is the desire on the part of the public to be served with educational opportunities that are more directly applicable to daily industrial life than has been the case in the past. Some believe and doubtless with cause,

that the tendency may be a bit too strong toward utilitarianism. There is no doubt of the value of the type of education which has been almost universal in broadening and deepening the life of the community and it is to be hoped that McGill, while modifying certain courses to meet requirements, will at the same time retain sufficient of the so called—and properly so called—cultural studies to maintain them in proper balance with the technical and scientific portions of the curriculum.

Among the matters which no doubt will receive the early attention of the new principal will be the institution of studies in the technology of pulp and paper manufacture and the arrangement of opportunities for students in the science courses to investigate some of the interesting and important problems of a technical, engineering or purely a scientific nature that confront Canada's most important manufacturing industry.

There is at the present time a movement for the establishment of vocational schools and while university training is an entirely different proposition yet the two cannot be considered entirely apart but should be viewed as factors in the broad educational program that should be instituted and developed. The Pulp and Paper Industry has already taken some steps and in the various mill centres beginnings have been made in local educational work. The Technical Section of the Association has a committee on education which has been studying the situation and making plans for several years and they will be very glad indeed to co-operate with General Currie and to give any advice and assistance that may be of service to him, especially in-so-far as the opportunities at McGill bear on the pulp and paper industry. More and more graduates each year from our Canadian universities are finding their way into permanent positions in the industry and a plan inaugurated last year by the Technical Section for providing opportunities for summer work in the mills for students has been crowned with success. Where some fifty students were placed in mills last summer there will be about eighty this year. This is but an indication of how the industry and the university are coming together and the signs are certainly favorable for an increase of these desirable situations which will be of advantage to the university, the students and the industry.

The Pulp and Paper Magazine, which is deeply interested in the work of the university as well as the pulp and paper industry, extends its cordial greetings to General Currie and to the University and awaits any opportunity for being of service.

In giving a list of their mills to the House Committee on Foreign Affairs, an official of the International Paper Co. forgot to mention the big sulphite mill now nearing completion at Three Rivers, Que.

WANTS AN ITINERANT PULP MILL.

An unfortunate forest situation exists in the prairie provinces. Settlement lands have been granted returned soldiers and others, and great stretches of timber are actually being burned in order to clear the land. This regretful condition is said to be due to lack of organization and facilities for marketing the wood. Sometime ago when a canvass of the various states was made as to their attitude toward the forest the answer from Kansas was that their forestry practice was to get rid of the forest. The situation in Saskatchewan and parts of Manitoba at the present time is similar to what it was in Kansas at that time. An agricultural country is being settled. The settler wants to get his ground planted in crops as soon as possible. The clearing of the land in Kansas was largely accomplished by the destruction of the forest and that state now is not only dry by prohibition legislation but is largely a dry, wind swept, treeless prairie because of the destruction of the forest by the early settlers.

Our prairie provinces are absolutely sure of becoming treeless wastes where blistering winds will wither the crops in summer and bitter icy blasts bring shivers and suffering in the winter time. The appreciation of trees as modifiers of climate, improvers of soil and protection against the weather is mentioned entirely apart from the enormous value of the forest as a source of wealth. The destruction of timber in the manner indicated in the dispatches should be prohibited partly because of the waste it entails, partly because of the menace to other land, public and private owned, partly because of the destruction of the humus in the soil which the settler is so anxious to get at and partly because removing the trees will some day be one of the main factors in making it necessary for the settler to abandon his farm and move on. There has been forest destruction enough already in the western provinces without permitting further settlements in regions where this is the only means of getting at planting conditions.

The author of the dispatch telling of the present practice of the new settlers does not state how far they are from railway or water transportation which would carry their wood to a freight car. The intimation is made that temporary pulp mills be installed at convenient points for converting this material into what is just now a very scarce and high priced commodity. The suggestion is interesting but it does not take due consideration of the nature of pulp manufacture. Cheap power is essential and a fairly convenient market is required. A single grinder would require about 300 H.P. and in a region where such power would have to be supplied by a steam plant or for which a hydro electric station would have to be installed, the proposition is not a very attractive one. The idea of a pulp mill being erected as a temporary

affair would hardly be entertained by anyone having experience in the industry.

The distance required to haul either pulp or pulpwood to a consuming point puts the present use of this material practically out of the question as the nearest mills would be nearly 1000 miles away. Poplar and spruce can be had in the east at prices which, although unusually high would hardly pay the cost of hauling from Northern Saskatchewan to Fort Frances or Dryden or Port Arthur and give the settler days' wages for his work.

In view of the dangers attending wanton destruction of the forest, however, it is not inconceivable that a government commission for handling this settlers' wood in the most economical manner would not be distinctly worth while. It is probable that present conditions in the lumber market would give the greatest value and benefit to the settler if arrangements were made for converting his wood into lumber for the construction of new homes and barns in the prairies, with probably a surplus for other markets. This solution of the problem would have the advantage that a portable saw mill could be brought to a point convenient to a number of settlers and, using waste wood for fuel, could operate very economically and furnish a very valuable service where and when needed. The hauling then of the lumber to the nearest railway would furnish work in the winter for the settlers' teams and at current and probably future prices for lumber there would be a good margin to distribute in such a co-operative enterprise.

Whatever is done should be done quickly and the steps taken in preserving a forest would certainly be to the distinct advantage of the settler as well as supplying a much needed commodity to the general public.

COBWEBS.

American railways are short 226,000 freight cars, 9,540 passenger cars, and 3,190 locomotives. That means every shipper and receiver of goods must do his utmost to keep available cars in motion.

Newsprint may not be a necessity of life according to the supreme court ruling, but a lot of people devour the paper as soon as it comes, and digest the news. —Ottawa Citizen.

No wonder there is so much jaundice and indigestion!

High Price Bros., paper makers, of Quebec, have beaten the Government to a pulp on the question of the price and supply of newsprint. The newspaper men of Canada see a sword suspended over their heads. —Kitchener, Ontario, "News-Record".

Now the question is: Will Price drop the sword?

Happy the mill which has learned to make newsprint without sulphite pulp! Canada can continue to make groundwood with pulpwood and water power.

From what we hear of the coal situation, no Underwood embargo will be required to cause a suspension of operation by some manufacturers.

It is gratifying to note that the payment of freight on coal shipments, according to word from Ottawa, is to be made in advance only to the border in American funds. It did seem unreasonable that the American railways should demand a premium of 10 per cent. or so on the cost of transportation over Canadian lines. The adjustment of this matter will not only save a good many dollars to Canadian importers of coal but will spare some hard feelings as well.

The forest fire has made its annual appearance and great devastation has already occurred in a number of the provinces. It is interesting to note that a serious fire was reported in Nova Scotia immediately after the passing of a freight train through a stretch of green timber. The guilt of the locomotive is again indicated by the provision in New Brunswick for a patrol to follow every train. Why this expensive and 'lock the door after the horse is stolen' method should be pursued instead of requiring railways to use spark arresters is beyond our comprehension. It is a most ridiculous and unfortunate situation when government railways are permitted to be neglectful of precautions which are at once so obvious and so necessary.

A western paper, under the heading "Dividing of the Spoils" intimates that newsprint manufacturers have advanced the pay of their employees 20 percent because times are so prosperous in that industry that the mills cannot afford to have operations suspended. Our contemporary has wasted its sarcasm in that remark because, as a matter of fact, the industry was never in a better position to resist an unreasonable demand than at the present time. A friendly conference on the subject of wages resulted in the adjustment referred to, although a larger increase was asked for. The industry recognizes a moral obligation to be fair with its employees and is ready to meet reasonable requests. In fact some mills made advances to their employees before the requests were made. Another point which is lost sight of in the paragraph referred to is that while wages have been advanced 20 percent from the first of May, and materials have naturally advanced in price an approximately equal amount, the price of the finished product has not been advanced beyond that rate and in many cases has not been pushed up as far.

The Experimental Pulp and Paper Laboratory*

The need for the study of the technical problems of the pulp and paper industry has been long felt, and while there are several laboratories in existence at the present time, few, if any, are as complete or have been in the field as long as that of the Forest Products Laboratory, Madison, Wis. On account of frequent inquiries from pulp and paper companies and institutions contemplating the installation of similar laboratories and the lack of available information based upon experience, it seems advisable to make available the practical knowledge that has been gained at this laboratory during the last thirteen years. The expense of developing apparatus for carrying on work on a semi-commercial scale is considerable, and several attempts are usually made before satisfactory apparatus is secured. It is hoped that this article may indicate the means of saving a considerable portion of the expense that otherwise would be incurred in the installation of equipment of this kind.

About fifteen years ago the lack of information in regard to the suitability of the majority of species of wood on our National Forests was evident, while at the same time it became apparent that the supply of pulp woods contiguous to the existing pulp mills would soon be inadequate. The logical method of meeting the situation was to secure data in regard to the suitability of other woods for the manufacture of pulp, and the Forest Service started, in 1906, a small laboratory in Boston. The equipment consisted of a lead lined digester of about 60-gallon capacity, blow pit-washer, vats and other equipment necessary for the making of handmade sheets of pulp. Later the laboratory was moved to Washington in order to be nearer to other lines of investigative work conducted by the Forest Service. In 1908 it became evident that the equipment was inadequate for the purpose and the desirability of combining all the investigative work on forest products conducted by the Forest Service under one roof was apparent. Promise of active cooperation was secured from the University of Wisconsin and in 1909 the construction of the Forest Products Laboratory, at Madison, Wisconsin, was commenced. Dedication exercises were held in the summer of 1910. At this time the equipment of the pulp and paper laboratory consisted of a soda digester and a sulphite digester, blow pits, daphragm screens, Hollander beating engine, an experimental Fourdrinier paper machine capable of making a sheet of paper 12 inches wide, stuff chests, pumps and other necessary accessories. Since then various pieces of equipment have been added as was found advisable and possible with the funds available, until now a complete pulp and paper making plant exists, in which pulp making experiments can be tried out by the soda, sulphate, and sulphite processes. There is, also, a two-pocket grinder in which experiments on grinding wood to mechanical pulp may be carried on.

In designing the separate pieces of apparatus of this equipment for the carrying on of tests on a semi-commercial scale, it has been found that while it is true that in some respects the difficulties to be met are less than in carrying on work on a commercial scale, there are many problems in which the experience gained in commercial operation is of little help since the difficulties encountered arise from the smaller size of the apparatus. On account of this, each piece of apparatus will be taken up separately and its capabilities and limitations discussed.

Wood Indentification.—The first step after wood for pulp tests is received, is identification by a **xylotomist** or someone competent to determine from its bark, structure, and other characteristics whether it is of the desired species. This step has been found necessary on account of the confusion of names commonly used in different parts of the country for various species, use of different names for the same species, and other causes.

Barking.—Wood for pulping on an experimental scale can usually be barked most advantageously by hand, using a draw knife. When slabs, edgings, and waste pieces from large logs are available and there is more material than necessary, the bark may be removed by cutting off thin slices with a band or circular saw.

Storage.—Where such storage as open sheds is available, it is advisable to cut the logs into sticks 3 inches by 3 inches and to store the sticks in racks where the material will remain in good condition until wanted for chipping. It thereby dries to a uniform moisture content and is much less liable to decay.

When it is desired to store a considerable supply of wood in chip form, grain sacks have been found suitable for the purpose. Chips may be charged to the digester directly from the sacks but when this is done average samples should be taken for bone dry weight determinations at the time of charging.

Chipper.—The small chipper, for preparing the wood for the digesters is shown in Fig. 1. It was designed



Fig. 1
The control of the process begins with proper making of chips. This chipper is astandard machine.

at the Laboratory and made by the J. P.Devine Company, of Buffalo, N.Y. It has a disc of 24 inches diameter and weighs approximately 350 pounds. This machine has two knives and takes a piece of wood 3

*By Otto Kress, in charge, section of pulp and paper and Sidney D. Wells and Vance P. Edwardes, Engineers in Forest Products. U.S. Forest Products Laboratory, Madison, Wis.

Note.—This article was written with a view to its incorporation in the Text book being prepared by the Industry. The Joint Committee will welcome criticisms and suggestions regarding the matter and its use.

inches square. It is operated at a speed of 240 R.P. M. and will chip satisfactorily about one-quarter of a cord of wood per hour and consumes about 20 horsepower. The pulley used on the chipper shaft should be of fly wheel weight in order to supply sufficient inertia for smooth running.

Chip Screens.—For screening chips on a semi-commercial scale it has been found most satisfactory to use an ordinary contractor's sand screen, with a screening area 21″ x 42″, made of heavy wire 3 meshes to the inch. The chips are raked by hand over the screen set in a horizontal position, allowing the sawdust and dirt to fall through. While doing this, it is a simple matter for the operator to pick out large pieces of wood, slivers, knots, etc., that are not desired in the screened chips. Common galvanized iron garbage cans, holding approximately 40 pounds of spruce chips, are used for holding the chips and dividing them into suitable charges for the digesters. Bone-dry weight determinations are made from average samples of the chips taken as they are raked into each can and the bone-dry weights are computed, using the bone-dry factor of the sample determined on drying and the actual weights of the chips. All calculations of chemical, yield, bleach, etc are based on the bone-dry weight of either chips or pulp.

Digesters.—In deciding upon the size of digesters, there are several factors to consider: The most important is to have a sufficient capacity to give results that can serve as a basis for judging what results would be obtained under commercial conditions. The second is that with quantities of chips of more than one hundred pounds per charge, the expense of preparing the chips, handling the pulp and making yield determinations mounts up rapidly. Third, the area of the surface of the digester in small sized apparatus is very much greater in proportion to contents than with a commercial sized apparatus and consequently the amount of heat lost on account of radiation and convection, and the amount of condensation in cooking by direct steam are much greater.

This trouble will be experienced in any size of digester less than commercial size, and the best means found at the laboratory of combating this limitation was having a jacket cast in the lower section of the digester, or by means of a lead steam coil, and supplying heat indirectly as well as by direct steam. This combination also makes possible the study of the effect of condensation in the cooking of pulp.

The experience of this laboratory is that with a jacketed digester capable of holding one hundred pounds of spruce chips very satisfactory results are obtained and no difficulties are experienced in using those results when conducting experiments on a mill scale.

The use of apparatus of larger capacity offers the following difficulties:

1.—With any size under half a ton of pulp capacity the amount of condensation obtained without the use of indirect steam is several times that obtained in commercial digesters of usual size. The divergence from commercial practice on account of this condition would, therefore, have to be met by indirect heat which can be easily and neatly supplied by means of a jacket if the digester is not too large. One that will hold 100 pounds of chips is about as large as can be fitted with the proper proportion of jacket area without increasing the cost several times.

2.—With any size under 100 pounds of chips capacity the cost of wood preparation, pulp handling, beating, etc. is substantially as great as with that size. Above this, however, the cost increases in proportion to the size without any corresponding gain in the value of the results. The gain in the amount of product is usually of little value since a few test sheets are all that is necessary for the interpretation of results.

Soda and Sulphate Digesters.—In choosing the type of digester, a tumbling type is most suitable for experimental purposes, because with this type both the conditions obtained in the stationary digester and those obtained in the rotary digester can be secured.

When the digester is stationary, circulation is maintained by a pump taking the liquor from below a strainer in the bottom of the digester and discharging into the neck. A one inch pump with an extra heavy casing is used. This is about four times as large as necessary; but unfortunately a pump of the correct size and casing is not produced as a standard article. The strainer is situated in the special long sweep elbow at the outlet of the digester and is so arranged that it may be raised into the outlet, preventing any chips from passing off with the liquor taken from below, or it may be lowered just before blowing and a clear passage to the blow valve provided for the entire contents.

When the digester is used as a tumbling digester all the connections for liquor circulation, steam, (with the exception of that through the trunnion), liquor, etc., are removed and the holes plugged. The blow pipe is also unscrewed between the blow valve and blow pit and capped, but is so arranged that it can be attached for blowing at the end of the cook. The rotation of the digester is very slow, being about once in six minutes. The power is supplied by a standard ½ horsepower motor belt connected to a worm driving a gear wheel which in turn drives a worm meshing with a wheel on the digester trunnion.

The size of the blow line is an important consideration and experience has been that a 2 inch blow line is as small as can be successfully used without danger of plugging. On account of the power of caustic liquors to penetrate joints as few joints as possible should exist. In the laboratory apparatus the digester is of cast steel and made in two sections and joined. The most satisfactory kind of packing for this joint was found to be a special high-pressure asbestos sheet packing, such as "Permanite." Lead, copper, rubber, paper, and a large number of other types of packing have been tried out and found to be unsatisfactory. Asbestos-packed cocks are the most satisfactory type of valves, and while these need occasional renewal, no other type has been found to last as long without leaking. The surface of the digester should be lagged to prevent loss of heat, to keep down condensation, and to make the surroundings as comfortable as possible.

The cooking liquor for the digester can best be stored in iron tanks placed on platform scales. Cocks should be provided at the bottom of the tanks which empty into funnels connected by removable pipes with the neck of the digester. There should be no contact, however, between the tanks and the funnel in order to insure correct weighing of the liquor. A sample cock should also be placed between the funnel and the digester, to enable a portion of all the liquor as it is running in to be taken for analysis and specific-gravity determination. The stock liquors should be at least 50 per cent more concentrated than is desired in cooking, in order to allow for the dilution caused by the

moisture in the wood. It has been found that the short time during which the more concentrated liquor is in contact with the chips while cool has no appreciable effect, and it is much simpler and more accurate to add water after sufficient liquor has been run in to furnish the proper amount of chemical than to add solid chemical in the digester to liquor found to be too dilute.

The fittings on the digester, in addition to valves and connections, should consist of a thermometer in an iron or steel well, an alkali-proof pressure gauge, and a recording pressure gauge. A recording thermometer would add to the completeness of the automatic records, but is not necessary with apparatus of this size since with proper relief the temperature will always be found to be the same as that of saturated steam of the same pressure.

For the purpose of determining the condensation during cooking, a gauge glass should extend from near the bottom of the digester to opposite the neck. It should be provided with special "ammonia" iron cocks, however, and surrounded by a heavy guard to reduce the liability of breakage and to prevent injury to the operators in such an emergency.

In experimental digesters interesting information can often be obtained by condensing the relief gases. The laboratory apparatus is fitted with an ordinary worm condenser made of ½ inch iron pipe which empties into a large aspirator bottle fitted with a bent tube inserted in the outlet at the bottom to allow the condensed steam to run to waste while any oil coming off collects in the bottle. The digester just described is shown in Figs. 2 and 3.

Blow Pit.—In the operation of an experimental digester the blow pipe is an important consideration; for, where yield determinations are necessary, care must be taken that none of the pulp is lost in blowing. The experience of the Laboratory has been that a wooden tank 4 feet in diameter and 7 feet high inside and constructed of 2 inch staves is most satisfactory. Such a tank should be fitted with a false bottom made of sheet iron perforated with holes 3-32 of an inch in diameter, supported on suitable wooden braces, and just above the false bottom should be an outlet provided with a door that can be fastened tight, through which the pulp after washing is taken. The blow line from the digester should enter the blow pit about two feet above the false bottom. At the point of entering the blow pit, it should be tangent to the sides, so that, on blowing the digester, the centrifugal motion given to the contents completely separates the pulp from the steam and the steam can escape through an opening in the middle of the top of the blow pit without carrying away the pulp. A spray made of lead pipe should be installed in the upper part of the blow pit for washing the pulp, and a suitable outlet provided under the false bottom for the escape of the black liquor. A save-all should be placed under the outlet of this waste pipe to catch any fibres that pass through the false bottom. A very satisfactory type of save-all consists of a box 12 inches x 18 inches fitted with a piece of old Fourdrinier wire for the bottom. The amount of stock that escapes through the false bottom is usually not sufficient to prevent the free passage of the wash water. A strip of sheet iron about 12 inches wide should extend about 2 feet around the side of the blow pit from the end of the blow pipe, to prevent excessive mechanical wear on the wooden walls during blowing.

Cooking and Washing Operations.

In making a cook, the screened chips are sampled and loaded into garbage cans. After the bone-dry

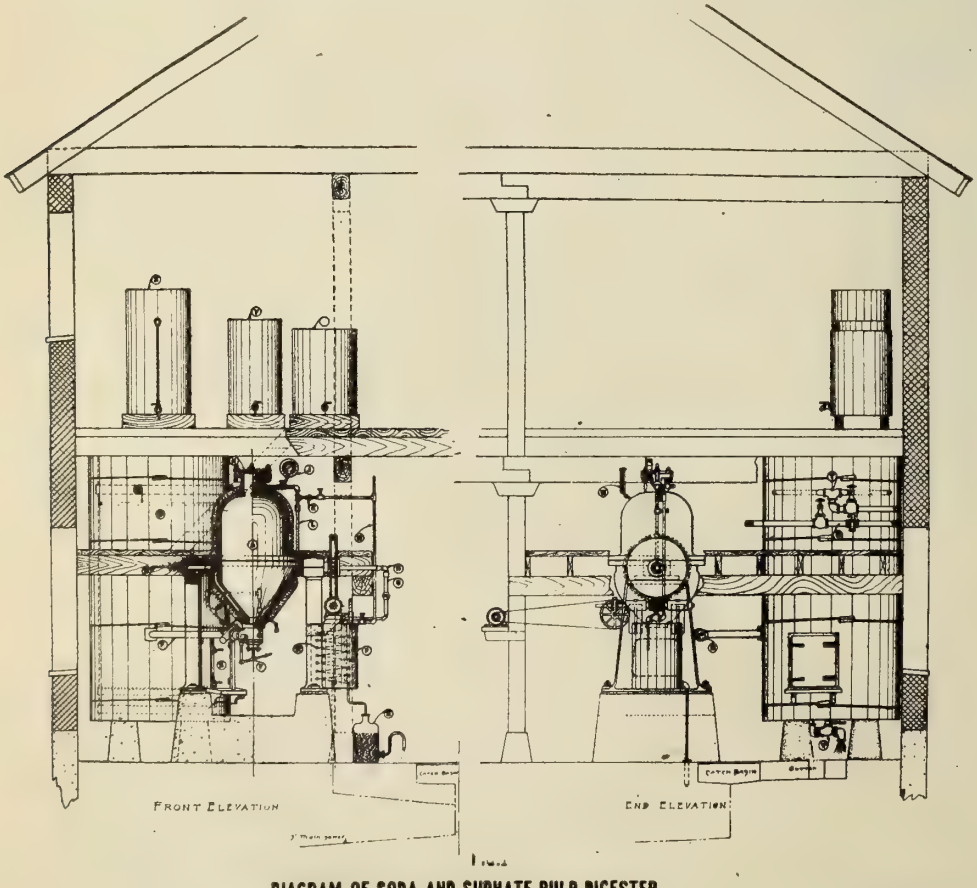


DIAGRAM OF SODA AND SUPHATE PULP DIGESTER

Fig 1.

Key to diagram of soda and sulphate digester.

A. Jacketed digester.
B. Spray pipe.
C. Blow pit.
D. Steam inlet through trunnion.
E. Blow pipe.
F. Strainer rod.
G. Blow pit door.
H. Digester cover.
J. Pressure gauge.
K. Union for water connection.
L. Relief pipe.
M. Water line to condenser
N. Relief.
O. Relief connection to condenser.
P. Condenser container.
Q. Blow valve.
R. Condenser worm.
S. Oil separator and receiver.
T. Water spray connection.
U. Hydrant.
V. Black liquor outlet.
W. Digester thermometer.
X. Liquor tank.
Y. Sodium sulphide tank.
Z. Caustic soda tank.

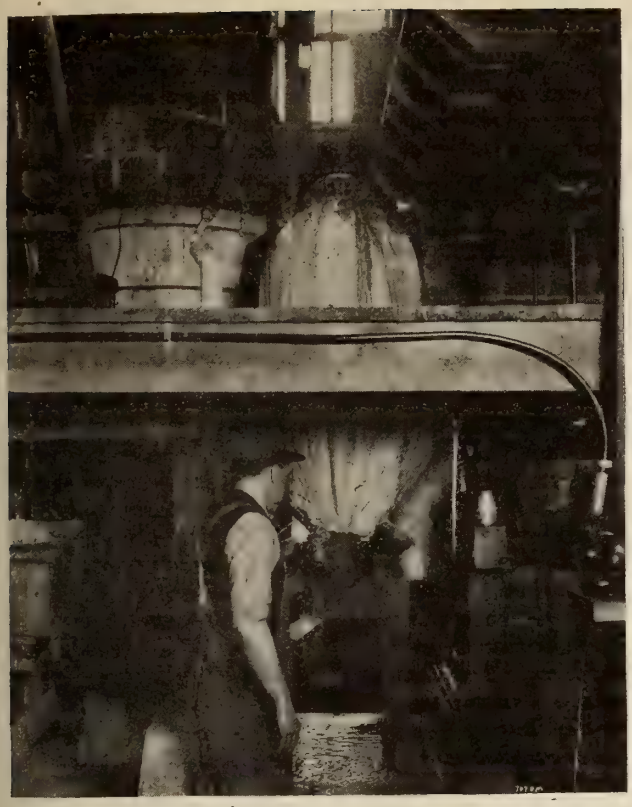


Fig. 3.
Making ready to blow the digester. Every care is taken at each stage of the work.

weight has been determined, chips are added or taken from each can or group of cans until they contain just the proper amount of wood, figured on the bone-dry basis, to make the desired charge.

In loading, the chips are dumped through a sheet iron funnel which fits into the neck of the digester. The funnel is then removed and the liquor pipe attached so that liquor may be run directly from the tanks into the digester. The liquor tanks are weighed and sufficient liquor is run in to furnish a little less of the active chemicals than is desired for the cook. While the liquor is run in, a sample is taken by opening the sample cooks to give a continuous stream sufficient to yield enough for specific gravity determinations and analysis. Caustic soda liquor is analyzed, also sulphate liquor, by the method recommended by the Sulphate Committee of the Technical Association of the Pulp and Paper Industry in their annual report of 1916.[1] After analysis the exact amount of liquor is run in and water added to give the desired concentration, making due allowance for moisture in the chips. The liquor pipe is then detached and the digester cover bolted on, using a damp gasket cut from a sheet of sulphite pulp. When the digester is to be stationary the liquor is well mixed, using the circulating pump. When the digester is to be rotated the liquor is mixed by rotating two or three times. It is important that the proper volume of liquor to insure uniform cooking be present. Twenty gallons per 100 pounds of chips is the smallest volume advisable in ordinary cooking and 15 gallons where preliminary impregnation is used.[2] With fibrous material similar to cotton-hull fibre, at least 55 gallons per 100 pounds of raw material are needed. Not more than 489 gallons of liquor should be used in a digester of the size described; this will leave sufficient vapor space during the cook.

The cook is then started, first by admitting steam into the jacket, until a few pounds pressure is reached, to heat the digester shell and lagging, and then by turning on enough direct steam to follow the cooking curve. When 2 or 3 pounds' pressure is reached in the digester, it is relieved to remove the air and thereafter occasionally relieved to keep the temperature the same as that for saturated steam of the pressure indicated. With stationary cooks the circulating pump is operated continuously during the pressure-increase period and during the first half hour at maximum pressure. Thereafter it is operated about ten minutes in every hour. With tumbling cooks the digester is rotated twice every half-hour during the pressure-increase period and the first half-hour at maximum pressure and twice every hour thereafter.

On completion of the cook the blow line is connected, the bottom door or blow pit closed, and any water in the blow pit drained off. The steam is then turned off, steam in the jacket blown off, strainer lowered, and blow valve opened, allowing the contents of the digester to discharge into the blow pit from the force of the digester pressure. The steam is separated from the pulp by centrifugal action and escapes through the opening in the top of the blow pit. A black liquor sample is taken from the drain and then any pulp remaining in the digester is washed out with hot water. The pulp in the blow pit is then washed with hot water and drained, removed, pressed, and given the same treatment described later under sulphite pulp.

One of the best indications of the suitability of the cooking conditions used is the determination of the caustic soda remaining in the black liquor. The method recommended by the Sulphate Committee of the Technical Association of the Pulp and Paper Industry, in their report of 1916* is used. Sodium sulphide is an active chemical, but no trace of it as such has been found in any of the black liquors obtained at this laboratory or from many pulp mills and only the amount of caustic soda in proportion to total soda, with the exception of sulphate, is determined.

(To be continued.)

[1] Paper, Convention Number, Feb. 23, 1916. Vol. XVII, No. 24, page 32.

[2] Report of Sulphate Committee, T.A.P.U.I., May, 1918. Paper, May 22, 1918, Vol. XXII, No. 11, page 52.

*Paper, Convention Number, Feb. 23, 1916. Vol XVII No. 24, page 30.

IT WASN'T AN AMBURSON DAM

The attention of the editor has been called to a possible misconstruction of the paragraph on page 556 of the issue for May 20th which referred to the breaking of a dam of the Nashwaak Company resulting in a wreck of a freight train. The dam that broke was a log holding dam and piers whose failure released about ten million feet of logs. Below this point is a dam that has just been completed at Marysville by the Amburson Hydraulic Construction Company. The mass of logs piled over the new dam, completely blocking all the sluice ways and part of the roll way so that the water was raised fully ten feet above the crest of the dam. This is double the overflow the dam was designed for and yet it passed through this experience without suffering any damage whatever.

Canadian Publishers Gunning Again

It is understood that some three weeks ago the Committee of the Publishers made an application to the mills for assurance as to how their paper requirements were to be met after June 30. They claim that such assurances as they received were unsatisfactory, and thereupon they applied to their respective mills for contracts to cover a supply of paper.

Memorial to Government.

In a memorial presented to the Government the publishers have informed them that in many cases their customers were unable to obtain such contracts and in some cases, especially in Western Canada, they declare the mills refused to do business with them on any terms. As a result they have asked for further relief from the Government and have had a draft of a bill drawn up that would bring this about.

The legislation that is proposed is modeled after a rather drastic act that is already on the Statute Books, governing the exportation of electric power, natural gas, and gas fluid from Canada. This act requires that no electric power, etc., shall be exported except under license, and authorizes the Governor-in-Council to grant such license "upon such conditions as he thinks proper." The Act provides that "any such license may provide that the quantity of power or fluid to be exported shall be limited to the surplus, after the license has sold for distribution to customers for use in Canada power or fluid to the extent defined by such license, at prices and in accordance with conditions, rules and regulations prescribed by the Governor-in-Council." The Act also gives the Governor-in-Council power to revoke such licenses at will, if the licensee refuses to comply with any of the conditions imposed; provides a maximum penalty of $5,000 as a fine for anyone exporting power contrary to the provisions of the Act; empowers the Governor-in-Council to make regulations, not inconsistent with the Act itself for giving it effect, and to impose export duties within a certain limit upon power exported from Canada whenever he may deem it desirable.

If such an Act is passed by the Canadian Parliament it will be more stringent in its scope than the regulations which established control over newsprint during the war. It is understood that the legislation is aimed particularly at the Fort Frances Pulp and Paper Co., Ltd, who are reported to have refused to supply customers in the West upon any terms. The publishers also include the Ontario Paper Company, Ltd., which is owned by the same interests as the Chicago Tribune and the New York Daily News, and was built entirely for the purpose of supplying these papers with newsprint. The intention of the Canadian publishers, however, is that this company should be compelled, as it is at present and has been, to continue to supply a portion of the requirements of the Canadian papers. A third company which, it is claimed, is aimed at under the new legislation, is the Donnacona Paper Company, Limited, of Donnacona, Quebec, which is under contract to supply its entire output of newsprint to other interests in the United States, but is at the present time, under the agreement, supplying a portion for Canadian needs. The legislation, however, will affect all companies who do an export business which means practically all the larger paper companies in Canada.

The manufacturers of newsprint in Canada will be a unit in opposing the proposed legislation. Their case may be outlined as follows: They believe that the legislation is entirely uncalled for; that it will not serve the purpose for which it was designed; that it will lead to endless friction between the United States and Canada and that should be on the friendliest terms that it will interfere with shipments of newsprint paper to their United States customers and make endless trouble for all concerned, and, also, that the action of the Canadian publishers in going to the Government for this legislation is a breach of the agreement that was made last December and which had for its cardinal principle the removal of Governmental interference with their business.

The newsprint mills, indeed, declare that most of the publishers made no serious efforts to secure, under contracts, their requirements of paper for the last half of the year, but waited until the last moment and then wired the mills peremptory requests that they be taken care of. They aver, however, that the publishers who have shown a reasonable prudence have had no difficulty in arranging for sufficient supplies of newsprint, and that the Government in giving serious consideration to the case of the publishers has followed a course based on a one-sided presentation of the situation and that it is not in possession of the true facts of the case.

Inquiry amongst newsprint interests bears out the opinion that if the Act is passed as outlined there will be another contest in the Canadian courts such as was carried on at the initiative of Price Bros. & Company against the Board of Commerce and which resulted in the complete victory for the contention of the Quebec newsprint manufacturers that the industry should no longer be under Government regulation.

From the standpoint of investors in paper stocks the revival of the struggle at Ottawa may result for the time being in a certain amount of uncertainty which is apt to unsettle the market. The newsprint mills may be counted on to fight the proposed legislation to the limit of their power, however, and in the meantime the majority have already made contracts for the exportable portion of their products which represents at least 85 per cent at the hitherto untouched price of $100 a ton. This will go into effect on the 1st of next July.

GOOD MONEY IN PULPWOOD.

Practically every New Brunswick farmer, owning timber land within hauling distance of a navigable river, is taking advantage of the present high price of spruce, fir and poplar and hauling as much as he can spare down the river's edge. Last year buyers paid $16 a thousand for selected logs; this year the price is $23 a thousand, on the river banks, and there is barely enough offering to meet the demand.

There is a strong boom in pulp wood, also, and it is said that farmers in striking distance of the rivers have made an average cut of fifty cords each and are getting $14 a cord, loaded on cars. The early spring price for pulp was $12 a cord and there is no prospect of the market suffering a bear movement. Last year the price averaged between $9 and $9.50 a cord. So steady is the demand at present that many contractors, especially those who are buying as agents for firms across the border are offering a bonus, or a share in their commissions to the lumbermen.—Campbellton (N.B.) Graphic.

Get your happiness out of your work or you'll never know what happiness is.

Restrictions Upon the Use of Pulpwood Cut From Provincial Crown Lands

(Concluded from last issue.)

The Ontario Situation.

Now, very briefly with regard to Ontario. The following table sets forth the best information which the Commission of Conservation has been able to collect from many different sources. While confessedly it is largely a guess, it is believed with confidence that it is as good a guess as anyone can make at the present time. The opinion has, as a matter of fact, been expressed by competent authorities, that these estimates are more likely to be over than under the mark. The Commission is now engaged upon a comprehensive investigation of the extent and character of the forest resources of Ontario, but it will take not less than three years, in all probability, to complete the work.

Ontario Pulpwood.—Spruce and Balsam.

	Licensed Crown Lands Cords	Unlicensed Crown Lands Cords	Privately Owned Lands Cords	Totals Cords
Entire estimate	85,000,000	140,000,000	25,000,000	250,000,000
Commercially accessible to existing transportation	80,000,000	40,000,000	25,000,000	145,000,000
Really available, after deducting for waste and loss in logging and driving, and for defective balsam (diameter limit regulations not in effect)	55,000,000	27,000,000	18,000,000	100,000,000
In case the T. & N. O. Railway is extended from from Cochrane to James Bay, the last previous figures might become	55,000,000	65,000,000	18,000,000	138,000,000

The 1918 cut of spruce and balsam in Ontario, for pulpwood and lumber, was, as nearly as can be determined from the Census Bureau statistics, slightly over 1,116,000 cords. This includes quantities consumed or produced in the province, as well as exports. Additional pulp and paper plants are being established, and extensions to some of the existing plants are under way, so that there is every reason to expect that very shortly the cutting of spruce and balsam will be at the rate of 1.5 million cords per year or more.

At the 1918 estimated rate of cutting, Ontario's really available spruce and balsam would be equivalent to 90 years supply, and the situation would be by no means discouraging, taken as a whole. When, however, the rate of cutting for pulpwood and lumber combined is increased to 1.5 million cords annually of spruce and balsam, the further establishment of new plants should proceed only with the greatest caution and after the most careful survey of the whole situation. This would represent only 67 years supply of wood accessible to existing transportation and really available, after deducting for loss and waste in logging, driving, and for defective balsam. It must be remembered that most of the spruce and balsam now being cut for pulpwood is from 100 to 200 years old or more; also, that there is a heavy loss from windfall in the undersized timber, after logging. In very many cases of heavy cutting, a second operation may not be worth while until from 40 to 60 years have elapsed.

If a possible growth rate of two per cent be assumed upon 145 million cords of commercially accessible spruce and balsam, there would be indicated a possible production of 2.9 million cords per year, which, of course, would leave room for a great expansion of the industry beyond what is under way at present.

In case the T. N. & N. O. Railway is extended from Cochrane to James Bay, it has been estimated that an additional 55 million cords of pulpwood might be made available, raising the total estimate of commercially accessible spruce and balsam in the province to 200 million cords. This at 2 per cent would produce 4 million cords of annual growth per year, of which advantage could be taken were logging to be so conducted as to leave cut-over lands in a productive condition. There is, however, as yet no technical forestry supervision whatever as to cutting operations on Crown lands, in contrast with both Quebec and New Brunswick, where the provincial Forest Services, under trained foresters, are in charge of the supervision over logging operations.

As has been pointed out with reference to Quebec, **there is no net volume increment in the natural mature forest, growth being balanced by decay.** In other words, nature instead of man harvests the annual crop, through insects, fungi and windfall. It is only through the adoption of an adequate plan of control of methods of logging that advantage may be taken of the actual growth, for the benefit of man, on a permanent basis. If destructive methods of logging continue in effect, the productive capacity of the land will be greatly decreased, and if fires are not keept out, it will be entirely destroyed over great areas, as has already taken place to an alarming extent.

The exports of pulpwood through Ontario ports to the United States were in 1915, 202,239 cords; in 1916, 149,745 cords; 1917, 161,652 cords; and 1918, 199,421 cords the great bulk of which was spruce and balsam. A large proportion of this is no doubt from settlement lands in process of clearing. Not all this material was cut in Ontario, the Customs returns showing only point of exit from Canada. The amount cut in Quebec, and exported through Ontario ports can not be determined from any records available. This point applies of course to New Brunswick as well.

A further point with reference to future growth is that large areas of pulpwood lands in Northern Ontario as well as in Northern Quebec, are being cleared up for settlement, and will never again produce a crop of pulpwood timber. This process of crowding out the forest will increase in future years. Also, a large area of timber land in Central and Southern Ontario is not a material factor in the production of pulpwood, other species predominating, such as white pine, red pine, hemlock and the various hardwoods.

New Brunswick.

The entire Crown lands area of New Brunswick amounts to approximately 7,500,000 acres. From this figure, a deduction of perhaps 2,000,000 acres must

be made for the large barrens, the condition of which is due for the most part to repeated fires, supplemented by poor drainage. This would leave an area of 5,500,000 acres, most of which may probably be termed forest land. The area of Crown land actually under license to cut timber during 1919 was 6,332,000 acres. This certainly includes a considerable area of water surface and barrens, so that we may conclude that the area of actual forest land is around 5,500,000 acres, checking with the figure above deduced. There are practically no areas of unlicensed Crown timber lands in the Province.

It is estimated that this 5.5 million acres of Crown lands may contain 20 million cords of spruce and balsam. In this connection, it must be remembered that there are considerable areas of hardwood lands containing little or no spruce and balsam; also that the Crown timber lands have been logged over to a greater or less extent from the period of early settlement and that fires have caused heavy damage to the stand.

Of settlement lands containing timber it is estimated that there may be within the province 2,500,000 acres. These lands are accessible to transportation and have, for the most part, been heavily cut over for many years past. The amount of spruce and balsam on these lands may be approximated at 4 million cords.

There are approximately 4,500,000 acres of privately owned timber lands, mostly held by commercial concerns. These lands may contain 12 million cords of spruce and balsam.

Spruce and Balsam in New Brunswick.—Estimated.

	Licensed Crown Lands	Unlicensed Crown Lands	Privately Owned Lands	Totals
	Acres	Acres	Acres	Acres
Areas	6,332,000	2,500,000	4,500,000	13,332,000
	Cords	Cords	Cords	Cords
Spruce and balsam	20,000,000	4,000,000	12,000,000	36,000,000
Really available spruce and balsam, after deducting what can not be cut under provincial regulations and for waste and loss in logging and driving and for defective balsam	14,000,000	3,000,000	9,000,000	26,000,000

Thus, we have within the province approximately 12,500,000 acres of lands more or less covered with forest, and containing probably around 36 million cords of spruce and balsam. This is an average stand of 2.9 cords per acre for the entire area, and is believed to be within the bounds of reason.

The 1917 cut of spruce and balsam for lumber and pulpwood was approximately 1,250,000 cords, as nearly as can be determined by the Census Bureau statistics. In 1918, it was decreased to 987,000 cords. At the 1917 rate of cutting, the existing supplies of timber would be sufficient for less than 30 years. At the decreased rate prevailing in 1918, there would be supplies for 36 years, assuming that the entire estimate will be available at the mill. If, however, deductions be made, as in the case of Ontario and Quebec, for Crown timber over the diameter limit prescribed, for waste in logging, loss in stream driving, and merchantable material left uncut that will be destroyed by insects, decay and windfall before another cut, there are but 26,000,000 cords of really available spruce and balsam on the basis of scale at the mill. This, at the 1917 rate of cutting would represent but 21 years supply, which would be extended to 26 years at the reduced rate prevailing in 1918. It thus appears that the pulpwood situation in the province of New Brunswick is in a much more critical state than is the case in either Ontario or Quebec.

Of the 987,718 cords of spruce and balsam manufactured within and exported from New Brunswick in 1918, 374,040 cords was pulpwood, of which 263,907 cords was exported to the United States. Thus, 70 per cent of the pulpwood of New Brunswick is exported in the raw form for manufacture in United States mills, as contrasted with 20 per cent from Ontario and 45 per cent from Quebec. In 1917, the percentages of pulpwood export were: New Brunswick 61, Ontario 13.6 and Quebec 37. The pulpwood exported is of course to be credited to privately-owned lands, in addition to an unknown amount manufactured within the province.

If an average rate of volume production of 2 per cent be applied to the total estimated stand of 36 million cords, the annual volume increment would thus be 720,000 cords, which is less than three-quarters of the 1918 cut, and only 57 per cent of the 1917 cut. Thus, cutting of spruce and balsam in the province of New Brunswick is progressing at a rate much more rapid than the estimated annual growth. This must mean inevitably that within a comparatively few years, the rate of cutting must necessarily be reduced for lack of sufficient supplies of merchantable material.

In view of the foregoing, the suggestion that the export of raw pulpwood from New Brunswick to the United States could and should be greatly increased is quite obviously not supported by any reasoning based upon facts.

Nova Scotia.

The argument presented to the Washington committee makes no mention of the situation in Nova Scotia, presumably for the reason that practically all the timber land of the province has passed into private ownership. There is thus no question of the export of raw pulpwood cut from Crown lands. It may, however, be of interest to note briefly the extent to which Nova Scotia forests contribute to the newsprint situation in the United States.

The amount of spruce and balsam in Nova Scotia may roughly be estimated at 25,000,000 cords. The 1917 cut of spruce and balsam within the province, for lumber and pulpwood, was equivalent to 313,812 cords. In 1918 this had dropped to 206,846 cords. Thus, at the 1917 rate of cutting the supplies of spruce and balsam in Nova Scotia would be equivalent to 80 years supply. The forest on the mainland has been heavily cut over since the early settlement of the country, and enormous damage has been caused by fire. On Cape Breton Island, however, there are large quantities of spruce and balsam, particularly the latter, which it has not yet been found commercially feasible to operate. The fact accounts for the large apparent supply of pulpwood species in Nova Scotia.

Notwithstanding the fact that practically all its forests are in private ownership, so that there is no legal restriction upon the export of raw pulpwood, such exports are extremely small. In 1912, the exports of raw pulpwood from Nova Scotia to the Unit-

ed States were 5,773 cords; 1914, 1,557 cords; 1915, 3,310 cords; 1916, 3,735 cords; 1917, 770 cords; and in 1918 there was no raw pulpwood exported. Speaking generally, the pulpwood cut in Nova Scotia is there manufactured into groundwood pulp, largely for export. There are no newsprint mills within the province.

There are no statistics available showing the exports of woodpulp to various countries, separately by provinces. Since, however, more than 90 per cent of Canada's total export of woodpulp in 1917 went to the United States, it must be obvious that the contribution of Nova Scotia to the paper making industry in the United States must be very considerable. On this basis, Nova Scotia gets the benefit of industrial development due to local manufacture into woodpulp, while the paper makers and publishers in the United States are in identically the same position as would be the case were the pulpwood exported in the raw state.

It is clearly apparent from the foregoing facts that the supply of pulpwood in Eastern Canada is neither so extensive nor so inexhaustible as it has been made to appear in the statements made before the House Committee on Foreign Affairs at Washington and in special propaganda put out through the American press. On the contrary, it is certain that any relaxation of the cutting regulations and of the restrictions placed by the several provincial governments upon the use of such wood cut from the Crown limits must inevitably reduce Eastern Canada within a comparatively few years to the present status of the Eastern States in which, the Washington committee was informed, "outside of some large tracts owned by some old and large manufacturers in New York, Vermont, New Hampshire and Maine, there is not a spruce woodland tract of sufficient size to justify the erection of even a 50-ton mill."

The provincial forest policies are justified by the law of self-preservation, no less than by that of self-interest.

PARTLY TRUE

Investigation Committees are largely dependent for their information on the answers of witnesses to their questions. The statement of the question or the framing of the reply may result in failure to bring out the whole of important truths. For instance, the Editor has visited all but two of the Canadian newsprint mills and three other sulphite mills. In none of them is anthracite coal really necessary, as is stated in the following dialogue at a hearing before the House Committee on Foreign Affairs on the Underwood resolution.

The Chairman—In the manufacture of paper in Canadian mills is it necessary for them to use anthracite coal?

Mr. Haskell—In some mills; yes.

The Chairman—And that coal is shipped from the United States, I believe.

Mr. Haskell—Yes, sir.

The Chairman—Is it necessary to use sulphur?

Mr. Haskell—Absolutely. You cannot make sulphite without sulphur, and sulphite constitutes 20 per cent of newsprint.

The Chairman—Are there any sulphur mines in Canada?

Mr. Haskell—Not that I know of.

The witness wisely neglected to state that sulphur as such, is not absolutely necessary, but that iron pyrites and sulphur dioxide from smelter fumes can be used and that Canada has enormous and convenient deposits of the former and considerable of the latter.

BIGGEST PULP AND PAPER MERGER

A $60,000,000 merger of pulp and timber companies is the latest event in the development of the Canadian pulp and paper industry. I. W. Killam, head of the Royal Securities Corporation has recently consummated a transaction whereby the business of the W. C. Edwards Company and the Gilmour and Hughson Company, of Ottawa, are brought together.

It is further stated on the best of authority that the Ottawa Valley properties will be combined for development purposes with the properties of the Riordon Pulp and Paper Company. The new merger will include the Riordon subsidiaries, Kipawa Company, Limited, and the Ticonderoga Pulp and Paper Company, and with the new combination will also be included the large timber limits and 50,000 horse power of undeveloped water power originally belonging to the Bronson Company, on the Quinze River.

The W. C. Edwards and the Gilmour & Hughson properties are among the largest in the Ottawa River Valley and comprise several saw mills at Ottawa, and Rockland and most extensive timber holdings, approximately 8,000 square miles of limits, mostly located on the Gatineau River, with an undeveloped water-power of 50,000 horse power at Chelsea, Que., and a smaller undeveloped water power on the Nation River.

The consolidated business will have approximately 12,000 square miles of timber limits, containing about 25,000,000 cords of pulp wood, 1,200,000,000 feet of standing pine, over 150,000 horse power of water power, developed and undeveloped, a pulp and paper output of approximately 150,000 tons per annum, and an annual pine lumber output of approximately 125,000,000 feet board measure.

As far as is known, these properties represent the largest available supply of pulpwood under one control and one of the most valuable remaining holdings of white pine in the world.

A feature of the new consolidation of importance from the standpoint of the necessity for the development by Canadians of their own national resources and manufacturing facilities, is the fact that it will be owned and controlled in Canada by Canadian interests, and financed, for the most part, by Canadian capital.

It is expected that further announcement in connection with the new merger will shortly be forthcoming. The Royal Securities Corporation, it is understood, will carry out the financing of the new project, which may be presumed to involve the offering in the investment market of some of the securities arising out of the merger. The merger will be capitalized at $60,000,000, it is stated.

The C. S. Jenks Paper Company, a newly incorporated concern, with offices at 51 East 42nd street, marks the entry into business for himself of C. S. Jenks, formerly of the Proudfoot-Jenks Company. Mr. Jenks has arranged to handle jobs in paper and to do a tonnage contract business. The company will also act as agent for the Sabin-Robbins Paper Company, of Middletown, Ohio.

MODERN PULP AND PAPER MAKING.

The Chemical Catalog Co. No. 1 Madison Ave., New York are publishing a book on pulp and paper making. Their Chemical Engineering Catalog and condensed Chemical Dictionary have set a standard for technical books. The new book will contain some 500 pages, profusely illustrated. The price is $6 in Canada and the United States.

Why This Book Was Written.

This book was written because there was a real need for it. There was no book that dealt in a practical way with everyday problems of modern papermaking as it is carried on in America.

The few recent books on paper manufacture are all European in origin and are adapted to European readers. They lay stress on phases of paper manufacture of very minor importance in America, neglecting other topics of vital interest to the industry in the United States and Canada, where this industry has developed to a greater extent than in any other part of the world and along lines largely quite different from the best European practice.

G. S. Witham, Sr., Its Author.

Mr. G. S. Witham, Sr., needs little introduction to practical paper manufacturers either here or abroad. He has been engaged in the manufacture of various sorts of paper for more than 37 years. Starting originally as an unskilled laborer, he has risen step by step until now he is Manager of Mills of the Union Bag and Paper Corporation, one of the most important groups of pulp and paper mills in the world. His experience has been unusually varied as he has been at different times in charge of mills making widely different varieties of paper, and he has had practical experience with every department in papermaking from the saw-mill to the finishing room.

Being of an inquiring turn of mind, unusually observant, creative and inventive to an extraordinary extent, he has made many improvements in equipment and practices, and has invented many methods and devices when the need for these became urgent. Among his numerous inventions the following may be mentioned, as they are well known wherever pulp and paper are made. Screwless screen-plate fastener, Witham system of temperature control for dryers, Witham tear testing machine, Witham weaving device, Witham-McEwen saveall.

The mills of which Mr. Witham is now manager are commonly regarded as being among the best examples of modern development in equipment and operation of any group of pulp and paper mills in this country and are visited annually by hundreds of engineers and specialists in this industry from all over the world.

The Book Tells:

The properties of the principal woods and other raw materials used for paper.

The qualities, grades and requirements of all the different varieties of paper.

How a Fourdrinier machine is built and operated —in great detail.

What happens to the fibres in the beater.

How to make good ground wood economically.

How to cook sulphite pulp and make and reclaim acid.

The use of clay, size, alum, colors, etc.

How much power is required for every piece of equipment in a pulp and paper mill.

How to install a system of tests and records to keep production up to standard.

Actual complete specifications for Fourdrinier machines, beaters, Jordan engines, grinders.

All newer developments in paper mill engineering and equipment such as suction, couch and press rolls, individual electric drive for Fourdrinier machines, waste paper utilization, electric regulators for grinders, automatic dryer temperature control, weaving devices, Claflin engines, save-all installations, etc.

How to put on a new wire.

How to care for wet felts, dryer felts, deckles, etc.

How to start up a Fourdrinier machine.

How to install and operate a saw-mill.

How to detect the causes of breaks and defects and how to remedy them.

How to calculate the retention of clay, etc., etc.

Every effort has been made to keep in mind the **practical** needs of men engaged in the manufacture of pulp and all kinds of paper. Nothing is taken for granted. Each piece of equipment is described so as to be understood (with the aid of carefully selected illustrations) by a man who had never seen such a machine.

While the book is largely intended for men engaged in pulp and paper manufacture, the needs of paper salesmen; executives; makers and sellers of paper machinery and supplies; chemists working in connection with the paper industry; students and general readers, have been constantly kept in mind.

BROMPTON STRIKE SETTLED.

Interruption of production is to be regretted, and strikes are doubly unfortunate because of effect on the wages and morale of the men as well as the unproduced goods from available material. There is enough shortage to-day without deliberate stoppage of work. It is pleasant, therefore, to note that the strike at Bromptonville is over and the men are back at work.

Mr. J. A. Bothwell, general manager of the Brompton Pulp and Paper Company, in discussing the recent strike made the following statement:

"Our employees at Bromptonville were not to blame. They were deliberately misled and directed into this strike by local and outside agitators. We asked them to do exactly the same work that is done in other Groundwood Mills all over Canada. The agitators took this as a "reason" for forcing the men to discontinue their labor; and in every conceivable manner kept our employees from returning to work, even after they informed us that they were in error, and courage to stand together, even though their families wished to return. These same agitators informed our employees that they would win out if they only had the starved while they were staying out. If everything else failed, they would, in the end, bring a representative of the Labor Department from Ottawa, who would force the Company to grant their demands.

"The representative of the Labor Department came to Bromptonville, and after carefully investigating the situation, informed the men that they were absolutely wrong, and advised them to return to work at once. This they have done, unconditionally, to-day.

"The most unfortunate feature, however, is the fact that our employees have lost $30,000 in wages during this time, which they could ill afford to use.

"We do not think there is anything further to be added, as our position was absolutely justified by the Labor Department's representative; and the action of our employees in immediately returning to work after his visit to Brompton is sufficient proof."

Pulp and Paper Investigations by the U.S. Forest Products Laboratory

The present situation in the paper industry, brought about largely through a tremendous demand for paper of all kinds, coupled with increasingly acute shortage of raw materials, has laid emphasis upon the need for immediate definite action if an extremely serious situation is to be avoided.

In casting about for ways and means of ameliorating present conditions thought is naturally given to a careful analysis of the various phases of the problem and investigations or researches planned to improve conditions either by developing processes or by providing additional raw material. It is well understood in the paper industry that the basis for the development of any industry lies in research of some character, whether carefully co-ordinated and efficiently carried forth or simply of haphazard nature. Of course the greatest progress is being made in those industries in which the research work is carried out in accordance with a carefully planned and co-ordinated scheme. Comparatively little research has as yet been carried out in the paper industry and the field of work is tremendous, reaching as it does from the felling of the tree through practically every process of manufacture and remanufacture. The problems are complicated through local conditions which have a very great effect upon the commercial feasibility of various processes through working knowledge of conditions as they exist throughout the industry before investigations can be intelligently planned.

In order to form a basis for research obligations in various plants and scientific institutions and to assist in the proper co-ordination of effort, a statement has been secured from the Forest Products Laboratory listing a number of the more important and pressing problems of the paper industry and showing what progress, if any, has been made by the laboratory on the solution of these problems. Since the use of substitutes for wood as a raw material is very closely allied with studies of the supply of raw material, certain problems having to do with these substitutes are included in the list.

Raw Material.

1. The development of specifications to cover the purchase of wood which will be more accurate than the present system based on the piled cord of 4 x 4 x 8 ft. Inaccurate as this system is known to be, but little active interest has been shown until the last few months. The problem was outlined in a paper published in 1916.[1] However, field work will be shortly under way, financed by the American Paper and Pulp Association, but under the direction of the Forest Products Laboratory.

2. Determine the feasibility of rossing, drying, and baling of pulpwood with the idea of doing this preliminary work in the woods rather than at the pulp mill. This problem is closely connected with the one above and has been given serious thought,[2] although it has been impossible for the laboratory to engage in active work. The growing scarcity of pulpwood will doubtless give impetus to further work along this line.

3. Study the pulp and paper possibilities of the National forests, considering such factors as wood supply, markets, labor, water power, fuel, etc. The quality and quantity of mechanical and chemical pulps obtainable from the Western woods has been determined in most cases. Mechanical pulps were covered in Bulletin No. 343 of the Department of Agriculture, and the work on chemical pulps can be said to be 90 percent complete. However, various economic conditions still remain to be thoroughly investigated. This was done prior to the war in several isolated cases but much remains to be done in order to complete the survey.

4. Study of the possible use of hemlock bark obtained from the rossing of hemlock logs for the production of tanning extract. During the war this problem was vigorously prosecuted and the commercial feasibility satisfactorily demonstrated.[3] It remains, however, for some paper mill to attack the problem on a commercial scale. Because of the increase in the price of tanning materials, the opportunity appears greater than two years ago. Closely connected with the problem is the development of a suitable log barker and the more complete utilization of sawmill refuse.

5. Study of the causes of the decay of pulp wood and wood pulp with the hope of developing means of overcoming such decay. Preliminary work [4] [5] has indicated that losses from this source are considerable and largely preventable and an intensive study financed by various interested mills is now under way under the direction of the laboratory. From the nature of the problem definite results, however, can not be expected for some time.

6. Study of the best means of barking and chipping slab wood and other mill waste so as to increase the use of this waste and save the consumption of round wood. To attack this problem satisfactorily requires facilities for carrying on studies upon a mill scale.

7. Study the suitability of charred wood as obtained from burned over forest areas. The past disastrous fire season with the loss of merchantable timber has emphasized the need for some means of utilization of the fire scarred timber remaining. Such a study should be conducted in co-operation with some pulp mill, since the problem is principally one of wood preparation costs.

Sulphite Pulp.

1. Determine the suitability of various woods, especially of western woods that are not being used at the present time for the manufacture of sulphite pulp. Many western woods have been studied and found at least the equal of those now principally used in the east. The results, though mainly of academic interest in the past, will be of great value to the industry in the near future. Preliminary results were published last year[6] and it is hoped to bring the work of completion within the calendar year.

2. Investigate the possibility of reducing resinous woods by this process. Many cheap woods, not now available could be utilized for sulphite pulp if the rosin could be eliminated. A few preliminary cooks of pitchy woods together with woodpulp analysis for rosin, have been made. It is also a regular part of the routine to save wood and pulp samples from all cooks of rosin analysis.

3. Study the possible use of liquid SO_2 in acid making, also the possible use of liquid SO_2 in streng-

thening the cooking liquor in the digester to a concentration which it is impossible to reach by the present method of making sulphite cooking liquor. A paper[7] discussing the use of liquid SO_2 in both acid and pulp making has been prepared for presentation at the annual meeting of the Technical Association of the Pulp and Paper Industry. The use of strong acid in cooking has opened a very interesting field of investigation and results to date are encouraging.

4. Study the effect of variations in the percentage of lime and magnesia in either the lime stone as used in the tower system or in the burned lime as used in the milk of lime system. Prior to the war plans had been made to attack this problem at once. However, it has now been laid aside because of more pressing work.

5. Study the best methods for elimination of sulphur trioxide from the burner gas. Mill scale study is essential in this.

6. Study possible recovery of sulphur dioxide from the stack gases.

7. Study the possible use of waste sulphite liquor for the production of alcohol, binders, tanning material, etc. A number of cooks to determine the effect of certain variables in cooking conditions upon the sugar content of the waste liquor have been made, the results of which will probably shortly appear in published form. Nothing has been done, however, on other means of waste liquor utilization.

8. Study the desirability of utilizing outside mechanical means, such as pumps, to secure better circulation in the digester. The effect of liquor circulation on a semicommercial scale has been studied[8] and indications are that it would be of greater benefit on a large scale. It still remains, however, for this phase of the problem to be attacked.

9. Study the best means of overcoming "pitch" in sulphite pumps. Laboratory equipment is too small to permit a comprehensive study of pitch troubles to be made. However, the effect of various cooking conditions on the pitch content can be studied in connection with the pulping of resinous woods.

Soda and Sulphate Pulps.

1. Determine the suitability of all possible American pulp woods for reduction by the soda and sulphate process of pulping. About 90 per cent of the necessary cooks have been made out on this project and preliminary results published.[9] Work will probably be completed during the present calendar year.

2. Make a plant study of possible modifications of the present commercial means of pulping. A particular modification of the pulping process[10] has been developed at the laboratory which warrants a thorough trial under mill conditions.

3. Study of the influence of cooking condition on the bleaching qualities of sulphate pulp. The development of means for economically producing bleached sulphate would release over one million cords of spruce annually for uses where that wood is essential.

4. Study the possible bleaching of kraft pulp by means of liquid chlorine. The advantages claimed for this method of bleaching render it well worth investigation, particularly in connection with the utilization of southern woods.

5. Detailed study of the washing of pulp by diffusers vs. pans. This and the following problems are ones which must be solved by mill scale study. While it is true that some slight indication might be obtained from laboratory work on most of the problems, it is felt that where the success of any study depends to such an extent upon the size of the operation, such studies should be made on a scale directly comparable to mill conditions.

6. Study of the cause of corrosion of diffusers.

7. Study of the recovery of soda especially in the kraft process with the object of devising methods and equipment less expensive to operate and maintain.

8. Study of the distillation of black liquor for recovery of valuable by-products.

9. Study of the nitre cake to substitute for salt cake in the sulphate process.

10. Study of means for the recovery of heat from blow-off gases of digesters.

11. Study of various refractory materials and design for smelters.

12. Study of the possible recovery of rosin, turpentine, tannin, etc., from the wood prior to pulping.

13. Study of the recovery of rosin, from black liquor obtained from the pulping of resinous woods and the recovery of volatile oils during pulping or on blowing.

14. Study of methods for the reduction or elimination of obnoxious odors in the manufacture of sulphate pulp.

Mechanical Pulp.

1. Determine the suitability of the various American deposits for the production of pulp stones. Much pioneer work can be done upon a laboratory scale in comparing successful stones now in use with those from new deposits.

2. Determine the suitability of artificial pulp stones.

3. Study the possible use of sawdust for the production of mechanical pulp.

4. Continue work on the study of the sedimentation test as a means of controlling quality of ground wood produced. Since the work done in 1916 but little attempt has been made to follow up the problem, although its importance is clearly recognized.

5. Determine the best means of recovering fibre from white water. A solution of this problem is of increasing importance and should be attacked vigorously. Nothing beyond indications can be obtained upon a laboratory scale and because of the volumes to be handled it is felt that the mill is the place to try out any suggested means of recovery.

Paper Mill Problems.

1. Make a thorough study of the beating of various pulps with the present beating equipment. The effect of the many variables entering into the beating of pulp and means of interpreting results obtained upon a small scale to mill conditions need intensive study. Some work has been done along these lines[12] but results indicate that the problem is difficult of solution.

2. Study of the effect of variations of conditions on the paper machine, such as the pressure applied at the presses and the temperature of the dryers. An excellent opportunity is afforded for the study of these variables by an experimental paper machine. Some preliminary work has been undertaken but the results were not conclusive enough to warrant publication.

3. Study the re-use of special waste papers, such as paraffine, asphalt, impregnated papers, etc. Good progress has been made upon recovering certain wastes[13] and others will be attacked as apportunity presents itself.

4. Study the paper specialties, such as primary

fibre containers, indurated ware, moulded articles, artificial silks, textiles, etc. Progress has been made upon some [14] of these special uses for pulp and paper.

5. Study the fundamental chemistry of the various woodpulps and pulpwods. The need for a comprehensive investigation of the chemistry of wood and pulps has long been recognized and the work on wood begun [15] but it was not until the past two years that the lack of knowledge available upon the chemistry of pulps was forcibly brought home. Investigation of the suitability of woodpulp for nitration purposes was seriously hampered by the lack of knowledge of the chemistry of various chemical pulps. In the study of woodpulp decay, chemistry will probably play an important part and a study on both of these problems from the chemical standpoint is now under way.[16] In work of this character, however, it will be several years before results can be looked for.

Specialties.

1. Study of the suitability of various special fibres, such as cotton hull fibre and second cut cotton linters. flax tow, etc., for pulp and paper purposes. The growing scarcity of pulpwoods has given a decided impetus to the movement advocating the use of industrial fibre wastes and plant crops. Noteworthy progress along this line has been made with second cut cotton linters [17] and several plants are now operating on this material on a commercial scale. Some promising work has also been done on flax tow.

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EXPORT NEWSPRINT PRICE $110.

The Canadian Export Paper Company Limited, announced its schedule of export newsprint paper prices for the third and fourth quarters of the current year, the new prices showing very large advances over those prices presently prevailing on their export paper prices.

For the third quarter of 1920, which commences July 1, next, the new prices will be 5½ cents a pound, mill, which is equivalent to $110 per ton.

For the fourth quarter of 1920, which commences October 1, next, the new price will be 6½ cents a pound, mill, which is equivalent to $130 a ton.

From the above it will be seen that the advance in the price of export paper handled by the Export Paper Company will show sharp advances over current prices, the second quarter schedule which now prevails being 4½ cents a pound, mill, which is equivalent to $90 a ton.

Last week the International Paper Company in the United States announced their new prices on newsprint paper at $115 a ton.

The Canadian Export Paper Company Limited, controls the export paper output of five of the leading Canadian newsprint producers, including Laurentide Limited; Price Bros. and Company Limited; Belgo-Canadian Paper Company Limited; St. Maurice Paper Company, Limited; and the Brompton Pulp and Paper Company.

For some time past it has been rumored in trade circles and on the Street that some sharp price advances in export newsprint paper would be announced for the third quarter of the year, but it was not generally expected that the prices for the fourth quarter would be given out, or that they would represent an advance of a full cent a pound over prices for the third quarter, or of 2 cents a pound over prices now prevailing.

It is generally expected that the other Canadian producers of newsprint paper in Canada will advance their prices in line with those adopted by the Export Paper Company, as is usually the case, and that for the last six months of this year the highest prices yet paid for export newsprint from Canada will be netted by the companies.

WHALEN MILLS ON 8-HOUR TOURS.

Sir George Bury, president of the Whalen Pulp and Paper Co., also Mr. Helin, general superintendent for that company, have agreed with their employees for an 8-hour day.

This demand was submitted to the firm about one month previous to this agreement by the Lumber Workers Industrial Union of O. B. U. on request from members of that body who are employed at the Swanson Bay and Port Alice plants.

British Trade News

(From Our London Correspondent.)

London, May 15, 1920.

The shortage of paper is drawing out opinions from non-scientific quarters in England as to how it should be remedied and writers in the daily newspapers are continually airing the views of their fore-fathers on experiments tried 30 and 40 years ago. For instance "The Westminster Gazette," reckoned to be a sound literary paper, gives a hint to papermakers as to meeting the paper shortage. It says now that the whole world is looking for a new material as a raw material; an inventor, now deceased, devised some 30 years ago a scheme for manufacturing paper out of hop refuse. The objection to the material was the presence of a seed containing an essential oil, and the purpose of the inventor's machine was to eliminate that seed. It should be mentioned that the scheme was not from a commercial point of view a success and I believe the machine and papers are still in existence. Indeed one paper man told me the other day that the scheme may be worth going into again, but it is very doubtful.

Bamboo and Other Substitutes.

In my last notes I had something to say on the attention that is being given to Bamboo as a raw material. Professor Dunstan, of the Imperial Institute, thinks Bamboo is by far the most hopeful of the new substances upon which tests have been recently carried out. In Australia straw and Karn wood promise well and the latter may be used, also, in India and Uganda. Uganda has a great asset in the Magadi soda lake. But the Bamboo promises more than any of these.

In Professor Dunstan's opinion the best way to get over the present difficulty is for consumers to form an Association of their own, much on the lines of the British Cotton Growing Association, to encourage and plan the production of pulp wood in the colonies and dependencies.

British Imports of Pulp.

Figures issued this week by the Trade Board give an idea as to the movements of pulps in April. Ground wood was sent from the following countries to England:—

	April Tons	Jany.-April Tons
Sweden	770	6,513
Norway	31,525	109,073
Canada	490	490
Other Places	403	620

It will be seen from these figures that Canada is now sending Groundwood to the British mill and agent. The total quantities received for the same period in 1919 were as follows:— April, 28,088; Jan.-April, 77,021.

Bleached Sulphite.

The countries supplying in April are returned as follows:—

	April Tons	Jany.-April Tons
Sweden	199	1,936
Norway	1,659	6,837
Germany	202	425
Other Places	461	2,057

The supplies for the corresponding periods in 1919 were—April, 1,390 tons; Jany.-April, 5,019. Though there is a considerable improvement over the 1919 supplies, it shows that the consumption of paper today must be enormous and excessive.

Unbleached Chemical.

Unbleached Chemical (Dry) was imported to the following extent:—

	April Tons	Jany.-April Tons
Finland	1,954	11,516
Sweden	13,205	79,731
Norway	6,878	35,399
Germany	159	456
Other Places	7,833	10,203

"Other Places" include small supplies received from Canada, the States, etc. The supplies for the corresponding period in 1919 were—April, 21,757 tons; Jany.-April, 74,273.

Totals from all Sources.

As a further source of information to pulp men I quote the total quantities, with the values underneath, of all pulps reaching the British market during April and the first four months of the year.

	April	Jany.-April
Bleached Sulphite	2,521	11,255
Values	£ 111,690	£ 438,835
Unbleached Chemical	30,029	137,304
Values	£1,099,297	£3,991,524
Chemical Wet	1,327	1,487
Values	£ 33,169	£ 33,967
Groundwood, Dry	4,463	12,201
Values	£ 150,213	£ 308,514
Groundwood Wet	33,188	116,696
Values	£ 413,215	£1,222,116

The totals work out at 71,528 tons for April (compared with 53,379 tons in April 1919) and 278,943 tons for Jany.-April (as against 176,113 tons in Jany.-April 1919.)

Norway vs. Canada.

I have always endeavored to lay British claims before Canadian pulp and paper men and at the same time I have urged British buyers for the past 15 years to get their "house in order" and look to Canada for their raw materials and for a place as good investment to help home country industry. Commenting on this policy the London "Times" says that the present crisis in the paper industry is due to two principal contributing causes—the practical monopoly of the pulp trade by Scandinavians and the immense purchases of pulp by the United States of America. A third and lesser cause is the extinction of the export trade in pulp from Germany and Austria. Great Britain bought largely from these two countries before the war and they both did considerable business also elsewhere. Then the "Times" goes on to say "But the present crisis calls for more than present treatment. It illustrates vividly the evil results of our dependence for the food of a great industry upon an outside agency. The most satisfactory and lasting way of dealing with the present situation would be to transfer our custom to sources of supply within the Empire. Fir and spruce are the woods from which the pulp for papermaking is produced. What is wanted is a generous scheme for the opening up of forests throughout our Dominions and Dependencies. In Canada a scheme for doing such work on a big scale is being perfected. That example wants to be followed up." The British buyer is certainly finding himself up against a stubborn seller in Scandinavia at present, and, if the views of the Press expounded now had been adopted 10 or 15 years ago, the British papermaker would not have found himself in the quandary he is in to-day. Papermakers know it and they are sitting tight.

FINANCIERS INSPECT KIPAWA PLANT.

The expression of nothing but entire confidence in the future of the Canadian pulp and paper industry, which they termed as "Canada's greatest asset," marked the three-day tour, to eastern Ontario and northern Quebec, of seventy-five bond salesmen, bankers and capitalists from the United States, who were in Ottawa for a brief stay on Friday. The tour came to an end at Montreal on Sunday.

The American visitors were the guests of the Riordon Pulp and Paper Company, and assembled at Boston on Thursday, reaching Montreal Friday morning, Ottawa Friday evening, proceeding to the new plant of the Kipawa Company, Limited, on Saturday and a direct return to Montreal Sunday, whence the American guests departed for their respective homes.

The tour as a whole was a novel one and from its success, it is a safe guess will be copied or attempted by other Canadian pulp and paper companies who are selling bond or stock issues in the United States market. Though it was not stated, the obvious object of the trip was to actually show the American salesmen and investors, just what the physical and natural resources were. At the Kipawa mill the visitors of course only got a glimpse of Canada's forest and water power assets, as appertaining to the Canadian companies in general. Still they came, they saw, and were convinced as to the stability and soundness of the investment proposition, and returned home with their minds made up as to the value of the assets behind the stocks they were selling. Business men every one of them, they nevertheless had an eye for the beautiful, and during their stay and banquet in Ottawa expressed in no unstinted measure their full and unbounded appreciation of the scenic beauties of Canada's Capital.

The party travelled from and returned to Montreal on a special train composed of six coaches and a buffet car. On arrival at Ottawa the members enjoyed a motor ride around the city, during the course of which they saw the John R. Booth, E. B. Eddy, Gilmour and Hughson and the W. C. Edwards Mills. On the way to Ottawa they also had an opportunity of viewing the Hawkesbury and Calumet Mills of the Riordon Co. Afterwards they attended a banquet at the Chateau Laurier, at which Mayor Harold Fisher was present, and during the course of which several interesting addresses were made. Mayor Fisher in his address to the visitors styled Ottawa as the cleanest City in Canada, the most beautiful city in America and the best governed city in the world. The banquet was presided over by Mr. Carl Riordon.

In his welcoming address Mayor Fisher called attention to the large sums of money which American people had invested in Canadian pulp and paper securities, and that after making these investments they had come to see at first hand what they had purchased. Other speakers including New York State Senator M. Y. Ferris of Ticonderoga, N.Y. spoke from the financial and investment angle referring to the great prospect for investment which presented itself in the forest tracts and water power possibilities of the Canadian pulp and paper companies in general and the Upper Ottawa Valley sites especially. Other speakers frankly stated that in advising their clients in the purchase of Canadian paper mill securities they did so with every confidence, as the resources of the pulp and paper mills furnished adequate security and with the depletion of American pulpwood tracts, and the demand for paper, especially newsprint, in the U. S. A. there was no reason to fear, that the money invested would not bring about an adequate and satisfactory yield of return.

During the course of the addresses the fact was driven home that one of the most favorable happenings to Canadian paper mills, selling stock on the American market, had been the great advance in the quality of pulp and paper products within the last three years. It was claimed for the Kipawa mill that it was turning out the highest grade of bleached sulphite pulp in America if not in the world, not even excepting the Scandinavian products.

After leaving Ottawa the party went to Lumsdens Mills where an inspection of the plant of the Kipawa company was carried out, ending with supper at the staff house at 5.30 P.M., Saturday. At 7.30 P.M. the party again took to the train and arrived in Montreal at 8.30 Sunday morning.

Kipawa Company, Limited.

The Kipawa Company is a subsidiary of the Riordon Pulp and Paper Company and was formed in 1913. It is situated in the Temiskaming district in the Province of Quebec. Riordon engineers considered it the logical spot to locate sulphite mills. The property now owned by the Company was purchased in 1918, in which year the construction of the first unit for an output of 100 tons per day was begun Production started at the end of 1919. The Company owns more than 1,200 square miles of timber limits, and 20,000 H.P. is available the year round. If conservation work is undertaken at the headwaters this amount could be increased to 35,000 H.P. The Company has power leases from the Quebec Government for 75 years. At present the Company only develops 7,200 H.P. which is considered sufficient to take care of a production of 300 tons per day.

The development of the plant and project was planned and carried out under the personal direction of Mr. C. B. Thorne, technical director of the Riordon Pulp and Paper Company. The general design of the mill is the result of years of experience in the manufacture of sulphite pulp and embodies many unique features. The aim of the engineers was to build not only the best mill but one in which labor costs could be reduced to a minimum. The engineers also kept in mind a mill with a capacity of 500 tons a day As the plant is now situated additional units of 100 tons each can be added at any time. A second 100 ton unit is already under construction and it is expected that within a few months the plant will be turning out 300 tons per day. With the completion of the new unit, the cost of the plant will be in the neighborhood of $15,000,000.

Production was commenced in December, 1919,and a production of 100 tons of bleached sulphite pulp per day was promised, and the party learned with satisfaction that the production for the month of May has been 142 tons per day, and when the financing to be done in the very near future is completed, and the second unit is completed, a great part of it being already finished, the production estimated for September next will be 175 tons of pulp per day, and early in 1921 the production will reach 300 tons per day. Among the visitors were several of the most prominent engineers of the United States, who expressed themselves most emphatically to the effect that never in their experience had they seen a pulp mill equal to that of the Kipawa company.

A townsite which is conducted entirely apart from the Company's affairs has been laid out and by the end of this year it is expected there will be two hundred houses erected. The plan provides for a large cafeteria which can accommodate 200 persons at one time and a community hall for social entertainments, motion pictures, etc. The plant is 38 miles from the main line of the C.P.R.

The production of the plant it is expected will exceed 80,000 tons per annum.

THE FOREST FIRE SEASON

Each day brings reports of the fine prospects of the grain crop for Canada which is given annually, and each paper brings word of the destruction of the forest crop which cannot be renewed every year but requires from 60 to 200 years to mature. Not only is the forest destroyed, but houses, farms, settlements and towns are laid in ashes and the home and business of many a hard working Canadian citizen is wiped out in a moment.

From many centres in Nova Scotia, New Brunswick and Quebec and occasionally from the other provinces come heartrending reports of the destruction of forest fires. The summer has only just begun, yet the destruction already has been enormous. Estimates place the area at 200 square miles in New Brunswick which have already gone up in smoke, together with the destruction of the town of St. Quintin with a loss of property at that point of probably half a million dollars. Forunately no lives were lost but the fugitives are in a serious plight and many would certainly have suffered had not a train been ready to take them to Campbellton and other points for shelter.

It is reported that fires are burning at 35 different points in the Matapedia Valley alone and conflagrations in many other points have been for some time out of control. An early rain is the only possible means of preventing serious and widespread disaster.

New Brunswick is not alone in its loss as 47 buildings have been destroyed at Londonderry, N.S. and large areas of forest in that province have been consumed.

A number of these fires are reported as being caused by campers on Victoria Day. Others are definitely known to have been caused by railways and settlers which are the two chief causes of forest fires. Chief Forester Prince has announced that no permits to burn brush will be issued under the present circumstances, but the government railways are still at liberty to scatter sparks with impunity, if we can consider it impunity to receive no other punishment than the curses of those whose property and prospects of livelihood and happiness are wiped out by fire through the negligence and indifference of the government to which they have sworn allegiance and paid taxes.

The forest fire loss at this time is particularly to be regretted because of the great shortage of timber both green and as raw material for manufacture into lumber for building homes or pulp and paper for the countless products of this industry.

It is gratifying to note that Chief Forester Piche of Quebec reports no serious fires in this province and this report should be taken as a lesson to other provinces for the organization and management of forest conservation means. There are fires in this province and only eternal vigilance keeps the danger within control.

CANADIAN CHEMISTS' CONVENTION

The third annual convention of the Canadian Chemists was held in Toronto on May 27th and 28th and attracted a large gathering of representatives of the industry from various parts of Canada as well as some visitors from the United States. A member of technical papers were read including one by H. J. Roast, F. C. I. C. and C. F. Pascoe, F. C. I. C., on "The Inner Life and there was an interesting discussion on Canadian opportunities in industrial chemistry and on the subject of the modern labor movement and its relation to the chemists. A novel feature of the gathering, which was held at the Chemistry and Mining Building of Toronto University was the public display of chemicals, apparatus and instruments, which proved of great interest to the delegates.

One of the chief features was an excellent address by Dr. Charles H. Herty, Editor of the Journal of Industrial and Engineering Chemistry and Past President of the American Chemical Society, on "Chemistry Under a Constitutional Government."

At a business of the Canadian Institute of Chemistry, Professor Mathew A. Parker, of the University of Manitoba, was selected as the delegate to attend the Inter-Allied Chemical Congress in Rome next month. This is a Congress formed in Brussels last year with a view to pooling the chemical thought and research for the benefit of the allied countries. The meeting was the first meeting of the institute, which has now 140 thoroughly qualified chemists as members, and forms a nucleus around which it is intended to build up the chemical profession of Canada. The officers are President, Prof. Bain, Toronto; Vice-President, Dr. George Baril, University of Montreal; Dr. A. McGill, Chief Government Anaylist; Professor McLaurin, Regina; Secretary-Treasurer, Harold J. Roast, Montreal.

In an interesting address Prof. Neish, of Queen's University, Kingston, told the delegates to the convention that the great trouble with Canadians was that they were ultra-conservative, and did not take advantage of their opportunities as they should. He was one of the speakers at the annual dinner of the Chemists, which wound up the convention. Professor Neish returned to Canada last August after 19 years absence in New York City and gave the gathering his impressions upon returning to his native land.

PULPWOOD SWEPT OUT TO SEA.

Sydney, N. S.—Pulpwood valued at nearly a half million dollars, the property of the Cape Breton Pulp and Paper Company, went through the booms in the North River at Murray, C. B., last month, and was swept out to sea. The pulpwood will probably become a total loss to the company.

The break in the main boom across the river occurred while the river was swollen to a high level by a heavy rainstorm.

It is understood that the Frasers, who have ust just bought it will in the future make additions to the the Dominion plant which will considerably increase the output.

Dr. John S. Bates, chemical engineer in the Research Department of Price Brothers and Company was in Montreal last week for a short visit on his way to Toronto where he attended the annual convention of Canadian Chemists.

Technical Section

TECHNICAL SECTION WILL HAVE INTERESTING MEETING.

The trip of the Technical Section to the mills of Price Brothers last summer, including as it did the beautiful sail up the Saguenay River, was such a distinct success that a somewhat similar trip is to be undertaken again this year.

On the 21st of June special cars will be attached to the Soo train leaving Montreal at 8.45 P.M. (all times mentioned are standard time as observed by the railways.) Connections from Toronto are made at Sudbury. The party will arrive at the Soo Tuesday afternoon in time for supper. The evening program consists of an exhibition of the moving picture film showing the manufacture of newsprint from the woods to the warehouse which was taken last winter by the Spanish River Company and an excursion by boat through the American and Canadian locks. The special sleepers will have been detached so that the party may spend the night in the cars.

On Wednesday morning a business meeting will be held at which reports of committees will be read and there will be a paper on the "Utilization of Waste Sulphite Liquors" by Dr. Ralph H. McKee of Columbia University. In the afternoon an inspection trip will be made to the mills of the Algoma Steel Company and the plant of the Spanish River Pulp and Paper Mills. The latter part of the afternoon will be occupied with golf at the country club followed by a complimentary banquet. A night train will take the party to Espanola in time for breakfast at the Espanola Hotel. The plant of the Spanish River Pulp and Paper Mills at this place will be inspected Thursday morning and a special train provided by the company will leave at 11 A.M. for Sudbury where a stop will be made in the afternoon for a visit to the works of the International Nickel Company.

Trains leave Sudbury at times that will land the eastern members in Montreal at 8.50 on Friday morning and about the same time in Toronto.

It is expected that there will be an opportunity to discuss the utilization of liquid sulphur dioxide, together with methods of procuring it at the smelter, transporting it to the mill and handling it in the acid plant. As this is one of the latest developments of sulphite pulp manufacture there is likely to be a very interesting discussion of this subject.

It will be noted that the stated program of papers and discussions is limited and this is done advisedly by the executive because of the desire of members for an opportunity of a maximum personal contact and friendly intercourse. This getting together and becoming acquainted is considered one of the most important functions of the Technical Section meetings.

Printed announcements are being prepared by the secretary and members who anticipate taking part in this excursion are earnestly requested to make a prompt reply.

As this is an exceptional opportunity due to the courtesy of the Spanish River Pulp and Paper Mills for the Eastern members of the Technical Section to become better acquainted with Western conditions it is hoped that members will advise the association at once of their intentions so that proper provision may be made for their comfort.

Features of Interest on This Trip.

Spanish River Pulp and Paper Mills.—The largest manufacturers of Newsprint Paper in Canada, 560 tons per day. Producing also 60,000 tons of Sulphite Pulp per annum.

The International Nickel Co., smelters of "Monel" Metal, which is fast coming into favor in pulp and paper work. Considerable work has been accomplished by the Company in collaboration with Spanish River Mills and others towards the marketing of Liquid $S.O._2$ for use by pulp mills. A development is promised in the near future which cannot fail to be of the deepest interest to all pulp and paper men.

TECHNICAL MEMBER LEAVING CANADA.

Mr. J. T. Strachan, who has been chief chemist for the Canada Paper Company for the past five years, has resigned to become assistant superintendent of the Bogalusa Paper Company, Inc., Bolagusa, La. Mr. Strachan began his new duties on the first of June. We hope he will retain his membership in the Technical Section and have pleasant memories of Canada. Good luck to him.

JOIN U. S. F. P. L.

Joseph A. Staidl and Mark W. Bray have recently joined the staff of the Pulp and Paper Section of the U. S. Forest Products Laboratory. Their work will consist in a study of analytical methods for wood and wood pulp. Mr. Staidl is a recent graduate of the Chemical Engineering Course of the University of Wisconsin, and Mr. Bray comes to the laboratory from Picantinny Arsenal.

CHAIRMEN OF TECHNICAL SECTION COMMITTEES.

At a recent meeting of the Council of the Technical Section of the Canadian Pulp and Paper Association, the following chairmen were selected to lead the various working committees of the Section for 1920:

Abstracts and Publications—J. N. Stephenson, Pulp and Paper Magazine, Gardenvale, Quebec.

Chemical Standards—A. G. Durgin, Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ontario.

Forest Products Laboratory Advisors—L. H. Shipman, (chairman of Technical Section), Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont. It was voted to invite the retiring chairman, Mr. John Stadler, to remain on the Committee.

Mechanical Standards—John Stadler, Belgo-Canadian Pulp and Paper Co., Shawinigan Falls, Quebec.

Program—Olivier Rolland, Mont Rolland, Quebec.

Samples—A. L. Dawe, Sec. C. P. & P. A., 701 Drummond Bldg., Montreal.

Statistics—S. L. Burns, Riordon Pulp and Paper Co., Hawkesbury, Ont.

Testing Moisture in Pulp—E. B. Slack, Riordon Pulp and Paper Company, Hawkesbury, Ontario.

UNITED STATES NOTES

Paper manufacturers of Northern New York may have to suspend operations within a short time unless deliveries of coal and pulpwood can be arranged and the menace of low water can be met in some way. The water flow in the rivers in the vicinity of Watertown was never so low at this time of the year as it is now. It is beginning to cause trouble with grinders, and the dry season is still looming menacingly in the summer months. The mills are provided with sufficient coal for daily requirements just now, but manufacturers are more than apprehensive about the future supplies. The pulpwood situation appears to be going from bad to worse. Most of the mills in the State draw wood from Canada. A few of them have water transportation facilities and are in fair shape, but those depending largely upon railroad service are feeling the pressure. Lack of cars, according to one prominent Watertown manufacturer, is the main cause of the trouble. Canadian roads will not permit their cars to be loaded and sent across into New York because they are likely to be held by the Canadian roads, and the latter will not send over their cars because of they are likely to be held by the Canadian roads under the same practice. The shipper is the buffer and suffers. The situation with which they are thus confronted through this threefold menace is regarded as a most serious one by the Northern New York manufacturers.

The International Paper Company has purchased 212 second hand freight cars for its own account to be used in the transportation of pulpwood. It is expected that the acquisition will expedite the manufacture of newsprint and other grades of paper. Approximately $115,000 was involved in the transaction. The purchase will give the company a total of more than 400 cars. Heretofore it has been operating 200 of its own cars.

The common stock of the International Paper Company, while showing a few points higher than the low mark of a week ago, still shows a depression far below its normal worth. The latest figure quoted in Wall street puts it at 25 points or so below the high of the year, in March, since which time prices per ton of its output have advanced $10 to $100, compared with $75 a ton in 1919, and it is reported that the third quarter prices will be $115 a ton.

Victor F. Lawson, publisher of the Chicago Daily News, has released 100 tons of newsprint for distribution among smaller newspapers whose need for supplies was so acute that they faced suspension unless they had immediate assistance. A number of newspapers are without mill connections, according to J. L. Fearing, Western Manager of the International Paper Company, who credits Mr. Lawson and other publishers who released part of their tonnage with having saved many of the country papers. This action of Mr. Lawson and the other publishers, said Mr. Fearing, has already had a softening effect on the "spot" market and judging from present indications, an early adjustment of the newsprint situation may be looked for.

Ending a twelve year fight, the Senate last Friday passed the water-power bill as it came from conference. The House having already agreed to the measure, it now goes to the President for his signature. The bill provides for a Federal Power Commission to supervise the development of water power sites on Government controlled streams. The commission would be given power to issue leases, prescribe rates and otherwise control private capital invested in water power projects.

The Hammond Vindicator official journal for Tangipahoa Parish, Hammond City, in the strawberry section of Louisiana, is printed on wall paper. When Editor Campbell felt the newsprint shortage he contracted with a manufacturer of wall paper at Atlanta, Ga. for a large tonnage of a very light shade of wall paper. On this he is printing presentable issues of his newspaper. The wall paper costs him 4 cents a pound, much less than the price he had to give for newsprint.

Another print paper substitute is being used by the Lackawanna Journal, whose evening edition made its appearance on the streets of Lackawanna, N. Y. last Friday afternoon printed on sheets of brown wrapping paper. In a headline across the top of the front page it carried the following announcement: "This paper cost us 14½ cents a pound, 4½ cents more than the meat they used to wrap it in."

Imports of pulpwood from Canada into the United States during the eleven months ending with February dropped to 790,828 cords, according to the figures issued at Washington last Friday, the basis of which is a report from the American consul at Kingston. The corresponding period of the previous year showed a total of 1,499,107 cords. February imports, the report stated, were 52,351 cords, a decrease of approximately 93,000 cords as compared with the same month of last year. The value of pulp and paper exports for the eleven month period, on the other hand, increased to $92,000,000 from $74,000,000 for the corresponding period of the preceding year, with the February increase amounting to $2,226,000.

An excise tax on print paper to curtail consumption will be one of the recommendations of the Senate Manufactures sub-committee investigating the print paper shortage. A bill for that purpose is being drawn by the committee, assisted by the Federal Trade Commission. The amount of the tax and other details remain to be worked out. Amendment of postal regulations to permit small quantities of print paper to be shipped to any part of the country at a rate of one cent a pound will also be recommended. The present maximum weight of seventy pounds would be retained.

The substitution by the Federal Government of a sales tax for the existing excess profits tax was urged in a resolution adopted by the National Association of Paper Box Manufacturers at their recent convention in Cleveland, Ohio. The association favors such a tax change in the belief that the sales tax would tend to stabilize commodity markets and reduce the cost of living.

He who always wants his own way is soon left to travel alone.

PULP AND PAPER NEWS

The Toronto offices of the Spanish River Pulp and Paper Mills, Limited, which have been on the ninth floor of the Bank of Hamilton Building will be moved next week to the seventh floor of the same building, where more commodious quarters have been secured.

A graceful tribute was paid to the older members of the staff by the Laurentide Co., Limited, Grand 'Mere, Quebec, when the company placed a red star opposite the name of each employee who has served the company for five years, these being affixed to the employees' office records. A list of employees who have served five years or more has recently been compiled by the company, and it shows one man with a record of thirty-six years and he receives seven stars. Eleven men get six stars and 108 four stars.

At mass meetings held at Sault St. Marie, Espanola and Sturgeon Falls, recently, long service buttons were presented to employees of the Spanish River Pulp and Paper Mills, Limited, in recognition of faithful service. Advantage was also taken of the gatherings to explain the group insurance scheme and the new arrangement by which employees will have holidays with pay varying in length and according to terms of service.

Peterborough is about to become a one-daily-news paper city. According to an announcement this week arrangements are being made to merge the Review into the Peterborough Examiner and when the negotiations are complete the Review will cease publication after many years of newspaper activity in Peterborough.

The Canadian Nashua Paper Company at Peterborough, Ont., have gotten nicely under way and are now turning out a gummed sheet on Canadian paper, a shipment of which reached Toronto this week. The stock is pronounced of excellent quality and being all-Canadian make it is attracting some attention in paper circles.

Charles E. Allen, who some months ago left the Buntin Reid Co., and started into the wholsale paper business for himself, has organized the Allan Paper Co., Ltd., and a provincial charter has been secured. Mr. Allen is President of the company and H. G. French, Secretary. The office and warehouse are in the Allen Building, 105 Simcoe Street, where the firm are handling their own mill brand papers.

Toronto union printers this week returned majorities for the Progressive ticket, headed by John McParland, New York Union No. 6, thus going on record as being opposed to the present administration of the International Typographical Union. Delegates were elected to the Ontario Provincial Conference.

Among the visitors in Toronto this week from the George H. Mead Company Ltd., of Dayton, Ohio, were George H. Mead, head of the company, John D. Sutherland, sales manager, and Dr. E. O. Merchant, statistician.

W. W. Southam of Montreal, one of the principals of Southam Press, Limited, owners of a chain of newspapers extending from Ottawa to Calgary, is now on a visit to Vancouver. Speaking of the newsprint situation in the east, Mr. Southam said he believed it would get worse before it improved. Canadian producers were doing their best to supply the market, but consumption of newsprint had increased so considerably, both in the Dominion and in the United States that the mills were finding it increasingly difficult to fill the requirements. Like those in British Columbia, the newspapers and printing plants of Ontario were favorably situated in regard to securing a supply sufficient for their own needs, but the newspapers of other provinces were still feeling the dearth of newsprint, he declered. A unique feature of the Southam Press, Ltd., and its subsidiaries, is that not a share of their stock is held outside the family.

The Canada Vegetable Parchment Co., Ltd., which commenced operations early in the present year, are experiencing such a demand for their product that they are already considerably behind with their orders. The output is being taken largely by dairies, creameries and similar consumers. The manufacture of the product is all being done with pure well water from a system of wells in the St. Catherine district which ensures an uninterrupted supply. The Company are considering the installation of a second machine, which if installed, will increase the output to nearly 20 tons a day.

C. Howard Smith, of the Howard Smith Paper Co., was elected President of the Quebec Division of the Canadian Manufacturers' Association at the annual meeting of that organization held recently. Jean Rolland of the Rolland Paper Co., of St. Jerome, was elected a member of the executive committee.

J. W. Fergusson, late General Manager of Editor and Publisher, New York, has entered upon his duties as manager of the advertising promotion department of the Canadian Daily Newspaper Association in Toronto. Mr. Ferguson, who was born in Scotland, came to Canada in his early youth, and previous to going to New York, he was on the advertising staff of the London Advertiser. It is generally conceded that the selection of Mr. Ferguson for the post is an excellent one and that he will greatly strengthen the Association of which John M. Imrie is Manager.

J. M. Finlay, Secretary-Treasurer of the Ritchie & Ramsay Paper Co., Ltd., Toronto, has left, with Mrs. Finlay, on an extended trip through the west along with the Canadian Manufacturers' Association party en route to the annual meeting of the Association in Vancouver.

T. J. Stevenson, sales manager of the Riordon Pulp and Paper Company, has left on a four months' trip to England and the continent.

Hon. Beniah Bowman, Minister of Lands and Forests, informed the Ontario Legislature recently that since the present Government had come into power he had refused to issue permits to cut timber or pulpwood in a small area or a large one. The policy had been to offer timber for sale by tender and in following the system the department had received,

in some cases, 50 per cent and in others 100 per cent more than under the old method of issuing permits.

"If we continue to issue permits we may have considerable difficulties in knowing where to draw the line," the Minister declared.

Word just received from Thorold, Ont., is to the effect that the Foley-Reiger Pulp and Paper Company, in that place, has sold out its mill to the Beaver Wood Fibre Company which has been actuated in the purchase by the need for more mechanical pulp. The output of the mill is twenty tons a day and the equipment includes 4 wet machines and 4 grinders. As the product will now all be used by the Beaver people, other mills in the locality, which depended on the Foley-Reiger Co. for a part of their pulp supply, will suffer accordingly.

FORESTRY ASSOCIATION'S DEMONSTRATION CAR.

Winnipeg.—It is hoped to get tree planting actually under way in the prairie provinces by organizing each small community this summer, and there will be close co-operation with the Dominion Government's tree-planting nursery at Indian Head, Robson Black, executive secretary of the Canadian Forestry Association, stated on a recent visit to this city. With the idea of demonstrating to the farmers the advantage derived from planting shelter belts of trees, so named because they shelter the early grain from the hurricane winds which blow across the prairies, the Canadian Forestry Association will send a "tree-planting demonstration car" through Manitoba, Saskatchewan and Alberta. Instructive talks and motion picture displays of tree planting will be given.—Marked success has attended the use of the Demonstration Car in the East.

AMERICANS AFTER N. B. LANDS.

Indicative of the demand for all land from which pulpwood can be taken is the announcement of the sale by Edward London, of Canterbury, of 2,200 acres of wild land on the Shogomoc waters, in York county, to James M. Pierce, of Houlton, Me., and Arthur Patterson, of Penobscot, Me.

The price is not announced, but the deed has been recorded in New York county office, and Recorder Thomas H. Colter said there had been an unusually large number of transfers of woodlands in this county recently. "Americans from Maine and other New England States seem to be buying every acre of woodland they can get so as to secure pulpwood to be shipped to the United States," said Recorder Colter.

Fredericton understands that Archie Alcorn, of Blackville, and Frank C. Murchie, of Milltown, N.B. have completed arrangements for the formation of a company which will probably be known as the Alcorn-Murchie Pulpwood Company.

The company will be wholly owned and controlled by these gentlemen. Its object will be to procure all the pulpwood that can be purchased by them, both for Dominion use and for foreign export.

Archie Alcorn is a son of the late Mr. Alcorn, so long connected with the Gibson lumbering and mill property at Blackville. In addition to his duties as manager of the Nashwaak Pulp and Paper Company at Blackville he has done lumbering on his own account to a very considerable extent.

APPARENT WASTE IS CONSERVATION.

What on the surface would appear as almost criminal waste, and yet is a conservation measure, is taking place in the pulp-mills on the Pacific coast. Prior to the close of the war upwards of 100 million feet of the finest spruce logs for the manufacture of aeroplanes was cut in northern British Columbia principally on Queen Charlotte islands. As the timber was not required for its original purpose, and, as the logs lying in the woods would decay and those in the water would soon be destroyed by teredoes, it was disposed of for commercial uses to the best advantage.

The limited capacity of the lumber mills in that portion of the province prevented the utilization of the greater portion of the supply of logs for lumber. The pulp-mills, however, which during the war had been producing large quantities of aeroplane lumber, purchased much the larger portion of the logs, and will convert them into pulp. The large timber on the British Columbia coast has to be sawn before it can be used in the pulp-mills, and as several of the pulp companies also manufacture lumber, material suitable for aeroplane construction can and is being saved to the extent warranted by the damand.

Though it is regrettable that such fine timber must be used for pulp, true conservation dictates its use for the purpose for which a market exists rather than to have it wasted. It is also claimed that larger financial returns are secured from its manufacture into pulp instead of into lumber.

NEW WAGE AGREEMENT AT DRYDEN

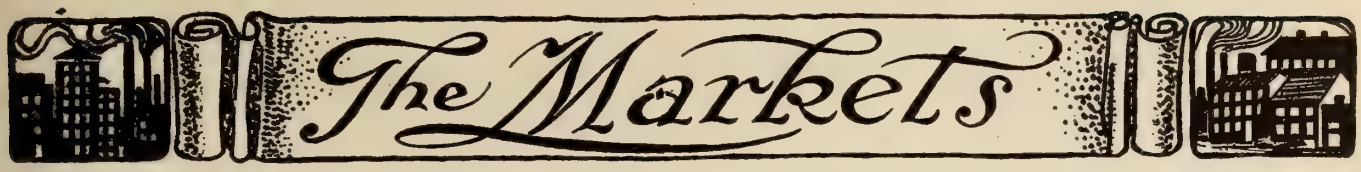
A new labor agreement has been entered into between the Dryden Pulp and Paper Co. and their employees of the International Brotherhood of Pulp Sulphite and Paper Mill workers, local No. 105.

The new schedule, which became effective on May 1st, 1920 and remains in force till April 30th, 1921, is is conceded to be one the best labor agreements existing in any sulphate mill in Canada. The result gives a general increase of 15 per cent, together with a bonus on wages earned of 5 per cent, payable every four months, and extends to all union employees on the payroll.

The negotiations prior to the signing of the agreement was conducted by Mr. J. B. Beveridge vice-president and general manager, F. N. Beveridge, general superintendent for the company; and Thos. J. M'Mahon, of Iroquois Falls, 6th Int. vice-president of the pulp mill workers, J. H. Hill, president, H. Adair, recording secretary, A. Johnson, and H. Franklin for the brotherhood. The discussion was marked throughout by the greatest cordiality on both sides, and the representatives of the men are to be congratulated on their successful handling of the matter delegated to their management.

The boys are off to another year of successful co-operative production, and it is hoped that the good feeling displayed will continue in the future, and all concerned are to be congratulated on the happy outcome.—Dryden, Ont., Observer.

Mr. J. J. Harpell, president and managing director of the Industrial and Educational Publishing Company which publishes the Pulp and Paper Magazine, is attending the big convention of Fishermen and Canadian manufacturers in Vancouver.



CANADIAN TRADE CONDITIONS

Toronto, May 29.—With indications of reduced prices and falling markets in some other lines, prosperity in the paper trade continues and there is no anxiety as the future is scanned. A few weeks ago it was possible to find a paper dealer here and there who would admit the possibility of a spring slump, in prices but such a man is hard to find now. With the mills months behind with their orders and with the large under-production which the manufacturers have been unable to overtake, it is universally conceded that the immediate future holds no possibility of a drop in prices. In practically all lines of paper the tendency is still on the upward trend and there is a demand for every paper product that the mills are unable to make. Practically every paper mill is sold up for months to come and several of them are not only refusing to take orders but they are in the unique position of being in the market themselves for paper. The Toronto jobbers, big and little, as well as the job printers, are clamoring for supplies and are compelled to pass up big volumes of business through shortage of stock. One job printer in Toronto this week found himself just two reams short of a standard line of paper to finish a job and a canvass of every paper house in the city failed to help him out of his difficulty. The paper was simply not to be had and the printer is still without stock to finsh the job.

Wood Still Scarce

From a leading contracting firm in Toronto it was learned that pulp wood is still very scarce, although there are indications that the peeling and cutting operations now in progress in the woods for next season will result in bigger supplies of wood than last season. Operations, however, are being hampered considerably by a shortage of labor and the car shortage, too, has had a deterrent effect. There is no standard price for wood and the market is running wild. Practically all the mills are buying in the open market. The average price for spruce is $15 a cord although some mills are paying as high as $16 and $17 a cord.

Pulp

Conditions in the pulp market remain unchanged with a very active demand and supplies at a low ebb. Spot lots of groundwood pulp have been selling as high as $125 a ton and it is exceedingly scarce. The mills are ready to pay almost any price to get it. It is known however, that one mill succeeded in making a contract at $100, but it is understood, that the contract contains the proviso that should the market undergo a material rise in the meantime, the increased price will prevail. Delivery is set for several weeks hence. Bleached sulphite is still quoted at $175 up, and easy bleaching from $125 up. All grades are hard to get and the shortage already existing is likely to be accentuated in the line of mechanical pulp, it is said, by one of the Canadian mills which is contemplating ceasing operations permanently. It is is understood that the mill referred to, which has been making groundwood pulp, is about to sell out and whether or not arrangements will be made to have it continued in operation, has not been made known.

Newsprint

The newsprint situation remains acute with many of the smaller publishers living from hand to mouth in the matter of supplies. Several of the mills making newsprint and other lines of paper are said to be very short of coal and the situation in this respect among the Canadian mills generally is disquieting. In a number of instances mills are facing the possibility oof shutting down unless the coal shortage situation eases up. In the meantime those mills that have paper for export are getting fancy prices for their product. As high as 14 cents a pound has been paid this week and New York is offering $120 a ton for deliveries of groundwood pulp a year hence, an indication that lower newsprint prices are not looked for in the immediate future. It seems probable that as soon as the Government price restrictions are lifted at the end of June, Canadian newsprint consumers will be paying around 14 cents for their paper for spot lot deliveries.

Book Papers and Ledgers

Book papers still continue to be one of the shortest lines in the paper market and there is a demand for all lines that is nowhere near being met. There is no market in the way of price list and today's price for any line is no guide to what tomorrow's will be. Stocks are very low and what comes in is immediately turned over. Bonds and ledgers are a little less scarce and supplies are coming through in small lots but no big orders are being filled for any of the lines, the system of rationing being still in vogue.

Manilas and Fibres

There is great demand for these lines and prices still have an upward tendency. Grey and white wrappiing is unchanged from last week's price of 9 cents and Manila fibre is still quoted at 11 cents. One Toronto mill this week added ten percent to their price list, independently of what the other mills might quote. On tag Manila they are quoting 11½ cents, while sulphite tag is quoted at 14 cents. Their cover papers range from 16 cents to 21 cents and Bristols are quoted at 13 cents. These are one mill's prices only and are based on the principle that quality and service are worth ten per cent additional as compared with standard prices. That they will become standard prices in a day or two, in keeping with the upward trend of all paper products, appears to be certain.

Miscellaneous

While there has been no general advance in the price of coated papers this week, one mill has increased the price of their product by one cent a pound. There is a brisk demand for all classes of coated paper and the shortage is marked.

In an effort to point out to the trade the real situation in the paper trade, especially in respect to bonds, Mr. Halls, President of the Fred. H. Halls Paper Co.,

Toronto, has sent out a circular letter to the trade. He predicts that the high pressure demand for paper will continue and he advises that printers and lithographers should make provision for future needs. The circular goes into the matter of supply and demand and costs and the writer states it as the opinion of his firm that nothing is to be gained by staying out of the market in the hope of lower prices.

Under the heading "Don't be too Enthusiastic," Printer and Publisher, the official organ of the Canadian Press Association, reads the following lecture to Canadian publishers on the subject of the prodigal use of newsprint paper:

Although the newsprint situation is becoming more serious, there is no evidence of a sincere desire on the part of Canadian publishers in general to reduce their consumption.

"On the other hand papers are going ahead pretty much the same as usual. Some of them are putting on circulation contests, offering pianos, cars and tours. They are reaching out after a sort of circulation that the large advertiser is always inclined to discount.

"In one column they are telling the public of the serious situation facing them, while on other pages they are calling for more readers to help aggravate the situation.

"Papers would be much better advised were they to spend their surplus energy telling their readers real facts, and getting their circulation and advertising rates in shape to stand any surprise that may be in store for them in the very near future.

"Piling on circulation at a price that does not pay for white paper and distribution is such a poor business at present that the wonder is that any sane publisher indulges in it.

"As yet we have big, reputable papers out peddling water sets and other premiums in order to take on more readers.

"This paper does not want to be pessimistic, but the prospects look as though some of the plungers will wake some morning to find that their feet have been frozen overnight."

NEW YORK MARKETS

New York, May 29.—The movement of paper from mills to consuming centres has improved somewhat this week and the arrival of increased supplies in the New York market has taken the edege off the pressing demand to an extent, but there is still much to be desired. This market together with other large consuming centres of the country, is not commencing to get anything like normal amounts of paper, or, for that matter, of any other commodity, from manufacturing sources, and with a decided scarcity of spot stocks, prices are being upheld on high levels. The transportation jam is gradually clearing to a certain degree but the primary trouble with the railroads seems to be that they have more freight than they can adequately handle with their present equipment in view of which it is likely to be a long time before the free movement of shipments can be expected.

It is gratifying to paper men that despite the downtrend in many commodities, notably textiles and wearing apparel manufactured therefrom, prices on paper remain exceedingly firm. It is contended that this goes to substantiate the real healthiness of the paper market and to prove to the buying that the present position of the market is due solely to the law of supply and demand. While consumers of numerous commodities have let up in their buying, and manufacturers and retailers are slashing prices to an extent probably never before witnessed in this country, demand for practically all grades of paper continues pointed, and prices,instead of following the trend of other commodity markets are moving in an exactly opposite direction. As far as paper is concerned, the whole situation simmers down to a condition of demand being in excess of supply, and when such conditions exist in any line, it is proverbial that values undergo enhancement.

Possibly the most important development of the week locally is the announcement made by the International Paper Company, from its main offices in this city, of an advance in that company's contract price on newsprint in standard rolls, carloads or more, for the third quarter of this year from $100 to $115 per ton. The mere fact of the advance in the International's contract basis did not cause as much comment in the trade as did the extent of the increase. The trade fully expected to rise, having been given an intimation of the company's intentions by the testimony of several witnesses at the recent newsprint hearing in Washington to the effect that the I.P. had informed them of the impending advance in its contract price, but it was generally understood that the price would be raised only a quarter to a half cent per pound, whereas the increase announced amounts to three-quarters of a cent.

The newsprint market continues firm and the majority of mills are sold up and are out of the running as sellers. Newspaper publishers in large cities have little stocks to speak of and small town publishers are literally clamoring for supplies and are bidding all manner of prices for spot shipments. News in standard rolls is still fetching in the vicinity of 14 cents a pound in the open market, and quotations of 15 and 15.50 cents are not infrequent.

Wrapping papers hold firm in price although demand has sagged off to a slight degree, this being attributed mainly to the slowing up of retail business the country over. Most manufacturers are booked well ahead, however, and are not seeking new business, so that they are maintaining prices. Tissues are in good call and quotations rule steady. Buying of this kind of paper is chiefly against definite needs, but apparently a great many consumers haven't been able to cover their requirements as they are constantly on the lookout for additional tonnage, and, when finding it available, are meeting the prices asked without hesitancy.

Book papers are quotably strong and are in anything but sufficient supply. Publishers are actively inquiring for available amounts and are paying stiff prices. The fine paper market is firm. Shipments from mills are coming through with less delay and in somewhat larger volume, yet local stocks are at a maximum. Jobbers are prevented from replenishing their stocks for the same reason that as soon as paper arrives from mills it is delivered at once to customers, so that very little of the supply now being received from manufacturers finds its way to dealers' shelves.

The situation in boards is marked by strength. It is an established fact that activity in the box-making industry has simmered down to quite an extent but board mills practically as a unit are sold ahead for from two to four months, and there are no buyers even dreaming of cancelling orders. Predictions are

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being made that prices will touch new high levels when the box trade resumes buying, as it usually does, about the end of June in preparation for the early fall period of activity.

GROUND WOOD.—There are no signs of impending easiness in the ground wood situation, demand remaining active and prices being sustained on high levels. Spot offerings of spruce pulp are indeed few and those producers or dealers fortunate enough to have tonnage above their contract commitments to dispose of are getting just about any prices they see fit to ask so long as they keep within reasonable bounds. Ground wood of prime quality, freshly ground, is selling at $100 to $110 per ton, and in some cases at higher figures. Weather conditions are more favorable to grinders than for some time, yet the holding up of wood by the railroad congestion prevents most grinders from increasing their production.

CHEMICAL PULP.—The scarcity of available wood pulp is still pronounced and there is a strong tone to values and a demand that will not down. Producing mills frankly report that they are unable to cope with the prevailing situation, and, having contracted for the great bulk of their output for some months ahead, are mostly out of the market as sellers. Consumers, on the other hand, indicate by their eagerness to get pulp that their requirements are far from covered, and are giving secondary consideration to matters of cost so long as they can secure supplies. It is difficult to say what market values are on some grades of pulp. Bleached sulphite is offering in very sparse amounts and asking prices invariably range around 11 cents a pound for No. 1 domestic and in the neighborhood of 14 cents for foreign bleached. Mitschedlich and easy bleaching sulphites and soda pulp are also in exceedingly slight supply, with few open market transactions recorded. Kraft pulp is available in fair-sized quantities and is quotable at about 7.25 cents a pound for imported and 6.75 cents for domestic kraft of No. 1 quality. Newsprint sulphite is moving into consuming channels freely at an average price of 7 cents per pound.

RAGS.—Consumers of some qualities of rags have let up in their buying during the past few days, whereas other grades of stock continue in brisk demand, with the result prices in certain instances, although quotably unaltered, are not as firm as they were, while the remainder of the list tends strongly upward. White rags are the most active at present. Mills are looking in various directions for such stock and are absorbing all the supply offered. Roofing rags and thirds and blues are moving at the moment chiefly against back orders and fresh demand is rather slow in developing, indicating that consumers have satisfied their wants for a time through recent purchases. Repacked No. 1 old whites are selling at from 14 cents per pound upward at shipping points, with special packing reported fetching as high as 18 cents. New white shirt cuttings are held by dealers at around 20 cents f. o. b. New York and business has been done on this basis. Roofing rags are quotable at from 3.50 to 3.75 cents at shipping points for No. 1 packing, while repacked thirds and blues are moving to mills at around 5 cents a pound.

PAPER STOCK.—Despite reports to the effect that groups of consumers of this or that grade of old paper have retired as buyers temporarily, the market evinces a firm tone and there has been no change of note in prices this week. Dealers and packers continue to register complaints over difficulty encountered in locating usual supplies of paper stock and it is their contention that the curtailed operations of print shops, publishing houses and other consumers of new paper resulting from the transportation tangle of the past few weeks have materially lessened the production of waste paper. Sales of No. 1 hard white shavings have been recorded at 7 cents a pound and soft white shavings of No. 1 quality have moved to mills at 6 cents, and in some instances at a quarter of a cent more. Middle West mills do not begin to show as much interest in old books and magazines as recently, yet there appears to be a fair volume of mill orders in the market at a price basis of around 3.75 cents for No. 1 heavy books. Folded newspapers are bringing 2 cents and a shade higher f. o. b. New York, while No. mixed papers are now selling at as much as 1.90 cents. Kraft paper, white news cuttings and Manilas are in steady demand and firm in price.

OLD ROPE AND BAGGING.—Paper manufacturers are buying old rope in consistent fashion and are paying steady prices. No. 1 manila rope is freely fetching around 8.50 cents per pound at shipping points and there is a sufficiency of orders in the market to more than absorb offered supplies. Old bagging is in lax demand and quotations tend off at a basis of about 3.25 cents f. o. b. points of shipment for No. 1 scrap bagging.

AMONG SHANTYMEN.

Rev. William Henderson, superintendent of the Shantymen's Christian Association, who was in Montreal yesterday, spoke of the work founded twelve years ago which, he said, had grown steadily, each year enlarging its field of activities and covering new territory. That the work of the association, which had been introduced among the shantymen of British Columbia last summer under the superintendency of the Rev. William Fuller, had progressed in an encouraging manner, was evidenced by the fact that a 32 foot motor boat had been provided for Mr. Fuller to enable him to carry on his work among the loggers. On the south end of Vancouver Island where the roads were good, motor trucks had been provided for the missionaries of the various districts.

Mr. Henderson emphasized the urgent necessity of the teaching of the Gospel in the remote areas of the far west, and quoted many instances of conversions in lumber and other camps in Canada where the teachings of the Scripture had hitherto been unknown. A good beginning had been made last winter in Nova Scotia and New Brunswick, and in Ontario one of the missionaries had a motor car with which to cover the various districts. The winter's work in these provinces was to be followed up all through the summer.

Giving a short resume of the work accomplished in the past year by 24 missionaries who had undertaken to preach the Gospel in the lumber and other camps in Canada, the speaker said that 940 camps had been visited, 33,400 men had heard the Gospel, 6,780 of whom were French-speaking men, and 8,000 were foreigners, 6,000 miles had been traversed by foot to cover the work, and thousands of little Gospels had been distributed among the men.

There is no doubt that the stability of industrial and social conditions rests on Christian characters at work.



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REFORESTATION TO ENSURE SUPPLIES

Washington.—Colonel William B. Greeley, chief of the United States Forest Service, urged reforestation by public agencies and private individuals to guard against future paper famines.

"Public agencies doubtless must assume the greater part of the immediate task of growing timber on our idle, cut-over land," he said. "But publicly owned forests cannot do all of it in the United States. Our national policy should aim definitely and unequivocally at the practice of forestry by private owners as rapidly as that can be brought about by better methods of taxing timber lands, by the co-operation and educational help of state and federal agencies, and by the recognition of an equitable basis of the obligations carried by forest ownership."

NOT CARRIED IN COLD STORAGE

Paper machines are not carried in stock or in cold storage. They must be made to order, and it is commonly understood that such an order placed today will be for delivery in not less than two years and at the machine maker's price at date of delivery. There may be some consolation in this for the man who demurs at placing his order for a ton of book paper for delivery within two or three months at price prevailing then. It is is estimated that the heavy castings used in the manufacture of a modern paper machine at today's market will cost approximately $50,000 more than the same castings before the war. Under such conditions, there is no matinee crowd of paper makers lined up before the doors of the machine shop with their money in their hands.—Bryant Venable, in The Inland Printer.

SALE OF THE PULPWOOD LANDS AND LIMITS.

The Brown Corporation of Berlin, N.H. recently purchased from the St. Lawrence Industrial Lumber Company, at Sherbrooke, timber limits of something over 400 square miles together with some 36,000 acres of freehold land. It is reported that $536,000 changed hands. At the same time the Brown Company also bought 90,000 acres of freehold land at $7.00 per acre. The whole area is situated at Bersimis, Quebec, on the north shore of the St. Lawrence.

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Trinity Church is supported by a solid foundation and many rows of tenement blocks. In the churchyard is buried William Bradford, who printed the first newspaper in the city. He lived to be ninety-two, but he should worry — he had no final baseball editions to get out three-quarters of a minute before his rivals.—B.C. Root in "The Pulp Press."

ENGLAND'S SUNDAY PAPER THREATENED.

London.—The sale of Sunday newspapers in this country is threatened by various amendments which have been put down to the "shops" (the early closing) bill. The report stage of the bill will be taken in Commons on Tuesday, and these amendments have been so framed that they would, if adopted, practically deprive the great Sunday reading public of news on that day. Opponents of the amendments point out that Sunday newspapers have throughout the country a circulation of ten million copies, mostly read by the working classes.

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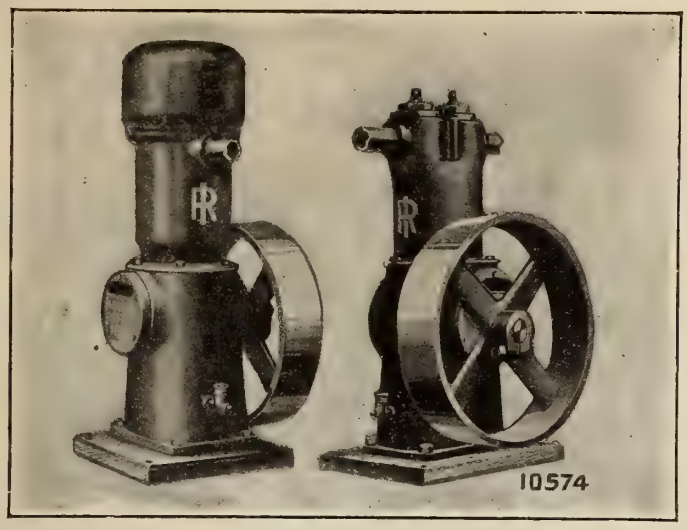
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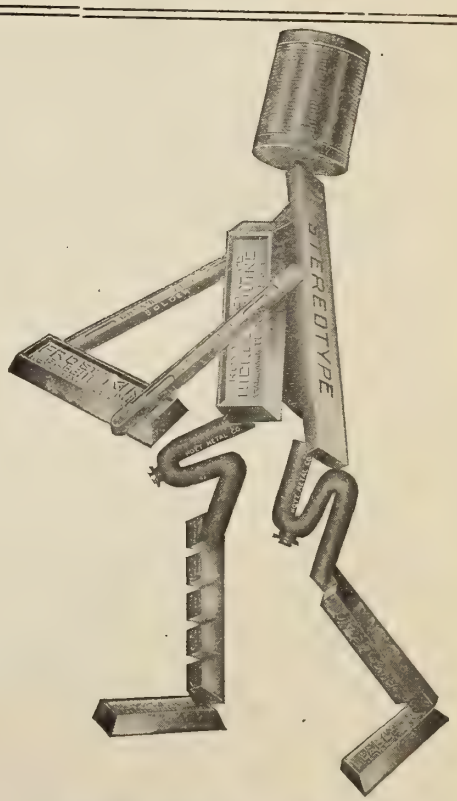
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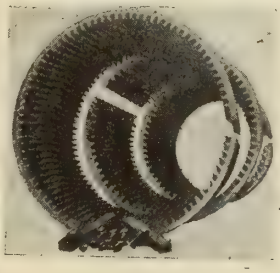
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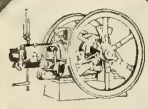

MACHINE SHOP SUPPLIES


MACHINE TOOLS


RAILWAYS SUPPLIES


VALVES AND STEAM GOODS

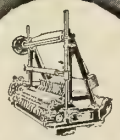

AUTOMOTIVE EQUIPMENT


OIL ENGINES


CONTRACTORS' EQUIPMENT


DYNAMOS AND SUPPLIES


TRANSMISSION


PULP AND PAPER MACHINERY


SCALES

Speeding-up the Nation's Production

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-:- EDITORIAL -:-

PUBLISHERS STILL DEPEND ON GOVERNMENT

A delegation of Canadian newspaper publishers who went to Ottawa last week claim that twenty-five per cent of the newspapers of Canada face suspension because of their inability to make arrangements for the supply of paper after July 1st. This is the date on which the present agreement expires. There seems to be a rather delicate situation in which some publishers are certainly at fault and where some manufacturers are accused of being indifferent to the needs of Canadian customers. While the publishers have every means of placing their side of the case before the public and have availed themselves of many opportunities to do so, comparatively little has been heard on the other side, although occasional admissions in reports of conferences strongly indicate that practically all of the Canadian newsprint manufacturers are not only inclined but anxious to serve the publishers of Canada to the best of their ability, and practically to the extent of their customers' requirements.

The fulfilment of Canadian demands at the price agreed to last fall has been accomplished with considerable financial loss to Canadian paper makers as has been the case since the paper control was created. The agreement included the proviso that after July 1st the export price as set by three of the large companies should prevail in Canada. One of the companies has recently announced its prices for the third and fourth quarters of the current year and the publishers, at least for the most part, have accepted them and are attempting to obtain assurance of necessary supplies. Most of these efforts have succeeded but some attempts have evidently come at a somewhat belated time so that we hear of publishers claiming that they have been unable to make arrangements for their newsprint needs. Certainly all of them had since last December to make arrangements for supply after the first of July. Some of them had an opportunity of making such arrangements even before the agreement that might be termed the "Drayton Draught". Instead of making such arrangements, as would obviously have been a sensible thing to do, some publishers have rested on the assumption that they would be taken care of by some kind of government attention, such as has sheltered them for the past three years.

Mills that had tonnage in excess of that contracted for by Canadian consumers have apparently contracted for the balance in the export market. Canadian publishers therefore who have not already arranged for future supplies are naturally finding themselves in a very serious predicament, as the mills are under quite as much obligation to fill their contracts as they are to cover domestic consumers. The question as to how far a mill in a peculiar geographical position is under obligation to reserve newsprint for domestic consumption is a matter for serious consideration as well as an opportunity for considerable difference of opinion. It would seem to the Pulp and Paper Magazine that as there are several mills in Canada that are the natural source of supply for certain districts, they should anticipate the situation by reserving at least such a portion of their output for Canadian consumption as is represented by the percentage of total Canadian production used in the Dominion. This situation is one which could reasonably have been anticipated by manufacturers as well as the need for making contracts might have been anticipated by the publishers. In view of the fact that the export price is understood to be the accepted figure for Canadian sales, there should therefore have been no serious cause for complaint on that score on the part of the mills, except that some adjustment on account of the premium on American funds might have to be arranged. There is no doubt but that many publishers would rather pay the price of Canadian paper in American funds than to be without it and in some cases even the change of the supplying mill might necessitate an increase in freight charges which would go far toward compensating for the rate of exchange.

It has been repeatedly pointed out that Canadian manufacturers of newsprint have no desire whatever to see misfortune befall Canadian newspaper publishers. In fact, they feel considerable concern over the success of their domestic customers and, as has been repeatedly shown in the past, are ready to make even some sacrifice in order to accomodate the Canadian publisher. It is evident that the newsprint manufacturers are not the only ones who have this accommodating disposition. A dispatch from New York states that Mr. Wm. Randolph Hearst, who probably consumes as much newsprint as any publisher in the United States, is willing to forego his legal right to some of his contracted paper if demanding full tonnage would cause suspension of Canadian newspapers whose only source of supply is the mills from which he gets his paper. This is certainly a generous attitude, particularly in view of the feeling in Canada that the Hearst papers have not been very enthusiastic supporters of pro-British sentiment in the United States. We believe that there are other consumers of Canadian

newsprint who would be equally ready to forego a small percentage of their contracted tonnage for the accommodation of Canadian publishers who would otherwise be seriously embarrassed for lack of supplies.

With Canadian publishers willing to pay American prices on contract tonnage it would seem that the mills could certainly afford to reserve 12 to 15 per cent of their output for Canadian consumption, and that by a little more generous attitude among the publishers of this continent toward each other and by closer cooperation there should be absolutely no need for further government interference in this matter.

THE A. F. OF L.

The American Federation of Labor is holding its 40th Annual Convention this week in Montreal. A few weeks ago the American Paper and Pulp Association held its 43rd Annual Convention in New York. The two organizations have much in common, although so decidedly different in many respects. The Pulp and Paper Association of the United States has its counterpart in the Dominion and the two bodies are interested in similar aims and their work is done with a large degree of mutual appreciation and sympathy. The labor unions of Canada and the United States likewise have been progressing in harmony. Conditions are very similar in the two countries and the constant and considerable shifting of labor back and forth across the line has tied the body compactly together because of their community of interests and aspirations and sameness of character. The pulp and paper industry is largely affected by the attitude and actions of union labor and what affects one country in this respect applies in some measure to the other. When wage agreements and matters relating to working conditions are discussed at conferences, mills on both sides of the line are usually in the minds of the delegates. The relations between the pulp and paper industry and the Federation of Labor, through its locals and international unions have been probably as happy as have have existed in the case of any other industry. Co-operation between union officials and managements has resulted in improved conditions and happier communities. It is surely to be hoped that both sides, or perhaps we should better say both parts, of the industry will appreciate the opportunities for mutual service and for co-operative effort in improving and advancing the industry.

The Convention of the American Federation of Labor in Montreal is a compliment to the working men of Canada and is appreciated. If there be room for improving the relations between the two countries and cementing the friendship between Canada and the United States by such conferences, we are sure that will be one of its important results.

Just for amusement, read the dispatch from Washington on page 632. Note the accurate (!) phraseology.

IT RAINED.

Seldom has rain been so ardently hoped for and so fully appreciated as the downpour over the week-end. The parched ground eagerly drank drops as they fell and crops have been much improved. The greatest benefit, however, has been the quenching of forest fires which have been seriously prevalent in Ontario and Eastern Canada and which have not only threatened but in some cases succeeded in doing an enormous amount of damage. The forest has for weeks been in a very dry condition that was a standing invitation for the spark from a locomotive or the embers of a carelessly attended camp-fire, the ashes of the fisherman's pipe, or the thoughtless settler's brush fire to start a conflagration that has swept away in the aggregate thousands upon thousands of acres of forest and has wiped out several towns and villages. While nature has unfortunately been an accomplice in this year's destruction, the whole blame cannot be placed on the weather as there cannot be a fire without a spark and the spark in practically every case is furnished by the careless hand of man. In spite of years of talk and miles of type we are yet without some items of legislation that would certainly be effective, even more effective in preventing fires than the heroic efforts of our protective agencies in controlling and extinguishing them.

WHEN THE BOY SCOUT GOES TO WORK.

For a number of years in Canada and the United States the Boy Scout Movement has been growing until now there is hardly a town or village that does not have at least one patrol and most places have one or more troops composed of several patrols. These boys are gradually graduating into the more serious activities of life and many of them, even before they outgrow the scout age, are employed in some form of industry. The ideals that they have been endeavoring to attain have made an impression that will have an important influence on their work and their relations with their employer and fellow workmen.

The twelve qualities which the boy scout aims to achieve are summed up in the scout law, which the boy promises to obey when he takes his scout oath. A good scout, therefore, is trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean and reverent. It would be difficult to add any further qualifications to make such a description of a boy or man the very highest kind of a recommendation for any position that he might wish to fill. When the boy scout takes ideals of this kind into his work and continues to be guided by the laws of his scout days, whether he be a workman or an employer, there could not be any question of unfair treatment or of not giving full and honest return for fair and honest wages.

A more general adoption of scout principles would go a great way toward improving and stabilizing in-

dustrial conditions; in fact, a real effort to apply and live up to the scout law would remove most causes for dispute. Is it not possible that when all boy scouts go to work they will, by their example, set a pace for both the workman and the employer that will be an important element in industrial relations, labor conditions and quality of product?

HYDRO POWER FAILS INDUSTRY.

A recent dispatch from Toronto states that a factory requiring 20,000 H.P. was to have been built in that city, but that it has been necessary to cease operations on the construction because the Hydro Electric Commission have informed the company that not more than 2,500 H.P. is now available, and no assurance can be given of increasing this supply. We had occasion sometime ago to intimate that this very condition might arise in the case of companies depending upon a government owned and operated public utility. It is perfectly true and right that such resources as water powers should be utilized for the benefit of the people of the province, but difficulties like the present are sure to arise when industry is forced to depend upon such an inflexible corporation as a provincial government. If a government commission, such as that to which is entrusted one of the greatest assets of Ontario, is to be given hide bound control of future developments of provincial water powers, and the development of industry in the province is to be dependent upon the whims and red tape incidentally or necessarily connected with the functioning of such a commission, then industrial development in Ontario would seem to be in a rather precarious condition. This is not the first instance of a company being held up in its operations by lack of power that should have been forthcoming from the Commission and if this body is to justify its continued existence, not forgetting past service, it would seem about time that its performance be placed on a more certain basis.

TWO IMPORTANT CANADIAN INDUSTRIES.

The total capital invested in central stations for the generation of electric power in Canada in 1918 was practically $402,000,000. The capital invested in the pulp and paper industry in that year was $241,000,000. It is interesting to note a few other comparisons. The number of persons employed in the central electric industry in Canada was 9,696 and their wages and salaries amounted to slightly over $10,000,000. The pulp and paper industry employed 25,000,000 persons and paid them in salaries $27,000,000. It is further noted that the total revenue for the sale of electric energy was $53,000,000, while the value of the products of the pulp and paper industry are placed by latest reports at $120,000,000. It is thus seen that the pulp and paper industry, which employs two of Canada's most important natural resources, her wood and water powers, at a capitalization of only 60 percent that of the central electric station industry, employs nearly three times as many persons, earns about double the profit and pays almost three times the wages.

COBWEBS.

Mr. G. R. Hall Caine, who has been a welcome visitor in Canada during the past few months is turning out to be a first-class ambassador of Canada's Natural Resources since his return to England. It would not be surprising if the testimony of Mr. Hall Caine and others resulted in an influx of British capital that will be an important feature of the next few years in the development of the Canadian pulp and paper industry. Canada has for some time been an attractive field for American money, especially in this industry and Great Britain is now having an experience which will doubtless have the effect of diverting capital to investment in Canada which a few years ago would have found employment in Scandinavia.

Dispatches from Washington continue to brand the newsprint manufacturer as a profiteer and congressmen continue to advocate various and sundry government measures for the benefit of the poor publisher. With every newsprint and other paper machine delivering maximum output, as far as may be under circumstances of difficulties in transportation and the obtaining of raw materials, and with mills increasing prices only in proportion to increased costs, we don't quite see where the charge of profiteering has a very sound basis.

It is curious to note, in dispatches from Washington, the utterly indifferent use that is made of terms pulpwood, wood pulp and newsprint. Perhaps they get it from the Maine farmer who speaks of cutting so many cords of pulp. The result, which may have been sometimes intended, is doubtless to confuse the mind of the ordinary person and give him a wrong impression of the restrictions on the manner of using Crown land pulpwood. Pulp and paper are not at all affected by the provincial timber leases, nor is pulpwood cut on other than Crown lands, a point that almost entirely escaped a certain Congressman.

WORKED BOTH WAYS.

A north countryman was looking for work, and he applied at a certain mill.

"Has't gotten character?" quoth the one in authority.

"Nay, but a' can get it."

And off he went. An hour or two later he returned, and again the same one demanded with some asperity:

"Has't gotten thy character?"

"Nay, a've not brought mine, but a've gotten thine. Good mornin'."

Evolution of Paper-Machine Drive

Sectional Individual Motor Drive for Paper Machine.

By STEPHEN A. STAEGE.
Westinghouse Electric and Manufacturing Company,
East Pittsburgh, Pa.

At the annual meeting of the Technical Association of the Pulp and Paper Industry in New York in April, Mr. Staege's address aroused considerable discussion. One of the subjects to which comparatively little attention has been given at the regular meetings of the Technical Association, yet one which is most deserving, is the subject of paper-machine drive, particularly with respect to the use of individual motors for each section of the variable speed line.

* * * * *

Paper-machine drive has received more or less serious consideration by the paper industry and by the electrical manufacturers, but, as is well known, until very recently very little improvement had been made in the method or system of drive, except for the development of electrical means of obtaining variable speeds over any range desired with automatic control. In all other respects, the present mechanical systems of drive are essentially the same as have been employed for many years. To be sure, several modifications and small improvements have been made with a view to the elimination of the annoying and expensive bevel gears, spur gears, and friction clutches, but this has resulted in a multiplicity of belt and rope drives and has brought us very little nearer the solution of the problem.

The paper industry was early to recognize the value of the use of electric power in manufacturing operations and has very generally adopted motor drive in most parts of the mill, the paper machines being the one place where individual motor drive has not generally supplanted the older systems of engine, or motor group drive, and moreover, it is the one place where there is less to be said for group drive than in almost any other application. It is not because of any disinclination on the part of the paper industry to accept individual motor drive, that the old mechanical systems have been so long continued in use, but because of the inability of the electrical apparatus heretofore available to meet the exacting speed regulation requirements of sectional individual motor drive.

Disadvantages of the Mechanical System.

Although we are all familiar with the various objectionable features of the old system of mechanical drive with its attendant annoyances, it may be well to review briefly some of the more important of the disadvantages of the mechanical system. In the first place, considerable space is required for the long line shaft with its numerous cone pulleys and vertical belt drives, usually the entire basement being occupied for this purpose, and in addition considerable space is required back of the machine for the transmission system there, including the cone pulleys, friction clutches, bevel gears, etc. In the transmission between the motor or engine driving the variable speed line of the machine to the machine itself, there is a very large power loss, varying somewhat, of course, on different machines, but averaging approximately 50 percent of the total power delivered by the motor, which item itself is of considerable moment, especially in the drive of a large, high-speed news machine. On account of the large number of bevel gears, belts, pulleys, clutches, shafts and bearings that have to be maintained and kept in running order, there is usually exceedingly high maintenance in connection with every paper machine, the belt item and gears alone frequently running into many thousands of dollars annually. In addition to the cost of belts, gears and mechanical parts, which actually have to be renewed, a large amount of labor is also required, not only to be on hand in case of accident to make quick repairs, but to rebuild and fix up equipment after it has been taken off for repairs.

Among other disadvantages of mechanical transmission may be mentioned the noise and vibration of the gears, the hazard to employees coming in close proximity to gears, belts, shafting, etc.; the fire hazard occasioned by a large number of bearings, which, if not given proper attention, may become hot, igniting the oil; the large amount of oil required for the lubrication of so much shafting and bearings; the high first cost of the mechanical drive including the line shaft; the lack of flexibility and the considerable investment in spare parts that has to be carried as well as the space required for the storage of these parts.

Probably the largest item affecting lost production on a paper machine is trouble with the mechanical transmission, and while it is not always evident at once why the machine is making "broke," it can frequently be traced to belt slippage, and not infrequently will the belt have to be taken up before production can be resumed, the vertical belt drives from the cone pulleys being one of the worst possible types of belt drive and requiring constant attention. In addition to the belt trouble, there is frequent gear breakage, bearing troubles, etc., which may result in several hours shutdown at each interruption.

Not only does the mechanical system of drive interfere with production directly in the ways above mentioned, but indirectly imposes limitations on the output of the machine on account of the limitations in the speed at which it is possible or practicable to operate. This limitation is determined by a point which is always reached in the speed of a paper machine, where mechanical drive is used, above which the loss of production makes it impracticable to go. This is because of increasing and varying belt slippage resulting in an excessive amount of "broke," gear trouble, clutch trouble, difficulty in holding the equipment down and in alignment caused by excessive vibration, etc., and in addition to this the mechanical transmission losses increase so rapidly at the higher speed as to make the power input to the machine almost prohibitive.

The Question of Belt Slippage.

Let us analyze a little further the question of belt slippage with its effect upon the machine section speed and paper breakage. It is well understood that in every belt drive transmitting power there is a

certain belt slippage and this slippage is dependent largely upon the power being transmitted, although it is also considerably affected by other conditions such as atmospheric humidity, temperature, condition of the surface of the belt and pulleys, belt tension, the presence of particles of oil or water on the belt or pulley, etc. However, if we assume that all of these other factors for any given time remain practically constant, the belt slippage might be assumed roughly to be approximately proportional to the load being transmitted. Now if we assume that there is a constant slippage of say 2 percent when the belt is transmitting its normal full capacity with constant load, any variation in load might be expected to result in a somewhat corresponding variation in the belt slippage, and therefore in the speed of that section of the machine. Should there be a variation in load of say 10 percent wo would expect to get a variation in the belt slippage of something like 10 percent of the former slippage, or perhaps a variation of 2/10 of 1 percent in the speed of the section.

In addition to the variations in belt slippage caused by variations in load, there are also changes in belt slippage and consequent changes in the section speed caused by variations in the coefficient of friction which result from particles of dust, dirt, grease, water, etc., and from water vapor and atmospheric changes which are constantly going on. Any of these factors may or may not cause sufficient change in the belt slippage to break the paper, but are objectionable and contribute to the sum total of trouble experienced and loss of production.

What Has Been Done to Improve Conditions.

Let us now see what has been done to improve these conditions. Some ten or twelve years ago after electric drive had fairly established itself in the paper industry, several serious efforts were made by a number of electrical manufacturers to introduce a system of individual motor drive wherein adjustable speed direct-current motors could be geared direct to the machine shaft on each section of the paper machine, thereby eliminating the line shaft, bevel gears, friction clutches, belt drives, etc. While a great improvement in the mechanical arrangement was affected, as well as in the overall efficiency of the installation, the fact immediately became apparent that the speed regulation of the several motors driving the various sections of the variable speed line was of vital importance and not easy to obtain. It was also soon discovered that it was quite impossible to design motors, the relative inherent characteristics of which were sufficiently alike to give them absolutely the same speed regulation under all operating conditions, making it necessary to resort to external control or regulation in order to hold the speed of the various motors sufficiently alike to prevent the breakage of the paper as it passes from one section of the machine to another.

As there were no speed regulators or governors on the market, which could be expected to hold the speed of the motors much closer than 1 percent or 0.5 percent, at the best, it was practically useless to search for remedies in that direction, and in connection with the machines for individual motor drive, where installations were actually made, hand operation of field rheostats for controlling the motors was referred to. While hand operation of the field rheostats, or hand regulation, has in a few instances kept the machines in operation and resulted in a moderate degree of success, a number of other installations were removed on account of the difficulty or impossibility of controlling the speed well enough to make paper on a commercial basis. Where the individual motor drive was, however, ultimately kept in operation in the case of a few machines mentioned, the degree of success finally attained was not until after the electrical manufacturers had spent a great deal of time and money in the undertaking, and it may also be said that no small part of the credit for the operation of these equipments has been due to the willingness and determination of the operators to make a success of the equipment and individual system of drive. However, even with the best of intentions on the part of the operators, it has been impossible to maintain the speed of the motors with a sufficient degree of precision to prevent breakage of the paper and considerable loss of production on account of imperfect speed control regulation.

Had the electrical manufacturers fully understood the exacting regulation requirements of sectional individual motor drive, they probably would not have undertaken this problem when they did, as they had no solution for the regulation problem at that time.

Slow in Adopting Sectional Individual Motor Drive.

Quite naturally, reports on the several failures of individual motor drive, and the only moderate success attained by others, in this radical departure from the old established mechanical drive, were rapidly circulated throughout the paper industry, and on account of the hazard involved in undertaking a project of this kind, it was natural that everyone should become exceedingly skeptical, and inasmuch as no solution was offered, a lapse of some years passed without the installation of any new paper machines with sectional individual motor drive.

Speed Regulation Problem Solved.

Finally an answer has been found to the perplexing question of speed regulation, which has opened the way for the long-looked-for revolution in paper machine drive, whereby this phase of the paper manufacture can take its place with that of the most modern and advanced in the industry; in fact sectional individual motor drive for paper machines with automatic regulation and control can now properly occupy a place second to none in the application of electrical equipment to mechanical apparatus.

The secret of the final success of individual motor drive is the development of a speed regulator which is sufficiently sensitive to indicate the most minute speed variations of any of the motors and quickly to correct it.

It should be noted that in order to maintain the proper "draw" on each section of the machine, it is necessary that the motor driving each section maintain its correct speed without a variation of so much as 1/10 of 1 per cent. Not only must the motor maintain this high degree of regulation when the load on the machine is constant, but when the load varies at times, such as when the bearings are being oiled, when the paper breaks between the dryers and the calenders, or on any such occasion where there is a variation in the load, the regulator must act so quickly as to prevent the breaking of the sheet or the accumulation of slack between the sections and yet must be absolutely "dead beat" in action and not overtravel.

Requirements for Individual Motor Drive.

In the change from mechanical to electrical drive it is nearly always found that many refinements are

made possible in the operation and control of equipment of all kinds, and this is true to a marked degree in the case of sectional individual motor drive for paper machines.

In order to take advantage of the various features which will contribute to the efficiency and convenience of operation, we suggest the following requirements of a complete and satisfactory system of individual motor drive for paper machines:

1—To have the entire machine and each individual section completely under the control of the operator by push button stations easily within reach.

2—Ability to start the machine or any section of it by push button stations and to operate these at a very slow speed for considerable periods of time for putting on felts, or for similar operations.

3—To be able to start any section of the machine independently and to bring it up to the running speed whether or not the other sections are in operation.

4—To have the regulator controlling the speed function automatically without requiring any personal operation or attention.

5—To enable the operator to shut down any section quickly, or the whole machine as a unit.

6—To provide means for increasing or decreasing the speed of the entire machine from a push-button control station.

7—To control the speed regulation of the entire machine as a unit, with a high degree of precision so as to maintain the proper weight of the sheet, drying uniformity, etc., and to maintain a perfect draw at each section of the machine so that no loss of production will be occasioned on account of imperfect regulation.

8—Another requirement of equal importance is that all parts of the equipment be rugged and dependable so as to eliminate entirely the possibility of interruption of service on account of transmission troubles.

Since continuous and uninterrupted production of paper is of primary importance in the operation of a paper machine, it is of utmost importance that there should be no weak link in the system.

Advantages of Sectional Individual Motor Drive.

To cite some of the advantages of sectional individual motor drive over the former mechanical system of drive, some or all of which may have been drawn by inference from what has already been said, we have the following:

Through the use of a thoroughly high grade, totally enclosed, self-lubricated, herringbone gear set, by means of which the motor will be connected to the machine section shaft, the equipment can be made entirely noiseless and vibrationless, having a maximum degree of efficiency; no personal hazard is envolved, as there are no exposed gears, no clutches, no pulleys, no belts, and the only shafting is the short section shaft of the machine itself. There is less fire hazard, on account of the exceedingly few bearings, which are well lubricated and require no personal attention for months at a time, and the quantity of oil required is far less than with the old system, practically the only maintenance being the occasional attention to brushes on the motors and the periodical changing of oil in the motor bearings and gear set case at long intervals. So far as spare parts are concerned, this is an almost negligible quantity, except that it is desirable to have a spare motor on hand as insurance against accident, but so far as the transmission equipment is concerned, the mechanics can be entirely eliminated.

The electrical equipment, reduction gear sets, control apparatus, etc., for a system of this kind, should have a life several times as long as would practically any part of the old mechanical system and with much greater reliability, and impart a flexibility which could not be approached under any other system.

It has been demonstrated that with sectional individual motor drive the variable speed line of the paper machine can be driven with approximately half of the power required where mechanical drive is used, on account of the great reduction in power losses. It is also possible greatly to increase speed and production. Another advantage in the case of new mills being constructed, is the fact that with individual motor drive it may be possible to eliminate the entire basement under the machine room, also to make the machine room somewhat narrower.

With the introduction of this system of drive it is no longer necessary for the machine tenders constantly to watch the draw of each of the sections, for when the "draw" has once been properly adjusted, it will be maintained automatically without further attention.

Now in addition to all of these items, consider the possibilities of increased speed. There are a great many machines in operation at the present time, the speeds of which cannot be consistently increased on account of the limitations of the mechanical transmission. With individual motor drive, however, there will be practically no limit so far as the drive is concerned, inasmuch as sufficient power can be delivered and a perfect draw can be as well maintained at a high speed as at a low speed.

I believe it is universally conceded that for large high-speed news machines, the maximum speed which can be attained with mechanical transmission has already been reached, so far as commercial operation is concerned. This means that where speeds of 1,000 feet or more a minute are desired, sectional individual motor drive will be absolutely necessary, and furthermore, it is the only system by which a satisfactory and economical drive can be obtained even at much lower speeds.

That Finnish pulp is becoming somewhat of a factor in the U. S. market is shown by the activities of the Lagerloef Trading Company.

The S/S "PANOLA" which sailed from Abo, Finland, May 17th, arrived in Philadelphia, Pa., June 7th, with a full cargo of wood pulp consigned to this concern. The shipment consists of 11511 bales or 1900 tons.

FORESTER FROM NEWFOUNDLAND.

J. D. Gilmore, of Grand Falls, Newfoundland, Chief Forester and woods superintendent for the Anglo-Newfoundland Development Co., who is making a business trip through Eastern Canada, arrived in Fredericton last week.

The pulp and paper company which he represents has a consumption of nearly one hundred million feet of pulpwood per annum. While here he will confer with G. H. Prince, Chief Forester of this province. Mr. Gilmore, who is a graduate of the Toronto Forestry School, was formerly associated with Mr. Prince in the forest service of British Columbia some years ago.

The Experimental Pulp and Paper Laboratory

(Continued from last issue.)

Sulphite Digester.—The size of the experimental sulphite digester is controlled by the same factors as were taken up under the Soda and Sulphate digesters, though the effect of condensation is somewhat more important.

As jacketing is entirely out of the question, because of the necessity for providing an acid-proof lining, condensation is kept under control by using a load steam coil in the bottom section in addition to direct steam, and the whole digester is lagged with two inches of asbestos.

The digester is of cast steel one inch thick with a joint in the middle as shown in Fig. 4 and is provided with the necessary openings for gauge glass, thermometers, relief, sampling lines, etc. Both the cover and the bottom casting are of bronze.

Insulating material applied to outside shell.

In order that the joints may be as leak-proof as possible, and to protect the iron shell from corrosion by any acid that may leak through, bronze rings one inch thick are fastened to the flanged ends of the shell sections providing thereby bronze faces at the joints. The top ring has a face 6 inches wide and the others 3 inches wide. All are provided with flanges ½ inch thick and 3 inches deep, extending from the inner face of the rings into the concrete between the stoneware lining and the steel shell, thereby making it very difficult for any acid to come in contact with the iron. The joints between the shell and rings are made up of litharge and glycerine and the bronze rings are held in place with three machine screws.

The most satisfactory cement for making the joint tight was found to be litharge and glycerine, but care must be taken that it does not set before the bolts are all down. Setting can be delayed by chilling the glycerine or diluting with water. Enough of the cement should be used so that it will exude on both sides of the joint when the bolts are tightened. In this way only can tight joints be assured. Inasmuch as the litharge-glycerine cement turns black upon contact with cooking acid, it is advisable to remove all excess which remains on the inside.

Lining the Digester.—Lining an experimental digester is a far more difficult problem than the same

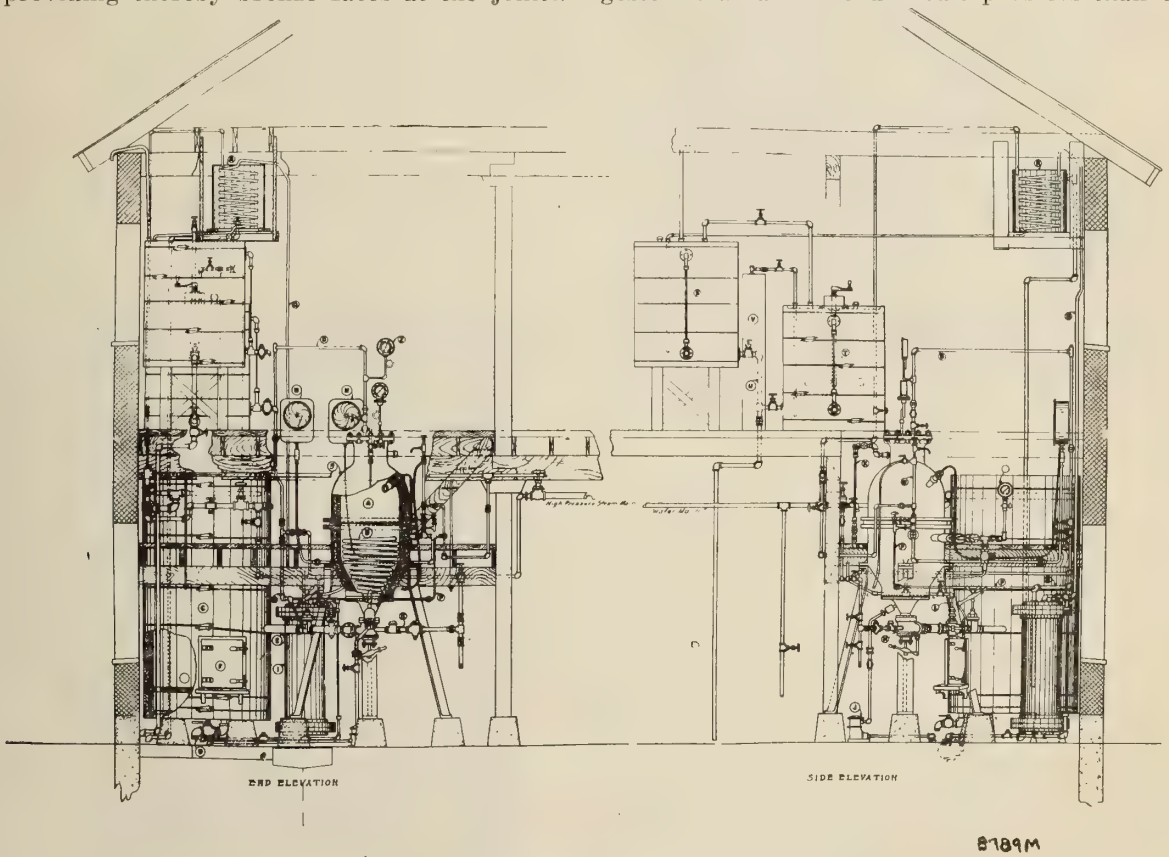


Fig. 4.
Key to diagram of sulphite Di gester.

A.—Digester.
B.—Lead steam coil.
C.—Blow pit.
D.—Blow pit wash water outlet.
E.—Blow pipe.
F.—Blow pit door.
G.—Tile bottom.
H.—Bottom strainer.
I.—Separator.
J.—Steam trap for lead coil.
K.—Direct steam inlet to digester.
L.—Steam connection for blowing out blow line.
M.—Recording pressure gauge.
N.—Recording temperature gauge.
O.—Top relief line.
P.—Side relief line.
Q.—Gas line from separator to cooler.
R.—Gas cooler.
S.—Weak liquor tank.
T.—Final make-up tank.
U.—Connecting line and drain.
V.—Liquid sulphur dioxide cylinder.
W.—Condenser for liquor sample.
X.—Digester liquor gauge.
Y.—Indirect steam gauge.
Z.—Relief pressure gauge.

operation on one of commercial size. The greatest difference is due to size. Furthermore, the lining must be such that it will stand washing out with hot water after each blow. The first lining installed was sheet lead, but, because of the well-known tendency of this metal to creep when subjected to heat and cold, it proved unsatisfactory. Bronze was not suitable since it caused dirty pulp. In fact, it is believed by some persons that the cause for the difference existing between pulps produced in an experimental digester and those made upon a commercial scale is due to the greater proportion of bronze in contact with the pulp in the former case. In addition, bronze is subject to failure caused by fatigue brought on by the frequent alternate heating and cooling. Several fatal accidents resulted from this cause when the process was new. Many linings which would be completely satisfactory in a commercial digester can not be used on an experimental scale because of the dirty pulp produced and the inability to riffle without causing pulp losses.

In the search for satisfactory lining many cement briquettes were made up of various mixtures treated with chemicals, such as phosphoric acid, sodium silicate, alone and followed by calcium chloride, and patented compounds. Several of each were made and half tested in the familiar cement briquettes tensile tester. The others were subjected to the action of cooking acid for several successive periods under actual digester conditions where possible. No briquette retained all of its strength and a large number crumbled to pieces. The most suitable material, however, consisted of a 1.1 mixture of a good Portland cement and No. 4 crushed quartz sand, and was used in lining the digester. This lining was 3 inches thick and, after removal of the wooden form, was planted with a thin mixture of sodium silicate on several consecutive days. It was then treated with cooking acid until a glassy and hard shell formed over the cement. This lining failed just as did one which was impregnated with sodium silicate under pressure and then treated in a similar manner. Tiliing similar to that used in commercial installation was impracticable because of the difficulties due to size, and it was finally decided that the only satisfactory method of lining the small digester was to have a solid stoneware acid-proof lining, such as is made by Maurice A. Knight, cast for each half. After several failures caused by manufacturing errors, a lining which has stood up very well for two years was obtained. Some difficulties may be experienced in obtaining a perfectly fitting lining and in submitting a drawing for it the tolerances should be liberal. In case alterations are necessary, a good stone cutter with the proper tools will run no danger of breaking the lining.

After the digester has been assembled tests are made for possible leaks. Two methods are followed: The first is ordinary hydraulic pressure, in which case the digester is filled with water, the cover bolted on, and the pressure pumped in by a small hand pump. A pressure gauge will, of course, indicate leaks. In order to locate these leaks more specifically, a number of half-inch holes have been stopped and threaded in the steel shell through which is pumped an aniline dye solution. By watching the inside of the digester, the course of the dye can be readily traced and the leak located. The digester is so small that leaks which are of no importance in commercial operations are sufficient to ruin the cook. Every effort must be made, therefore, to see that all joints and valves are absolutely tight, otherwise results will be unsatisfactory.

The digester is provided with a gauge glass about 30 inches long, extending from the neck to just below the joint and safeguarded by valves at top and bottom. A pet-cook is placed between the upper valve and the glass in order to provide a means for blowing out the connections. By means of this glass the height of the liquor in the digester can be watched. In order to guard against any accident resulting from the breaking of the gauge glass, it has been found advisable to protect it by a wooden box, open at the ends and provided with a hinged side. The floating of chips and plugging of the various outlets in the neck and top of the digester are prevented by the use of a perforated lead disc about ¾ of an inch thick provided with a long hook for ease in handling. This disc rests upon four small lugs or a ledge in the neck. These are shown in the Fig. 5. A strainer valve, similar to the one in the soda digester, is provided in the bottom casting in order that pulp can be prevented from plugging the steam inlet and blow line.

In addition to the lead coil, steam can be admitted directly into the digester through a half-inch line provided with a plug cook, which is kept closed unless steam is being admitted, a check valve, blow off, outlet for condensed steam, and control valve.

The steam coil enters and leaves the digester through a bronze pipe, which is screwed into the shell and terminates in a packing gland. The pressure is indicated by a gauge and the condensed water taken care of by a trap. In making up the coil 100 feet of special lead pipe ½-inch inside diameter and with ⅞-inch wall was used. By the use of this alone, the cook can be brought to a temperature of 100 degrees C. in a little less than an hour.



Fig. 5.—Relieving the Digester.

Provision has been made for outside circulation of the cooking liquor in a manner similar to that employed on the soda digester. Such studies as have been undertaken indicate that the only effect observable is a reduction of the time of cook by about 6 per cent. This feature is not made use of in studying the pulping possibilitities of various woods, and it is felt that the size of the digester prevents a true comparison with the effect that might be obtained in mill practice.

The outlet for the liquor-sampling tube is just below the joint and is made up from a piece of 1¼-inch bronze pipe screwed into the digester shell and projecting through the lining. A strainer of perforated sheet lead is placed in the pipe in order to prevent plugging of the ¼-inch sample valve. The liquor sample is drawn through a Liebig condenser, made up of a piece of heavy bronze tubing controlled by valves at top and bottom and enclosed in a piece of ¾-inch galvanized iron pipe about 24 inches long. The rate of sampling is so controlled that the issuing liquor is at about room temperature. This may appear an unnecessary refinement, but when studying the progress of the cook by hourly samples, it is of prime importance. The liquor being cooled under pressure retains the gas and is a true sample of the liquor in the digester. The following table illustrates this point:—

At 760 m.m. pressure the solubilities of SO_2 in water are:—

Temp. of water —degree C.	20	30	40	50	60	70	80	90	100
SO_2 per cent dissolved ..	8.6	7.4	6.1	4.9	3.7	2.6	1.7	0.9	0.0

Liquor drawn without cooling is at about 80 degrees C. At this temperature it could not have a "free" content of much more than 1.7 per cent. Toward the end of the cook cooling is of decreasing importance, though a small error is undoubtedly introduced by the omission of it.

There are two bronze thermometer wells protected by lead coverings, which are flanged inside and bolted onto the digester shell. The shorter of the two is used for a glass thermometer; the other for the recording instrument. The thermometer bulbs are covered with oil, and care must be exercised in reading the glass thermometer since the oil in the upper portion of the well is noticeably cooler than that directly exposed to the cooking liquor. Cotton waste placed around the glass thermometer at the entrance to the well has been found very convenient in preventing loss of the oil, and at the same time cleans the thermometer, thus permitting rapid reading. When the digester was designed, the opening in the shell which is now used for the recording thermometer was intended for use as a pulp sampler. It has been found, however, that not much reliance can be placed in samples obtained in this manner and the opening is used, therefore, for other purposes.

The recording pressure gauge leads off the same opening in the digester as the sampling tube, and the readings are compared with those obtained from an acid gauge on the cover of the digester. As a rule, the former is more reliable than the latter.

Both top and side reliefs are provided, but the latter is not generally used in the method of cooking practiced at this laboratory. The top relief line is taken off the cover and protected against plugging by a piece of perforated sheet lead placed over the end of a 1-inch bronze cap, the other end of which is tapped and screwed to the relief line. The relief line is ½-inch bronze pipe and the relief controlled by two globe valves. Even these are sometimes not sufficiently tight, particularly in the first part of the cook before the liquor has been raised. Under each conditions, steam is admitted to the relief line at sufficient pressure to prevent leaking. This can be easily done since the relief line is provided with the proper steam connections for blowing out the strainer in case it becomes plugged.

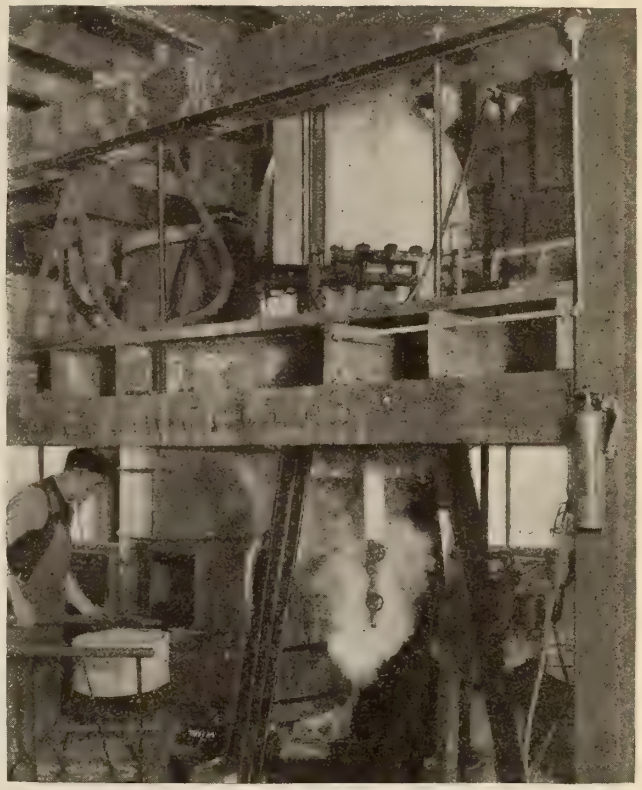


Fig. 6.—Removing Pulp from Blow Pit.

Both reliefs discharge into a vertical separator made of 14-inch iron pipe flanged at both ends and 5 feet high and provided with a drain and gauge glass by which the rate of relieving can be watched. The line from the digester enters at the top and projects about 4 feet into the separator. The gas outlet is at the top. The gas is led through a lead pipe into a cooler placed about 12 feet above the separator, made up of an ordinary garbage can provided with the necessary piping. After cooling, the gas is conducted into the first of two make-up tanks, where as much as possible is absorbed, the excess escaping through a vent.

Blow Pit.—The blow pit is of the same dimensions as that of the soda digester. The only differences are that the pit is protected against the abrasive force of the discharge by a piece of sheet lead about 12 inches x 24 inches, and the false bottom consists of acid-proof drainer tiling 6 inches x 11 inches with 3-32-inch holes. The tiling is made with feet which raise it from the bottom about 6 inches. The blowpit is provided with a drain controlled by a quick-opening valve, and the waste liquor is filtered through a 12 inch x 24 inch screen of Fourdrinier wire before being discharged into the drain. The drain is 6 inches x 6 inches and sunk below the floor level.

The hydraulic press shown in Fig. 7, used for compressing the pulp preparatory to sampling, is made to

accommodate a basket 18 inches in diameter and 15 inches deep. The basket is made of 12 gauge iron (U.S. Standard), with 3-32-inch perforations leaving a half-inch margin of solid metal at top and bottom. It is held together by a double-rivetted butt joint with the rivets flush with the inside. Lighter perforated metal will not do as it soon loses shape and fails. A 10 ounces duck bag 18 inches in diameter and 18 inches high, with a reinforcing band 4 inches wide, and so placed that it bears the brunt of the wear, which occurs at the top of the basket, is fitted inside the basket and the pulp loaded into it. This bag answers two purposes: It protects the pulp from rust stains and prevents the loss of fibre. When first designed, the press was so arranged that the piston entering the basket came up from the bottom, but this arrangement was found unsatisfactory. The press was then remodeled, as shown, so that the cake is formed in the bottom rather than the top of the basket. At 80 pounds water pressure the press has a lifting capacity of 17 tons, but it is good practice to allow the compression of the pulp to take place rather slowly, not applying the full pressure till the greater bulk of the water has been removed. Water drains from different pulps at various rates. For instance, a sulphite stock can be pressed more rapidly than soda pulp from a deciduous wood. In general, about nine inches is needed for the pressing operation.

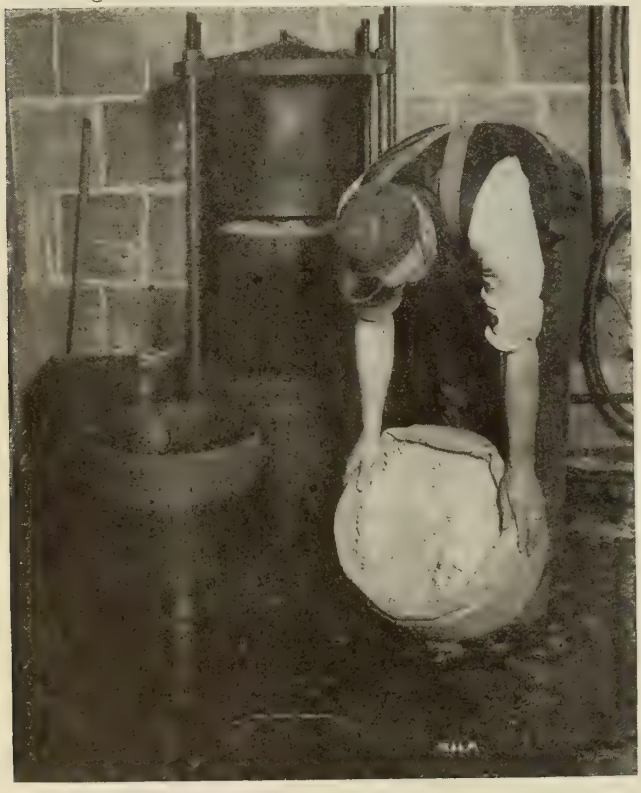


Fig. 7.—A Pulp "Cheese" After Pressing.

Acid Making-Up Tanks.—There are two acid make-up tanks, Fig 8, 3 feet in diameter and 4 feet high of resinous Southern yellow pine free from sapwood.

Number 1, further from the digester, is about half filled with a weak solution of calcium and magnesium hydroxides and receives the relief gases from the digester. It is also so connected that any gas in excess of that taken up in number 2 tank passes over and is absorbed. This tank is provided with a vent to the outside and a capped inlet through which the milk of lime can be charged. Tank number 2 is the final make-up and receives the SO_2 gas which is obtained in iron cylinders in liquid form. A pipe leads from the gas cylinder nearly to the bottom of the tank. For about a foot from the end, the pipe is filled with a number of perforations. An opening, through which the milk of lime solution can be charged, and an agitator for thoroughly mixing the liquor are provided, in addition to a gauge glass and an opening for discharge. Any gas which is not dissolved in this tank passes over to number 1 when it is absorbed.

The milk of lime is made up from a burned limestone analysing about 40 per cent MgO and 60 per cent CaO. About 3 or 4 inches of freshly burned lime is placed in the bottom of a pail and well covered with hot water. After slaking is complete, the pail is filled with cold water. About one pint of this mixture is added to tank number 1 and about 1 gallon is required for number 2, in the ordinary course of acid making.



Fig. 8.—The Complete Acid Plant.

(To be continued.)

A MOTIVE FOR EDUCATION.

The Portland Oregonian says: The reasons which have impelled the managers of an eastern savings bank to publish statistics showing the material value of education may have been selfish, but are none the less logical, and the figures speak for themselves. It is shown, for illustration, that of 5,000,000 children who have no formal education, or practically none, only 31 on an average rise above the dead level to attain any form of distinction. In 30,000,000 who receive elementary schooling but no more, there may be 808 who gain distinction; of 2,000,000 high school graduates, 1,245 probably will be distinguished; in 1,000,000 college graduates, or a trifle less than 1 per cent of the population of the country, are found the names of 5,768 distinguished men and women.

SURVEYOR OF FORESTS.

Ottawa.—The civil service commission announces the appointment of G. H. Edgecombe (R.S.), Ottawa, as surveyor of forest resources, for the Commission of Conservation.

Stand with anybody that stands right. Stand with him while he is right, and part with him when he goes wrong.—**Abraham Lincoln.**

A Practical Remedy For Newsprint Shortage

Frank J. D. Barnjum, Annapolis Royal, N. S.

These so-called high prices for pulpwood and paper are here to stay, with a continual upward trend, but as a matter of fact the price of wood and paper is not high as compared with other commodities and especially if based on cost of production. A crop that takes seventy-five years to mature and to which, in addition to the use of the land and the long wait for returns, must be added the cost of planting and seedlings, protection from fire and insects, taxes and interest, together with the losses continually occurring in the forest from disease, wind and fire, must of necessity cost high.

Take a cord of wood to-day, even at $40 f.o.b. cars at shipping point, and deduct the charge of cutting, peeling, hauling and loading, say $12.00, this would leave $28.00 for growing a cord of wood or a matter of less than 38 cents per cord per year for gross receipts from which it would be safe to deduct at least one-half for costs and wastage above enumerated, showing only 19 cents per year per cord, which certainly, to say the least, could not be classed as "profiteering" by the individual or corporation who undertakes to reproduce the trees which are now being cut. This is so unattractive to the individual that this, the most important work confronting the continent to-day, must be assumed by governments, communities and the large paper companies.

Everyone, from one end of Canada to the other, is now advocating reforestation, and it is certainly the crying need of the hour, but why plant tiny seedlings while a continual stream of mature trees are allowed to be shipped out of the country in the shape of more than a million cords of pulpwood per year and at a loss to Canada of more than seventy-five million dollars annually, if simply turned into ground wood only.

A man who advocates reforestation and still approves or even countenances the shipment of raw wood out of the country is neither consistent nor a true Canadian. All this hue and cry and flourishing of the "Big Stick" for the removal of the restrictions on Crown land wood is simply made in the vain hope that it may prevent the placing of an embargo by Canada on fee land wood as well, and not with any expectation that the present regulations will be in any way changed. American paper manufacturers have frequently expressed surprise to me that Canada has not restricted the shipment of fee land wood long before now and it is the one thing they are all expecting from day to day.

If the boot were on the other foot and wood was being shipped from the United States to Canada, how long would it be allowed to continue. While, as a matter of fact, from an economic standpoint, that is just what should be occurring at the present time, as peeled wood is selling at Maine at from $15.00 to $18.00 f. o. b. cars while the same is being sold in Quebec for $25.00 with the asking price running up as high as $40.00 per cord f. o. b.

All these government investigations and attempts to regulate the price of newsprint paper are simply like trying to sweep Niagara Falls back with a broom! The more investigation and regulation, the higher the price goes. They are working at the wrong end of the problem. Germany, the most highly organized country in the world, tried price regulation during the war and abandoned it as a miserable failure.

Don't try to hold the price down—let it advance as far as the law of supply and demand will allow. The best remedy for newsprint shortage is high prices. Nothing will stimulate production like high prices for pulp and paper, and nothing will so well keep down consumption and prevent waste. Let prices advance to a point where the mills can go out into the remote sections for wood, even up to a cost of $50.00 to $60.00 per cord or even more.

High prices for paper are bound to curtail waste—this applies not only to the print paper but the newspaper as well. With high prices the paper companies can afford to spend more money on their woodlands for fire protection and reforestation which, for the future, will be quite a burden, as six trees at least must be planted for every one cut down, as only one tree out of six ever reaches maturity; in fact, the morality is greater even than this.

The remedy, therefore, for the newspaper publisher is a five or ten cent paper which is bound to come in any event in the very near future. The newspaper will even then be one of the cheapest articles obtainable today.

The pulp and paper business is on an entirely new basis and it has come to stay, so we might as well acknowledge the fact, face the issue and prepare for the future.

Some of the statements made at the recent Underwood hearing at Washington are so ridiculous that they are hardly worth a passing notice. If there is a four per cent growth, as intimated at the hearing, and there is the amount of standing timber claimed, there would be more standing wood to-day than there was a hundred years ago. In fact, the trees would be crowding us of the earth. Just think of the annual growth of 24 million cords in Quebec against a cut of only three million cords, or a net gain of 21 million cords per year in one Province! The same would be applicable to the State of Maine, only in a greater degree, as the growth is much more rapid there than in Quebec. As a matter of fact, there is no net annual growth in our forests as they exist today. The wastage and destruction by wind, fire, insects, fungi and waste in logging are so enormous that they more than offset the growth. Any man of ordinary intelligence must acknowledge that all of the above causes of destruction combined must of necessity amount to more than the 2 per cent growth claimed by some.

A paper company must be in desperate straits indeed when it would permit such ridiculously misleading figures to be presented to committee composed of Senators to the United States in the vain endeavor to obtain an increased supply through a release of Canadian Crown land restrictions. These statements are an insult to the inteligence of the Senators and will no doubt result in a well merited rebuke from the committee.

Reference was made at the above hearing to a single quotation from a speech delivered at the recent annual meeting of the Canadian Pulp and Paper Association by Sir Lomer Gouin in which the Prime Minister stated that **under proper management** four or five times the present cut might be made. But this remark was ap-

plicable to what might happen in the distant future under a well-regulated forest. Every one knows there is no such thing on this continent today, and it will take from 50 to 75 years to produce one.

Any further quotations from the speech of Sir Lomer Gouin were carefully omitted and I will merely repeat the following:

> "Our Province, Mr. President, as you were kind enough to say a few moments ago, was the first to realize the importance of keeping in our province our raw material for the use of our own mills. We do not intend to relax that policy at all. We may have to go further, and the time may come when we will have to limit the cutting of our Quebec forests for the exclusive use of the Quebec mills, and if the situation demand it, we shall not hesitate, sir, to take the necessary measures, because we cannot forget that "Charity begins at home."
>
> . . . . . .
>
> "But this is not enough. I do not think it is sufficient for you to reduce the volume of your cutting. The time is come, we are told, for you to think that you should restock your timber lands."

. . . . . .

I would suggest in this connection that there is still probably rising a million acres of land that this paper company can buy in the State of Maine at or around $20.00 per acre—land that will average 4 cords or more per acre or $5.00 per cord stumpage, and $5.00 stumpage with ground wood selling at $100.00 per ton is just as low as $1.00 stumpage was when pulp was only bringing $20.00. This would make cheaper wood for these American mills than wood shipped from Canada.

WILL PULPWOOD PRICES COME DOWN?

In a recent interview Major F. C. Shorey, a director of the Meigs Pulpwood Company, made the following statement:

"The price of pulpwood is doomed to fall within a few months. Most of the pulpwood companies in Canada are increasing their production considerably. Last year was one of the leanest for pulpwood production—this year is one of the greatest. Our company has practically doubled its former production. The idea of the pulpwood industry making more money through holding back production and thus boosting up the price has no place in the minds of the captains of industry.

"The United States is the principle buyer of Canadian pulpwood. Our company sells to the States exclusively. In my opinion there is no chance of the embargo being lifted on shipments of pulpwood from Crown lands and this will mean that the mills in the United States will be compelled to either locate in Canada or go out of business."

This price opinion is not unanimous with pulpwood dealers. A large concern in Quebec does not look for any drop in prices of pulpwood for the current year, but rather for a continually increasing rate because of present scarcity of wood and a serious car shortage which shows no immediate signs of betterment.

While many companies are operating somewhat more extensively this year than they did in 1919, the wood produced will not be available until 1921. It is thus seen that the situation is not likely to be greatly improved during the present year and with the continual movement back from streams and the gradual, but sure depletion of wood on freehold lands, the extra wood on the market next year may not be available at a lower price because of the extra cost of producing it, both by reason of the distance it is brought and the high cost of labor and supplies. It costs this year's work.

TRIMBEY AND ALLEN START OUT

A new concern of consulting paper mill engineers and manufacturers of equipment is that of Trimbey & Allen, Glens Falls, N. Y. Both of these gentlemen are well known in this industry. E. J. Trimbey was for many years with the International Paper Company and travelled extensively in his frequent visits to all the mills of the company. During the past two years he has been with the Great Northern Paper Company. During his experience in the business since 1908, Mr. Trimbey has done some thinking on his own account and using his imagination as will be appreciated by the mere mention of his consistency regulator and other pulp and paper mill appliances.

The concern has secured a fine location for a shop and will be ready for operations by July first. The building now erecting is small but there is ample space to enlarge and put in a siding as they have frontage of more than 300 feet adjoining the tracks of the D. and H. railroad.

At first they will put out three machines, though working on the design of several others. The new machine will be an Automatic Continuous Mixing System for newsprint mills which will entirely eliminate the beater room and all beater room attendants with the exception of means for handling the broke, a new type of pulp thickener; and an automatic cooking control for digesters which is designed to handle both the rate of steam input and the rate of relief along predetermined lines, thus giving the exact cooking conditions desired and conditions which can be exactly reproduced in each succeeding cook, eliminating the uncertain manual control and giving uniformity of product and increased economy of operation.

Mr. C. H. Allen has been in the paper business for the past ten years, having worked in the Bureau of Tests of the I. P. Co., Resident Engineer at their Otis Mill, with the Spanish River Co., at the Soo and at sturgeon Falls, and for the past year and a half as Mechanical Engineer in the Bureau of Economy of the Great Northern.

EXPECT DEMAND FOR BUILDING PAPERS.

Bird & Son have agents in the west. The Merrick-Anderson Company have been given the agency in Manitoba and Saskatchewan for the products of Bird & Son, Ltd., of Hamilton. The Hamilton firm manufactures a number of important paper products which are in great demand for building purposes and the anticipation of extensive building operations in Western Canada has resulted in the arrangement with the Merrick-Anderson Company, who have purchased additional property in Winnipeg which will enable them to carry the large stock which they will need to supply their extensive territory.

It is the part of wisdom to spend little of your time upon the things that vex and anger you, and much of your time upon the things that bring you quietness and confidence and good cheer.—**Henry Van Dyke.**

MR. BURKE APPROVES SPANISH RIVER COUNCILS.

"Conciliation" was the keynote of an address delivered by Mr. John P. Burke, president of the International Brotherhood of Pulp, sulphite and Paper Mill Workers of the United States and Canada, at a recent meeting of the branch at the Soo.

"We have strikes enough," the speaker said. "There are strikes on in more than several mills throughout the two countries, without getting mixed up with these companies like the Spanish River which are more or less friendly toward us. "All companies are not alike. The Spanish River Company is one that we consider a friendly company." The speaker here waved his hand to denote the hall in which the meeting was being held. "For instance, do you often hear of a company giving a hall in the mill for a union meeting? It sounds curious. Very, very few companies would do likewise."

The speaker also touched on the plant councils which the company is inaugurating.

"I see no harm in these 'councils,'" he said. "I have come to the conclusion that while in some companies where the plan has been started, the object was to frustrate the formation or the development of the union, it is obvious that such is not the case here. In the first place—and this is important— in order that a worker may be elected as an employee representative to the council, it is required by the company that be shall have been a member of the union in good standing for at least one year. It can plainly be seen that without a union there can be no plant councils, under this condition. Incidentally, this is the first time in the history of the two countries that trade unionism has been made a qualification for membership in the plant council."

He pointed out the fact that the plant councils would not discuss the wage or the hour questions, but would confine their business to matters of production, education, safety, welfare, better working condition and so on. He also pointed out that if the workers at any time were not satisfied with the plan they could simply abolish it by a majority vote.

"There is no need to be prejudiced against the plan from the outset. Don't be opposed to it. Treat it with an open mind. First see how it works out," he concluded.



From Montreal "Star."

ONTARIO AND DONNACONA MILLS WILL SUPPLY CANADIANS.

Though special legislation, proposing that Canadian newsprint mills take care of the requirements of the Canadian daily Press and Canadian Newspapers in general may be passed this week, it was learned at Ottawa early in the week that whether the legislation is brought down or not that it will have very little effect on the majority of the paper making mills of Canada.

Though no official announcement has been made at Ottawa it was understood in well informed paper trade circles that an arrangement had been reached with the Donnacona Paper Company and the Ontario Paper Company, which were two of the three mills chiefly concerned that they would supply their Canadian requirements. The position of the Fort Frances mill remained doubtful.

Last week a message was sent out by Sir Henry Drayton, Minister of Finance, to the mills, notifying them of the meeting to be held at Ottawa. It was intimated that the shortage was very grave and that some twenty six Canadian papers were threatened with suspension.

After the meeting it was understood that the two eastern mills in question had put forth extraordinary efforts, at considerable sacrifices to themselves whereby they would be able to continue supplying their Canadian customers.

On the western situation little real light was shed. At the meeting with the Minister of Finance, it is stated that Senator Ross, counsel for the Fort Frances Pulp and Paper Company, attempted to bargain with the Government, by offering to continue the supply to western publishers if the Government would supply the Fort Frances Company with differentials which the Company claim is due to them from other mills. Later it was intimated certain mills received a letter from Sir Henry Drayton asking them in the event of it being found possible to compel Fort Frances to supply the western press if the eastern mills would be ready to co-operate and keep the western publications supplied.

As many of the eastern mills have already supplied more than their quota in Canada, it was felt in certain circles that the threat of the Minister of Finance to pass special legislation would not be taken very seriously.

The proposed legislation will not contain any provision as to the price of paper to be supplied in Canada, but it was generally felt that the price to prevail would be that of the minimum export price.

On Saturday a special meeting of the Canadian Daily newspapers was held at Ottawa to discuss the situation as to supplies of paper, and it was decided to appeal to the Government for special legislation, compelling the newsprint manufacturers to supply their quota in Canada at prices not higher than the contract export price. Publishers from seven of the nine provinces were present.—E. A.

The Dominion Bridge Company, Limited, has besides its great shops in Lachine a cosy bungalow where a good hot lunch is supplied to employees at a cost of twenty-five cents. The new affiliated company known as The Dominion Engineering Works, Limited, has its plant some distance away from the Dominion Bridge and here another employees' lunch room has been opened recently.

ALASKA PULP AND PAPER CO. ORDERS MACHINERY.

The Union Iron Works, of Bangor, Me., have sent us the following interesting letter:—

It may interest you to know that we have an order for two wood pulp grinders (four pockets) for grinding 24 in. lengths of wood for the Alaska Pulp & Paper Co., together with two wet machines. This is the first pulp mill to be built in Alaska and Mr. E. P. Kennedy of San Francisco is the general manager of the company. The water wheels are to be furnished by the Pelton Water Wheel Co., San Francisco and will operate under a 920 ft. head. If this proves O.K., more will be added.

We also recently shipped to the Yokkaichi Paper Manufacturing Co., Japan, three four-pocket grinders for grinding wood 34 in. long, together with two 100 in. combination wet machines and deckers (these wet machines are double cylinder), six four-pocket grinders to the Spanish River Pulp & Paper Mills, Ltd., Sault Ste. Marie, Ontario, to replace six three-pocket machines, and eight for their mill at Espanola, Ontario; also eight three pocket machines for the Escanaba Paper Company, Escanaba, Michigan, and have just received their order for twelve more for their new mill at Escanaba. We have also received an order for one three-pocket grinder and four 72 in. wet machines from the International Paper Co., Solon, Maine, one for six sixteen-plate screens from the S. D. Warren Co., Cumberland Mills, Maine, one for four sixteen-plate screens for shipment to the Cushnoc Paper Co., Augusta, Maine, and one ten-plate screen for the Penobscot Chemical Fibre Co., Great Works, Maine.

THE BOUNTY OF EDUCATION.

Vocational training in the schools is criticized by a well-known professor, because "it does not prepare the student to develop his full capacity." Possibly not, but is the average student now able to develop his full capacity?

There will always be a certain fortunate element sufficiently prosperous to "develop their full capacity." No advocate of vocational school training who understands culture would put any obstacle in their happy course to full development. But ordinary common-sense compels us all to admit that the majority of students must limit their ambition for cultural growth in accordance with the hard facts of their condition in life. In their case, better a good mechanical training than a limping and profitless pursuit of classical rainbows — profitless not only in hard cash, but in any other result.

The student who has to drop off the educational railway train half-way between stations because there is a beautiful view at the end of the line, has a grievance against the authorities who will not let him stop at some place, however prosaic, where he can get bed and board. He can understand the advantage possessed by those who travel on. He can envy them. But why penalize him? Is the form of culture achieved by such senseless methods the only kind available? Is it not possible to distribute the bounty of education so that each student may receive what he requires, so that the majority may not have to go hungry in order to give the minority a banquet?

The world is suffering today from a surplus of bad poets and a shortage of capable farmers.—Montreal "Star."

ADVISES INVESTMENT IN CANADA

According to a cable to the Toronto Globe under date of May 24, Ralph Caine, son of the novelist and former British Paper Controller, arrived that day after a three months visit to Canada and the United States to investigate the wood pulp situation. So far as England is concerned Hall Caine dispels any hope of relieving the white paper shortage.

"I don't see the slightest chance of getting any pulp wood from Canada, at least for three years," Hall Caine told the Cross Atlantic News Service. "Wrile I am a tremendous optimist about Canada as a wood-pulp-producing country, yet a difficult situation is developing between her and the United States regarding the disposition of the product. The Provinces of Quebec, Ontario and New Brunswick refuse to allow the export of pulpwood to the United States or anywhere else, holding that if anyone wants it he must erect factories in the Provinces named and make pulp on the spot.

Refusal to Export

"As a result the United States may adopt retaliatory methods. I found the officials of the three Provincial Governments named adamant in their refusal to allow pulpwood to be exported, while the Ottawa Government seems unable to interfere. Unless some solution is found there are likely to be international developments, but I believe a bridge over the difficulty can and will be found.

"What is wanted is that British capital should develop the pulp industry in Canada, otherwise the big interests in the United States, which require paper the worst possible way, are certain to jump in and do so. One thing is certain. Talk of retaliatory measures won't help matters.

Deprecate Big Stick Policy

"I strongly advised my friends in the United States that the last thing to do is to introduce 'the big stick' policy against Canada. If the Canadian Provincial Governments wont'e give way on the export question it seems to mee the only way is for an all-round increase of Canadian production, with a specified percentage of the pulp allotted to the two countries.

HEARD AT THE HEARING

Mr. Huddleston—I say, what is the source of your pulpwood?

Mr. Haskell—From our own forests in New Hampshire, Vermont, New York, and Maine; from some freehold property we own in the Provinces, and the rest we buy from freehold properties, or from wood speculators.

Mr. Huddleston—Your answer is that gives me a little new light. The embargo which you speak of applies merely to the Canadian Crown lands?

Mr. Haskell—As stated.

Mr. Huddleston—And does not apply to any freeholds?

Mr. Haskell—As expected in my statement.

Mr.Huddleston—That is a distinction which had not impressed itself on my mind.

Mr. Haskell—It is clearly set forth.

Mr. Huddleston—So that the exportation of pulpwood from Canada is not interfered with from freeholds?

Mr. Haskell—Not from freehold properties.

There is plenty of room at the top without pushing anybody off.

Analysis of Our April Trade

(From The Journal of Commerce).

Ottawa, May.—April is the trade month in which big figures are not expected; but the total trade for the month of April this year was, in point of value, the largest of any April in the trade of this country. The grand total was $154,161,134, as compared with $121,527,962 in April, 1919, an increase of 26 per cent. The imports amounted to $98,290,635, as against $54,255,229 in April 1919, an increase of 81 per cent. The total imports were $55,870,499, of which $53,356,386 were in the form of Canadian products. These figures are much below those of March, a usually big month; but no importance is to be attached to this.

A noteworthy feature of the exports are the large figures for shipments of lumber, newsprint, and wood pulp, which were over 80 per cent in excess of those for April, 1919, the figures being $14,513,680 and $7,830,550 respectively. Higher values are a partial explanation of this; but it is understood that the shipments have been heavier. Incidentally this was the only classification among the exports to show an increase over $1,000,000, as compared with April, 1919. Outward shipments of agriculture products fell off heavily, food stuffs having declined to the extent of $8,494,000, and animal products $6,140,000.

Scanning the imports the chief increase has been in textiles, fibres and their products, which amount to $26,807,380, or about 27 per cent of the total. The greater percentage of these came from the United Kingdom. How rapidly this trade is being recaptured by the Mother Country may be seen in the fact that in April, 1919, the imports of vegetable products, which includes sugar, were over 100 per cent larger than in April last. $64,874,957, as compared with $35,597,964 a year ago. The value of dutiable goods bought in was greater; the duty collected being $17,316,317, compared with 11,132,756.

As imports have greatly exceeded exports during the last two months, the following table showing the trade balances for the first four months of the last two calendar years is of interest; x indicates a favorable,—any unfavorable, balance of trade.

		1920			1919
April	—	$42,420,136	April	x	$13,017,204
March	—	44,278,364	March	x	26,257,907
Feb.	x	2,860,482	Feb.	x	21,976,183
Jan.	x	17,939,222	Jan.	x	51,572,359
	—	$65,889,776		x	$112,824,653

The total value of Canada's exports of newsprint, wood pulp and pulpwood during the year ending March was $103,042,077, as compared with $90,811,392 in 1918-19. of this amount eighty-four per cent. or $86,550,734 worth went to the United States. The value of all newsprint exported was $52,203,792, asa compared with $4,718,021 during the preceeding year. The exports of pulp were $41,383,482, as compared with $34,706,771 in 1918-19. Large as are these figures there is every indication that they will be very largely exceeded in the present year.

In these returns is to be found a partial explanation of the scarcity of newsprint in the United States during the last six or eight months they show that during the year the exports of pulp wood fell off to the extent of forty-five per cent, as compared with those for the preceding year, the figures being; export 1919-20, 838,832 cords; 1918-19, 1,597,042 cords. As the United States is the only purchaser of Canadian pulp-wood shipments to the Republic declined to this extent. The value of pulpwood exports last year was $8,454,803; in 1918-19 it was $15,386,600.

On the other hand the United States received from Canada last year 12,553,349 cwts. of newsprint, compared with 11,880,069 cwts. in 1918-19. As for wood pulp there was very little difference in the shipments during these two years, they having been 10,867,964 cwts in 1918-19 and 10,876,001 in 1919-20. In point of value, however, there was a very great deal of difference. The 12,553,349 cwts of newsprint shipped last year were valued at $48,809,178 as compared with the 11,880,069 cwts. in 1918-19 valued at $36,031,358. The 10,867,964 cwts. of wood pulp exported in 1919 were valued at $30,624,820; while the 10,876,001 cwts. exported in 1918-19 were valued at $31,376,753. In other words the 1,597,042 cords of pulpwood in 1918-19 cost $15,386,600; while the 838,732 cords in 1919-20 cost $8,454,803. Thus Canada's bill to the United States for newsprint, wood pulp and pulpwood last year was $86,580,734, whereas in the year previous it was $75,862,914.

That shipments of woodpulp to the United States remained practically stationery last year may be attributed to the growing demand from other countries, which took over four times as much as they did in 1918-19. Last year the exports to countries outside of the United States, were 4,513,481 cwts., as compared with 973,682 cwts. in 1918-19. On the other hand these countries only took about 350,000 cwts. more of newsprint than they did in the preceding year. This undoubtedly contributed to the increase of prices; for at the present time, Canada has overseas a market for newsprint and wood pulp such as was hardly expected five years ago. It is moreover to be remembered that high as prices are, these overseas customers seem to be quite reconciled to pay them. As an indication of the growth of this trade it may be said that the United Kingdom, which took $614,432 of wood pulp in 1918-19, took $5,031,000 worth last year; Japan, $2,775,000 in 1918-19 and $3,701,503 in 1919-20; France and China, nothing in 1918-19, $1,033,000 and $135,000 respectively last year.

During the last 41 years the trade of the Dominion has increased from $35.60 to $261 per capita. The figures for decennial intervals by fiscal years are:

1879	149,469,188
1889	196,309,107
1899	304,227,339
1909	548,139,339
1919	2,185,194,620
1920	2,351,174,885

Many a man grows grey waiting for a chance which some other fellow has gone out and found waiting for him.

Technical Section

REVIEW OF RECENT LITERATURE.

A-1. The chemical constitution of wood. Carl G. Schwalbe and E. Becker. Zeitschrift fur angewandte Chemie, **32**, 229-31, (1919). J. Soc. Chem. Ind., **38**, 624A, (1919). Paper, **25**, 406-7, (1919). Results of the analyses of various species of German woods, together with the methods used in making the analyses. —A.P.-C.

A-4. The differentiation of sulphite pulps. Florence B. Seibert and Jessie E. Minor, Hamersley Mfg. Co., Garfield, N. J. Paper **25**, 1005-8, (1920). The difference in reactivity to dyes of the unbleached fibres of insufficiently cooked pulps and of the bleached fibres of pure wood celluloses may be utilized in following the process of bleaching. The sharpest differentiation between the different fibres is obtained by first staining with a basic dye and then with a direct dye of a contrasting color; e.g., malachite green and Congo red. The stained samples may be studied in four different ways: (1) sealed in tubes for comparison of color shades, (2) photographed for comparison of fibre qualities, (3) the no. of fibres of each color may be counted, (4) the length of fibres of each color be accurately measured with a filar micrometer. The details of manipulation are given. Photographs of various grades of pulp are given, showing agreement between this method and mill practice.—A.P.-C.

A-4, 5. How decay affects woodpulp. Paper, **25**, 1021, (1920). Comparative papermaking trials made with infected and with clean pulps at the U. S. Forest Products Laboratory brought out the following points: —The infected pulp produced a very dirty sheet, required more sizing, stuck to the couch and press rolls, gave trouble from excessive foaming, gave too free a stuff, and reduced the strength and yield of finished paper.—A.P.-C.

A-11. Testing the color of China Clay. China Clay Trade Review; Pulp and Paper, **17**, 936, (1919). Papeterie, **42**, 25, (Jan. 10, 1920). The methods usually used in the trade are briefly described. It is important that the test be carried out in a room with white walls. The three main points in carrying out the test are: (1) the water should be pure, (2) the dish in which the comparison is made should have low sides so that no shadow will be cast, (3) the properties of the standard clays with which the samples are compared should be well known.—A.P.-C.

A-14. Work of the Paper Section, U. S. Bureau of Standards. Paper, **25**, 172-6, (1919). Text of the annual report for the fiscal year ending June 30, 1919, by Fred. A. Curtis, detailing the activities of the Paper Section in connection with routine testing, paper testing methods, papermaking fibres, paper machine felts, utilization of waste cotton linters, paper bags for lime and cement, use of lime and limestone in the paper industry, unbleached pulp for papers, filtering paper for gas masks, military use of wall and plaster board, miscellaneous information furnished to public and private interests.—A.P.-C.

A-14. Estimation of starch in paper. II. Analysis for dextrines in the presence of beater starch. Oliver Kamm and Frank H. Tendick. Paper, 25, 460-1, (1919). The soluble modified starches (dextrine and so-called gums) used for tub-sizing are first extracted with water at 60°C, hydrolysed, and determined by Fehling's solution. The remaining starch is then isolated by dilute acetic acid.—A.P.-C.

A-14. Estimating percentages of fibres in paper. Roger C. Griffin, J. Ind. and Eng. chem., **11**, 968-70, (1919). Paper, **25**, 463-4, (1919). The "estimation method" has been thoroughly tested out and has given satisfactory results for over 15 years in the Laboratory of A. D. Little Inc. When properly carried out it may be expected to give results accurate to within 5 per cent. or better on rag-sulphite mixtures, and within about 10 per cent. or better on groundwood-sulphite and soda-sulphite mixtures.—A.P.-C.

A-15. New solvent agent for cellulose. U. S. A. patent No. 1,315,393, Zeno Ostenberg, San Jose, Cal. Paper, **25**, 176, (1919). The solvent is a mixture of HCl, H_2SO_4, and phosphoric acid.—A.P.-C.

A-0. Colloid chemistry and its applications. Paper, **25**, 407-8, (1919). A few selected memoranda on the applications of colloid chemistry as regards clay, dyes, soap, milk, tanning, rubber, and physiological and pathological phenomena, taken from Jerome Alexander's book on Colloid Chemistry.—A.P.-C.

B-6. Cooking cotton hull fibres for pulp. The suitability of cotton hull fibre for pulp and paper manufacture. Otto Kress, U. S. Forest Products Lab., Madison, Wis. Paper, **25**, 964-8, 1009-11, (1920). Pulp and Paper, **18**, 71-3, 99-100, 137-40 (1920). A detailed account of several experimental cooks on a commercial scale, of the subsequent treatment of the stock, and of runs made in various paper mills substituting the cotton hull fibre stock for soft rag stock, and also the results of tests on the paper. On the whole the results were fairly satisfactory, but could doubtless be improved by modifying the treatment to suit the peculiarities of the stock. The effect of the suggested modifications could not be tested owing to lack of material.—A.P.-C.

B-9. National forest as a source of pulpwood. Paper, **25**, 1038-40, (1920). An analysis of the forest resources of the U. S. from a papermaking point of view, showing that an energetic and rational forestry policy must be adopted to prevent either the scrapping of many eastern mills or an ever-increasing dependence on Canadian supplies.—A.P.-C.

E-0, F-0, P-1, Sulphate and Sulphite Hazards. Erling Riis. Paper, **25**, 403-6, (1919). Pulp and Paper, 17, 928-30, (1919). Descriptions of the hazards in the yard, wood room, chip bin, digester house, wet machines room, and liquor making plants, together with suggestions for reducing them to a minimum.—A.P.-C.

F-4. Estimating the strength of sulphate liquor. Pulp and Paper, **18**, 265, (1920); Paper **25**, 1015, (1920). The action of NaOH is twice as drastic as that of Na_2S

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between ratios of 1 NaOH: 1 Na_2S and 4 NaOH: 1 Na_2S. The active strength of the cooking solution in terms of NaOH is M×½N, where M is the concentration of NaOH and N that of Na_2S. It may be determined by adding 10 cc of liquor to about 50 cc of water in a porcelain dish, adding 10 cc of saturated $BaCl_2$ solution and titrating with *n* HCl, using phenolphthalein as indicator. The no. of cc is directly proportional to the strength.—A.P.-C.

F-0, R-13. Report of T. A. P. P. I. Committee on Soda Pulp. Principles and practice involved in washing unbleached soda pulp. Martin L. Griffin, Chairman. Paper, **25**, 132-8, (1919). Text of the report together with the discussion by Geo. K. Spence and W. H. Howell, Jr.—A.P.-C.

K-12; R-7. The machine tender. John W. Brassington, Paper, **25**, 1012-3, (1920). Some of the good and bad qualities of machine tenders, with hints on promotion. He should be neither conceited, suspicious, nor a flatterer. He should know his machine thoroughly, be ambitious, and give his fellow-workers (inferiors and superiors) a square deal.—A.P.-C.

K-23. Process for making cellucotton. U. S. A. Patent No. 1,315,914. Fred H. Fuller, Watertown, N. Y. Paper, **25**, 462, (1919). Description of method and machine that will handle effectively a thick but porous sheet.—A.P.-C.

M-5; N-9. A simple electric water heater for the utilization of surplus hydro-electric power. H. A. Winne, General Electric Co. General Electric Rev., Dec. 1919; Paper, **25**, 1016-20, (1920). Pulp and Paper, **18**, 229 (1920). In many mills operating their own hydro-electric generating stations, the generating capacity exceeds the actual power requirements during the major portion of every day. A detailed description is given of an electric water heater specially designed for the utilization of this excess power, enabling the generators to be operated at 100 per cent. of their capacity. Formulas are given for obtaining the amt. of saving thus affected and the cost per kw.-hr. at which the expense of operating the heater will just equal the saving in cost of coal.—A.P.-C.

M-6. The life of electric motors. Hints on the care of electrical apparatus in pulp and paper mils. W. W. Cronkhite, General Electric Co. Paper, **25**, 46-7, (1919). Pulp and Paper, **17**, 793-4 (1919). Useful hints as to the ordinary precautions to be taken in connection with the various types of electric motors and the causes of the usual troubles encountered with them.—A.P.-C.

M-10, 0. A self-propelling nozzle. Paper, **25**, 1044, (1920). This nozzle works on the principle of a sky rocket. It is forced forward by the press of water coming out backward, and the nozzle will drag the hose to any point in a sewer or pipe where the obstruction may be. It is also useful for extinguishing fires in coal piles.—A.P.-C.

M-0; R-13 Mechanical standards for paper mills. Pulp and Paper, **18**, 187, (1920). Paper, **25**, 1055-6, (1920). Preliminary Report of the Committee on Mechanical Standards of the Technical Section of the Can. P. and P. Ass. (John Stadler, chairman) on acid resisting bronze, bearing metals, set screws, screw threads, pulpwood conveying, and bearings.—A.P.-C.

N-4. Pulverized fuel, its use and possibilities. Wm. J. Dick, M.Sc., Commission of Conservation, Canada, 1919. 57 pp. Pulverized fuel was first applied industrially about 1895 for burning cement in horizontal rotary kilns. The disadvantages are the cost of drying and crushing, and the liability of pulverized fuel to ignite spontaneously, but the latter can be obviated by certain precautions. The advantages are, absolute control of temperature, no clinkers to remove, absence of smoke, and the utilization of practically all the heat units in the coal. The next general application was in metallurgy where it has acquired a great development owing to the highly satisfactory results obtained, which are due to the following causes: —the action is continuous, the heat generated is uniform and steady, combustion is complete at all times, combustion is rapid and concentrated and therefore productive of high temperature, combustion takes place where the heat is most wanted. The most satisfactory results are obtained under the following conditions:— at least 95% should be finer than 100 mesh and 75-80 per cent. finer than 200 mesh, volatile matter 35-40 per cent., fixed C 50-60 per cent., ash less than 10 per cent., S as low as possible. But there are cases on record of good results being obtained with 22 per cent. ash in the coal. Pulverized fuel is now being used for power purposes, both in locomotive and stationary boilers, where it has also proved successful. The cost of pulverising is more than offset by the reduced cost of labor in the boiler room. Very low grade fuel (as high as 33 per cent.) can be used. The Bettington boiler was evolved to meet the special conditions arising from the use of this type of fuel. In locomotive practice there is an economy of about 18 per cent. fuel over hand firing. The economy in stationary boilers would not be as great owing to the use of mechanical stokers. Using a good grade of coal, pulverised coal is about 2 or 3 per cent. more efficient than the same coal unpulverized. When banking with pulverized coal, by stopping the fuel supply and closing all dampers and auxiliary air inlets, a boiler can be held under pressure at least 10 hours.—A.P.-C.

P-1. How to make safety meetings interesting. S. F. Shattuck. Paper, **25**, 186-8 (1919). Pulp, and Paper, **17**, 932-3, (1919). Urges the use of the following seven factors:—1° Develop a personal and group pride and initiative. 2° provide foremen and groups with comparative records of accomplishment. 3° Utilize the sporting element. 4° Bring into the meeting as much tangible illustrative material as possible. 5° Make the committee development centers for new ideas. 6° Conduct meetings in a business-like manner and localize responsibility. 7° Occasionally inject the inspirational element to maintain the tone of the organization.—A.P.-C.

P-1. How to use danger signs in a paper mill. G. W. Dickson. Paper, **25**, 401-3, (1919). Pulp and Paper, 17, 927-8, (1919). Colors and designs of danger signs should be standardised to express certain ideas. The wording should be chosen so as to impress the reader as forcibly as possible. In certain cases, where there is a temporary danger, it is well to supplant the danger sign by other precautions so as to make the occurrence of an accident practically impossible.—A.P.-C.

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the Spanish River Plants, June 22nd to 24th, 1920.

UNITED STATES NOTES

A famine in timber and its products, including print paper, unless immediate and far reaching steps are taken for forest conservation, was predicted by C. Price-Green of Toronto, industrial commissioner of the Canadian National Railway, in an address delivered last Friday in Boston to the National Editorial Association. The United States, said Mr. Price-Green, is using one-half of the world's supply of white paper, the total annual consumption of pulpwood amounting to 5,500,000 cords. He pointed out that the newspapers of New York City alone consume the equivalent of over 9,000 spruce trees daily. The United States, he said, consumes thirty billion feet a year, board measure, for lumber and requires for all purposes, including lumber, ties, firewood and other uses, fully one hundred billion feet a year. "Eighty per cent of the standing merchantable timber," said Mr. Price-Green in conclusion, "is privately owned, and 97 per cent of the annual cut comes from these forests. The total of this standing timber represents something in excess of twenty-five hundred billion feet, and at the present rate of cutting this supply would be exhausted within fifty years."

Work on the construction of a plant for the recently organized Pride Pulp and Paper Company is reported under way at Tomahawk, Wis. The plans call for the erection of a paper mill, sulphite mill and a powerhouse, and will require an outlay of more than $2,000,000 by the time the plant is ready for manufacturing operations. Practically, the entire output of the firm will be taken by Montgomery, Ward and Co., the Chicago wholesale house. Lightweight catalogue paper, which is much in demand, will be the principal product of the new concern.

In a full page advertisement carried by the New York **Times** last Saturday, the American Writing Paper Company directs attention to the work of its scientific research laboratory. Interested persons are invited to write for a complimentary copy of a new book by "one of the foremost practical scientists in the United States," which is said to describe in detail the remarkable accomplishments of the laboratory and to contain information of the greatest value to everyone who uses or deals in paper. By this advertisement, which is part of a publicity campaign planned to win even greater recognition for its products, the writing paper company seeks to get before printers facts regarding the value of obtaining scientifically tested paper for their various needs. "Only the manufacturer can know his product in detail—the materials that go to make it, the process involved, the tests it will stand," the "ad" states. "The manufacturer to-day must therefore supply the facts on the basis of which the printer can judge for himself. And the printer's customer must depend on the printer for the specification of the paper. Appearance is of course a rough measure; but appearance isn't enough."

The Aldrich Paper Company's mill in Natural Dam, near Gouverneur, N. Y., was destroyed by fire last Friday, entailing a loss estimated at above $500,000. The plant had a daily output of fifty tons of paper, mostly newsprint.

Conservation of forests and increased production are the great needs of the paper industry, said Peter J. Massey, secretary of the American Pulp and Paper Mill Superintendents' Association, in an address at the convention of the association which opened in Buffalo last Friday. Mr. Massey said that the greatest hindrance to increased production is the shortage of machinery. "The increase in the consumption of paper is approximately 17 per cent a year," he said, "and manufacturers of machinery will not take any orders for delivery under three and a half years." William Fogarty of Green Bay, Wis., representing one of the largest newsprint manufacturers in the United States, predicted that the print paper supply would catch up with the demand in about three years.

The General Chemical Company announces that the regular quarterly dividend of 1½ per cent will be paid to holders of its preferred stock June 20, 1920.

The high cost of timber and news print paper is due in no small measure to the decimation of the forests of the Eastern United States, E. T. Meredith, Secretary of Agriculture, informed the Senate last week in transmitting a report by the Forest Service. The report estimated that 2,215 billion feet of timber is left in the United States, and that there had been no marked change in the concentration of timber ownership during the last ten years. Secretary Meredith indorsed the position taken by the Forest Service that the fundamental need is a national policy of reforestation with enlargement of the national forests on a wide scale and legislation which will enable the Forest Service to co-operate more effectively with the State in stopping forest fires and in growing timber on State and private land.

Reports received at the State Forestry Department, Augusta, Me., last week indicated that forest fires had again become serious in Aroostook County and that the fire wardens' forces there had to be doubled. Smaller fires were reported in Washington County. There has been no rain for five weeks in these two counties. In other sections of the state fires are in progress in bush and waste lands.

John Knight, who was known to the paper trade throughout the world, died recently at Easton, Pa. At the time of his death Mr. Knight was president of the Paper Makers Chemical Company. He was born in Bolton, England, in 1841, and first came to this side of the Atlantic in 1859. Since that time he travelled extensively, engaging in turn in the shipping business, papermaking and in various mill supply enterprises. He established a paper business in England in the late sixties and several years later located a site for a mill at Ekateringburg, Siberia, which, together with another mill, was in operation until taken over by the Bolsheviki in 1918. In 1887 Mr. Knight returned to the United States, taking up the mill supply business at Springfield, Mass. Subsequently he entered into the importation of English China Clay, and in 1900 helped to organize the Paper Makers Chemical Company of Easton, Pa., which he continued to serve up to the time of his death.

PULP AND PAPER NEWS

A. H. Sancton, late engineer of the McIntyre Mine, has joined the staff of the Kipawa Pulp and Paper Co., with headquarters at South Temiskaming. He will act as the company's construction engineer.

Before the adjournment of the Ontario Legislature, and in giving the final reading to the Act permitting the exportation of pulpwood from certain portions of Northern and North-western Ontario, Premier Drury gave his assurance that it was not the intention of the Government to permit pulpwood to be exported to any great quantity. The Premier stated that the granting of export privileges would be supervised by the Government, and not by any one Minister, and that the matter would be administered firmly.

The annual convention of the International Circulation Managers' Association will be held in St. Louis this week. The circulation managers of most of the Toronto papers left on Sunday to be present at the gathering.

The suit of the British Whig Publishing Co., Kingston, against the E. B. Eddy Co., Limited, over an agreement to supply 150 tons of paper during the period commencing Jan. 1, 1916 to Dec. 31, 1918, has been decided in favor of the Kingston newspaper company. The action was to determine whether the plaintiffs were entitled to 150 tons in each of the three years or merely 150 tons during the life of the agreement.

The evening of August 2nd will see the arrival of representatives from British newspapers who are coming to Canada to attend the Imperial Press Conference at Ottawa. The delegates will travel on two special trains on the Canadian National Railways and on their way to Montreal the visitors will stop at the Laurentide Pulp and Paper Mills at Grand Mere and inspect the plant.

Addressing the Toronto and York Pioneers in Toronto this week, Sir John Willison expressed the opinion that in these days of shortage of newsprint, the newspapers should restrict themselves to the dissemination of news items and do away with their magazine features, "The dailies are too large nowadays," he said, "and if they should content themselves with the real news of the country and the world, they would be valuable and far more interesting to the people."

The statement of claim just issued in connection with the efforts of the Ontario Government to compel the Great Lakes Paper Co. to take Hydro power, for the delivery of which preparations have been made, discloses the fact that the Minister of Lands in December 1916, after advertisement, accepted the tender of J. J. Carrick for the Pic River timber limit, on the understanding that the purchaser would erect mills for the manufacture of pulp and paper. The following February the Black Sturgeon River limit was sold to A. S. Marks on the same conditions. Mr. Marks subsequently assigned his interests to Mr. Carrick, who then entered into negotiations with the Hydro Power Commission for a supply of power. Mr. Carrick disposed of his interests, which subsequently came into the hands of the Great Lakes Paper Co

The Toronto office of the George H. Mead Company has been moved from the seventh floor of the Bank of Hamilton Building to 503 in the same building.

The Rimouski Lumber Company, Limited, has been incorporated to carry on a general lumber and pulp business. The capital stock is $150,000, and the chief place of business is Rimouski, Que. Montreal advocates are named as the incorporators.

Jones and Butler, Canadian agents for the Samuel Jones Paper Co, London, England, have opened an office and warehouse at 15 Pearl St., Toronto, and will carry the company's lines of gummed and coated papers. H. R. Butler is in charge of the office.

The Spanish River Pulp and Paper Mills, Limited, are now building an aerodrome at Sault Ste. Marie to house the new marine airplane which they have bought and which will be used in surveying their vast timber limits in the north. The plane will be ready for the first flight in about two weeks time.

Earl Wilson, of Ottawa, has been appointed manager of the Trade and Class Publications Section of the Canadian Press Association and has entered upon his new duties. His office is on Lombard Street, Toronto.

A. P. Costigane, Secretary and Safety Engineer of the Ontario Pulp and Paper Makers' Association, has moved from the Dominion Bank Building, Toronto, to the Spadina Building on Spadina Avenue, Toronto, where he has an office on the sixth floor.

J. J. Herb, superintendent of the Interlake Tissue Mills, is attending the convention of mill superintendents in Buffalo this week.

A. C. Hunt, business manager of the John Martin Paper Company, of Winnipeg, was in Toronto this week calling on the trade.

W. H. Sherriff, of the Toronto office of the Hodge-Sherriff Paper Co., left this week on a business trip through to the Pacific Coast.

The death took place this week in Toronto, of Thomas Jeffery, one of the oldest printers of the Toronto Globe staff. Deceased had been employed with the Globe for about thirty-eight years. He was 65 years of age and leaves a wife and two daughters.

Orders for pulp and paper making machinery placed with the Waterous Engine Works Co., Limited, Brantford Co., Limited, Brantford, Ont. include the following: five Deckers and four Quiller Screens for the Brompton Pulp and Paper Co.; seven Quiller Screens for the St. Maurice Pulp and Paper Co.; thirteen Quiller Screens for the Belgo Canadian Pulp and Paper Co. and ten Deckers for the Spanish River Pulp and Paper Mills, Limited.

E. P. Foley, manager of the Foley-Rieger Pulp and Paper Co., Ltd., at Thorold, who recently sold out to the Beaver Board Company, has not disposed of his patent rights to his process of bleaching pulp and has not yet formed any plans for the future, the Beaver Board Co. not requiring bleached pulp. Beyond their need for more ground

pulp, nothing definite is known as yet in regard to the Beaver Board Company's plans.

The annual meeting of the Pacific Burt Company, Limited, Toronto, manufacturers of sales books, will be held on June 15th and in the meantime the annual report has been issued. For the year ending March 31st profits were $139,216 as compared with $83,-743, or an increase of about seventy-five per cent. Appropriations included unchanged payments in dividends amounting to $45,500 on preferred, and $13,-000 on common, the former at 7 per cent and the latter at 2 per cent. An item of $12,552 was written off patents. President S. J. Moore states that new records have been established during the year, both in respect to volume of trade and to net profits. This has been accomplished in face of the world shortage of paper from which the company suffered as large users of that material. Total assets have risen to $1,719,-142 from $1,674,422.

Word has been received in Toronto that a syndicate of Winnipeg business men intend erecting a wall-board factory at Selkirk, Man., and that construction will start at once. It is reported that an enormous quantity of straw, which is now burned, will be used in the industry.

PREVENTS LOSS OF FIBRE.

An attachment that has been in use for some years in the United States but which, up to the present time, has been very little known in Canada, is the Wolf Collar, designed to prevent loss of fibre through the cylinder mould collar, which is now being manufactured by the Waterous Engine Works Co., Limited. The collar is so designed and constructed that any leakage of fibre through the collar passes directly back to the stock chest of the wet machine and consequently comes through as No. 1 stock.

That this is a greater saving than might be imagined is evidenced by the fact that tests have shown that the loss of fibre through the ordinary collar is approximately 1 per cent of the entire stock handled. Also, as the length of fibre in sulphite is relatively long, the loss of fibre through the wire is only about .001 of 1 per cent. This collar stops the main leak and makes the use of save-alls for white water from the wet machines of sulphite absolutely unnecessary.

WEEKLY NEWSPAPER MEN MET.

Close to four hundred weekly newspapers were represented at the annual meeting of the Canadian Weekly Newspaper Association held in the King Edward Hotel, Toronto, on June 3rd and 4th, the gathering being presided over by A. E. Calnon of the Picton Gazette, who declared in his opening address that the weekly newspaper editors had a great opportunity and responsibility in the reconstruction of a warworn world. Many interesting and instructive papers were read, among them being one on "The value of verified circulation statements," by H. P. Moore of the Acton Free Press and one on "The cost of producing a weekly newspaper," by E. K. Whiting of Owatonna, Minn., in which he urged that the present was the time to raise advertising rates. Subscription rates, the relation of weekly papers to the advertising agencies, the cost of job printing, job estimating, typography and press room problems were also discussed by the members following papers on these topics. Officers for the current year were elected as follows: President, W. R. Davies of Renfrew; 1st Vice-President, W. C. French, Alberta; 2nd Vice-President. A. R. Brennan, Summerside, P.E.I.; Secretary, A. R. Alloway, Oshawa.

During the session a telegram was read from the Post-Master General which stated that a free postal zone of forty miles for weekly newspapers had been granted.

A pleasant wind-up to the convention was a trip on Saturday to the Roycroft Inn and Roycroft Print Shops at East Aurora, N.Y., where 200 members of the association were welcomed by Elbert Hubbard, son of the author and lecturer, who, with his wife, perished in the Lusitania disaster.

PASS RESOLUTION FOR PAPER COMMISSION.

Washington, June 4. — The Underwood resolution requesting the President to appoint a commission to confer with the Canadian Government in regard to the cancellation of certain restrictive orders on the exportation of pulp wood, news print and other writing paper from Canada to the United States, was passed last night by the House without a record vote.

Under the resolution the commission would be required to report to the President before next December what should be taken by Congress to aid in the cancellation of the orders.

CANADIAN EXPORT PAPER CO. IN CHICAGO.

The Canadian Export Paper Co., Limited, of Montreal, Canada, have opened a sales office in Chicago at Room 558 Rookery Building, 209 South LaSalle St., with Mr. R. C. Sharpley in charge.

PULP AND PAPER OFFICE MANAGER OFF FOR IRELAND

The offices of the publishers of the Pulp and Paper Magazine were recently the scene of a pretty event. The occasion was the departure for a visit at her home near Belfast of Miss E. C. Knox, who has been with the Industrial and Educational Publishing Company for the past seven years, during the majority of which she has successfully filled the position of office manager. Mr. J. J. Harpell, president of the Company, called the fifty employees together in the board room where Mr. J. N. Stephenson, editor of the Pulp and Paper Magazine, read a brief address to Miss Knox in appreciation of her service to the Company which was more substantially commemorated with a gold medal that was handed her by Mr. Harpell. Mr. C. H. Armstrong, superintendent of the printing plant, then, on behalf of her co-workers, handed Miss Knox a leather writing case fully stocked with the best Canadian paper and expressed the wish that was extended by all that she might have a safe and pleasant voyage and a happy holiday. Mr. J. B. Drylie, editor of the Canadian Textile Journal, responded on behalf of Miss Knox.

TWENTY MILE FOREST FIRE SWEEPS SOUTH COAST NEWFOUNDLAND.

St. Johns, Newfoundland, June 5. — Serious forest fires are sweeping an area of twenty miles from Asintshotts to the Biscay Bay on the south coast. Several dwellings are reported burned. The parish priest at Trepassey called on the people to cut down shade and ornamental trees around the church, school and convent to save them from destruction. The fire is still in progress there, but abating on the north coast, as a result of rain during the night and early morning.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, June 5.—Whatever the more or less near future may hold in regard to the possible crumbling of the present fabric of high prices in most lines of commerce, the paper trade barometer shows no signs of falling. In fact it is the one line in which a slump is not looked for, in the immediate future at least. In most circles the view is that the present era of prosperity in the paper trade must continue as long as under-production lasts and when it is stated that there is hardly a line of paper in which the Canadian mills are not months behind with their orders, it is reasoned that there can be but little slackening of demand for some time to come and that a quiet period in other lines would but serve to spur on the consumers of paper to greater efforts along advertising lines. Hence it is that while there are undoubtedly signs that a slump in the present era of high prices and big spending is coming, it does not appear likely that the paper trade will be materially affected. Paper manufacturers and those in the trade generally are optimistic and are going ahead with plans of expansion such as characterize no other branch of industry and it would appear as if they are not at all haunted by the spectre of the lean times that a good many financiers and captains of industry are predicting.

The same demand for practically every line of paper that has marked the paper trade since its rejuvenation two years ago keeps up with unabated energy and the mills are experiencing the greatest difficulty in their endeavors to overtake orders that are months overdue. In all lines it is a sellers' market. One official of a big Canadian mill, discussing the developments that have taken place in the Canadian paper industry during the past three or four years, stated that it was only a very short time since foreign manufacturers of bond paper practically controlled the writing paper trade of Canada. What the Canadian manufacturer got in those days he had to fight, and fight hard for. But the situation is changed today. Instead of being buyers, the Canadian manufacturers today are sellers in foreign markets and it is only the shortage of supplies that prevents Canadian mills from going across the border and canvassing for orders. There would be no difficulty in selling all the bond papers in Canada over there at the present time. As for book paper, the situation shows even a greater change than it does in writing paper. American wholesale houses used to sell large quantities of what are known as "jobs" on this side of the line, which were odd lots run from certain mills. The Canadian mills found it hard to compete against this business. But it is now ended and no such condition is likely to arise again, for, as a matter of fact, according to the gentleman quoted, book paper in the United States is even higher than in Canada.

News Print.

The week's interesting feature in the newsprint situation was the announcement of export news prices by the Canadian Export Paper Company, Limited, fixing 5½c. for the third quarter of 1920 and 6½c. for the fourth quarter of the present year. A prominent Toronto official of one of the big Canadian newsprint mills stated that the company he represented would not be guided in any way by these prices and that while there would necessarily be an increase some time after July 1st to their Canadian customers; it would not be as high as some manufacturers desired that it should be. The official referred to said that his company was selling its newsprint on contract at an average of 5c. a pound and while there would be a slight increase on new contracts after July 1st., it was not proposed to take advantage of the abolition of Government control, only to the extent of getting a fair profit on their output. This policy has been adopted with a view to the future when the relationship between mill and customer will not be so greatly in favor of the former and when the salesmen will have to get out and drum up business. In the meantime some Canadian mills are getting as high as 9c. and 10c. a pound for spot lots in the open market and in some cases it is said that even higher prices have been paid.

One manufacturer points out that Canadian sales of newsprint to the United States this year will amount to over one hundred million dollars, and that next year it will probably be twenty five per cent higher if manufacturers can get paper making machines as fast as they want them. The Canadian paper-making industry will be likely to have a further tremendous development in the near future; in fact, at the end of five years the value of its output may equal that of the country's export of farm products. There are millions of acres of forest in Canada still to be cut and profits to paper makers so great, there is every inducement to increase production.

Blotting Papers.

The busy character of the paper trade has precluded the possibility of starting the manufacture of blotting papers in Canada, although it is known that one paper mill, at least, is contemplating the addition of this branch of manufacture as soon as conditions become normal again. In the meantime the Canadian market is being supplied by a few American firms and there is no great difficulty in getting the required shipments. This week a carload of coated and uncoated blottings arrived in Toronto and were distributed among the jobbers. The prevailing price for coated blotting is 16c. f.o.b. mill and uncoated is bringing 12c. with an additional half cent for light and dark tints.

Bristols.

Jobbers are experiencing some difficulty in getting Bristols from the source of the Canadian supply across the line and there is a far greater demand than can be met. An enquiry for stock required by one Toronto jobber brought the response from the American mill that they were just five months behind with their orders for pasted blanks and another mill said that they could not promise delivery of coated blanks until November or December next. In the meantime stocks

in the warehouses in Toronto are low and deliveries are hard to get.

Box Board.

Although the prices for box board remain at the fixed schedule for May and June, it is considered quite probable that there will be a general increase about the beginning of July. Straw board is quoted at $101; chip board at the same figure, filled wood board $114, vat lined chip $111, patent coated pulp back, $177 and patent coated news back at $164. The mills are considerably behind with their orders and some grades cannot be delivered for three months. The raw stock situation in the box board industry remains acute and waste paper, which is very largely used in the manufacture of board, is very hard to get. The demand keeps up and in most grades is several months in excess of the available supply.

Tissue Papers.

Arrangements, which have been in progress for a week or two, looking toward an increase in prices, went into effect this week, most lines having gone up over ten per cent. Cap tissues, 24 x 36, are now quoted at $2.00 and cap tissues, 20 x 30, are quoted at $1.40; Manila tissues, $1.75 and $1.30; sulphite tissues, $2.35 and $1.65; No. 1, bleached white, $2.80 and $2.00; colored sulphite drug, 12c. There has been no advance in the price of toilet papers.

Wrapping Papers.

Wrapping paper dealers report that they are still under the handicap of shortage of supplies and that they cannot get anywhere near the necessary shipments to meet their calls. Another rise in two lines went into effect this week. Grey rag and white wrapping is now quoted at 9¾c. in car lots; 10¾c. on ton lots and 11¾c. on less than ton lots. On "B" manila the price is now 10c. for car lots; 11c. for ton lots and 12c. for less than ton lots. These prices take the place of 9¼c. for car lots of "B" manila and 9c. for grey rag and white wrap.

Book Papers.

The situation in respect to book papers among the wholesale dealers and the mills remain unchanged and in a market with prices unstable, supplies are extremely hard to get. Judging by the efforts being put forth by Montreal dealers, the situation as to shortage in that city is worse than in Toronto where the jobbers are being urged to share up what stock they can get with their Montreal confreres. One Toronto dealer states that Montreal is deluging him with orders that cannot be filled unless local consumers are to suffer. The same dealer said that he had 20 tons of high grade book at a rate of 20c. promised by a certain mill last April and he was still looking for the shipment. Car shortage is held partly responsible for this, and other shipments are also being held up. Coated litho is quoted as 20c.

Rag and Paper Stocks.

Practically all lines of waste paper stocks have undergone another increase and there is a big demand which is still affected by the existing embargoes. Considerable stock is being imported from England but more would be forthcoming were it not for the car shortage. Generally speaking, Canadian supplies of waste paper stock are scarce and dealers say there is room for improvement with a view to increasing collections. In rag stocks the demand for new cotton cuttings continues good with prices moving up slightly. Mills are buying freely and supplies are low. The market for roofing rags is reported as rather poor as compared with other lines.

Rag and Paper Stock Prices.

No. 1 shirt cuttings				19 19½c
No. 1 unbleached cotton cuttings				16½ 16c
No. 1 fancy shirt cuttings				13½c
No. 1 blue overall cuttings				13½c
Bleached shoe clip				15c
White cotton hosiery cuttings				18c
Light colored hosiery cuttings				13½c
New light flannellette cuttings				13½c
No 2 white shirt cuttings				13c
City thirds and blues (repacked)				5¼c
Flocks and satinettes				$3.50
Tailor rags				$3.50
Gunny bagging				4c
Manila rope				8½c
No. 1 white envelope cuttings	$6.25	$5.75		$5.25
No. 1 soft white shavings	$6.00	$5.50		$5.00
White Blanks	$4.00	$3.50		$3.25
Heavy Ledger Stock	$3.80	$3.90		$3.75
No. 1 magazine	$3.90	$3.50	$3.27	$3.50
No. 1 book stock	$3.15	$3.00	$2.80	$2.50
No. 1 Manilas				$4.50 $3.25
No. 1 print Manila				$2.50 $2.25
Folded news	$2.25	$2.15	$2.00	$1.90
Over issue, news				$2.25
Kraft				$4.00 $3.75
No. 1 clean mixed papers	$1.80	$1.70	$1.65	$1.60

NEW YORK MARKETS.

New York, June 5.—There is still no appreciable abatement of demand for paper. Some apprehension is felt by the trade that the depression existing in textile and other lines may eventually act to reduce the consumption of and resultant demand for paper, but thus far, with a single exception, there are no visible signs of buyers having let up in their anxious search for available supplies of paper. Buying interest in spot lots of newsprint has narrowed to an extent but this is due not to any lack of need on the part of consumers but to the fact that large publishers of daily newspapers in New York and other principal cities of the States are, by agreement, remaining out of the spot market for paper. There is a widely scattered, and, in the aggregate, a voluminous demand for spot newsprint, but, take the important buyers out of the market for any commodity, and obviously the market could not help being affected.

It is reported on high authority that at least some lots of newsprint have been sold at slightly lower prices than have lately prevailed. Sales are said to have been made down to 12 cents and there has been talk of even a lower basis in the spot market, but from all indications there is still very little supply of print paper to be had for prompt delivery at these or other prices. It can be stated without fear of contradiction that large city publishers are keeping out of the spot market excepting as regards occasional purchases of limited tonnages for which they have pressing need. Their policy is to give small consumers an opportunity to get paper, and on behalf of paper manufacturers, it should be said that the latter are doing all they can to cover the wants of country publishers.

Prices on all other kinds of paper not only are strong to the nth. degree but advances are being



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INQUIRIES SOLICITED.

scored almost every day in one grade or another. Tissue papers are quotably higher than they have hitherto been. No. 1 white tissue has sold at $2 and about the lowest price named by mills is $1.75, with very little supply to be had at this figure. Book papers are exceeding firm and supplies are in fully as tight a position as heretofore. Magazine publishers with few exceptions are short of paper and are leaving no stone unturned in their efforts to cover requirements not only for the present but also for the future. Machine finished book paper is freely commanding 15 to 16 cents per pound, and there have been sales of spot shipments at higher prices than these. Coated book papers are virtually unobtainable over a period of several months, mills being sold out completely for that length of time, while lithograph and supercalendered book papers are very hard to locate for shipment in the near future. Quotations on practically every grade of book papers invariably range a cent or two per pound above generally accepted market levels, which would indicate that manufacturers are intentionally naming advanced prices with the hope of discouraging buying.

Fine papers are quotably firm and are sought in quantities which mills are unable to satisfy. Stocks of such papers in New York are down to the bone and jobbers are refusing to take orders specifying definite deliveries owing to the long delays in receiving shipments from mills. There are dozens upon dozens of carloads of fine papers en route from manufacturing centers to consuming points, but these supplies are virtually entirely owned by consumers and there seems little probability that the market will be affected when freight conditions improve to a point where these shipments can reach consignees.

Despite a slowing up of activity in the paper box industry, there is no decrease in demand for box boards. Box manufacturers are looking ahead and are endeavoring to cover their wants accordingly, and dealers and mills are besieged with offers of business, a good part of which they are not in a position to book. Prices on board rule extremely firm. Plain chip is selling at $115 to $125 per ton at mills and news board at $125 to $140, while quotations on woodpulp and container boards are purely nominal.

GROUND WOOD—No abatement of demand for ground wood pulp is perceptible and the market remains in just as strong a position as hitherto. Grinders have but scant tonnages to dispose of in the open market and such lots as are to be had are being quickly snapped up by transient buyers irrespective of the prices asked. There have been reports of ground wood selling up to $140 per ton, and while this seems improbable it is by no means impossible. Demand is truly of an acute character, distinctly more so than that for chemical pulp, and consumers are taking in whatever supplies are found available regardless of what they have to pay. Between $100 and $110 is looked upon as a conservative range of prices and yet there is very little pulp to be had at these figures, sellers fortunate enough to have spot lots to dispose of invariably naming and getting higher figures. The consensus of opinion is that ground wood will be the last papermaking material to be affected by any reaction that may develop in the market during the course of the next few months, it being freely predicted that when the inevitable recession in prices comes chemical pulp will decline before mechanical pulp.

CHEMICAL PULP—There is no indication of any easiness in values of chemical wood pulp. Demand continues on a broad scale, and, rather than evincing a reactionary tendency, quotations on some grades of pulp are steadily seeking higher levels. Such advances as have been recorded during the past few days have been of narrow compass, and opinion in the trade is general that the market has about reached the top, but the fact remains that new high values have been realized in some instances. Newsprint sulphite has actually sold at 7.50 cents per pound at pulp mills, domestic unbleached sulphite of No. 1 quality at 10 cents and domestic kraft pulp at 7 cents, recording advances of a quarter to a half cent a pound. Domestic bleached sulphite is nominally quoted in the vicinity of 12 cents per pound but is scarcely obtainable at any price. Little or no foreign pulp is coming in at present unsold, and the prices importers quote on pulp for shipment from the other side are so high that they discourage consumers here from attempting to buy. There are a few lots of Scandinavian kraft available on the spot lot in this country, for which holders ask about 7.50 cents ex warehouse, but otherwise spot stocks of foreign pulps have been practically cleaned up.

RAGS—Certain grades of papermaking rags are in strong call and prices on these continue to rise, while there are other descriptions of material which are in less demand than recently and which have sagged in value to a slight extent. Papermakers are still concentrating their buying on white rags. Demand from various quarters for this class of stock is very active, and with the market fairly well sold up, dealers and packers are repeatedly advancing their quotations. There have been sales of old repacked whites

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of No. 1 quality at as high as 17 and 18 cents per pound, and choice packing probably has realized even more. Dealers assert that they cannot begin to fill all the wants of mills for whites and blame the rapid rise in prices on the insistence of buyers for such rags. No. 1 white shirt cuttings readily command 20 cents per pound at shipping points and most sellers are demanding higher prices. Washables have sold at 11 cents f.o.b. New York, unbleached muslins at 17 cents and white lawns at 18 cents. New cuttings in general are firm and packers lay stress on the small amounts being received from cutting up establishments because of the depression in the clothing industry. Roofing rags are off a bit in price and are selling at a basis of about 3.25 cents a pound for No. 1 packing. Old blues are also quotably easy and are moving toward mills in small quantities.

PAPER STOCK—There is a firm tone to paper stock prices although, with the exception of several specialty grades, no marked changes in quotations have occurred this week. No. 1 mixed paper is probably the most active item at present, and board mills are granting as much as two cents a pound f.o.b. New York for sizable tonnages of this material. In fact, a concerted buying movement on mixed paper has sent prices on this grade to within very close proximity to those on folded news, which is somewhat of a novelty, folded newspapers being worth no more than 2 to 2.05 cents at shipping points. Shavings are firm at around 6.25 cents for No. 1 soft white and 7 cents for No. 1 hard white shavings, and book stock is steady at 3.75 cents at shipping points for No. 1 heavy books and magazines. Kraft paper has jumped in price with sales to mills recorded at 4.50 cents a pound New York. Manilas are also a shade higher at 2.50 to 2.60 cents for print manilas.

OLD ROPE AND BAGGING—Old ropes are moving into consuming channels in consistent fashion and at firm prices. Dealers report having no difficulty persuading mills to pay 8.50 cents a pound for No. 1 manila rope and there have been transactions at higher levels. Strings also are in steady demand and quotably firm at around 3.25 cents f.o.b. New York. Old bagging, on the other hand, remains quiet and, if anything, is a bit lower in price. Offerings are noted at 3.25 cents at shipping points, and the probabilities are this price could be shaded on firm bids.

Although there are no paper mills in Foochow, China, there are more than 1,000 native mills in the interior which manufacture paper from bamboo fiber by the same methods as their ancestors used.

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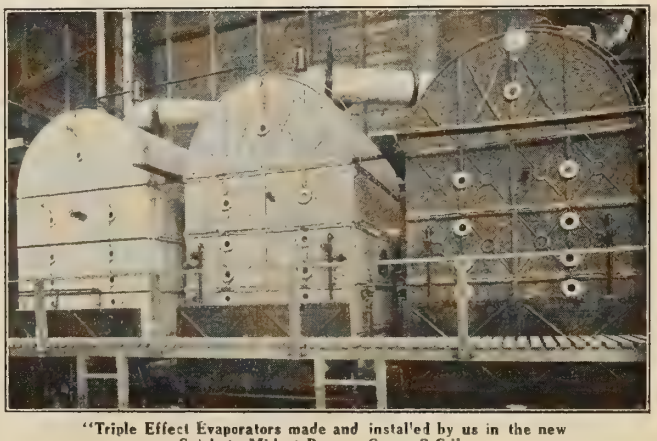
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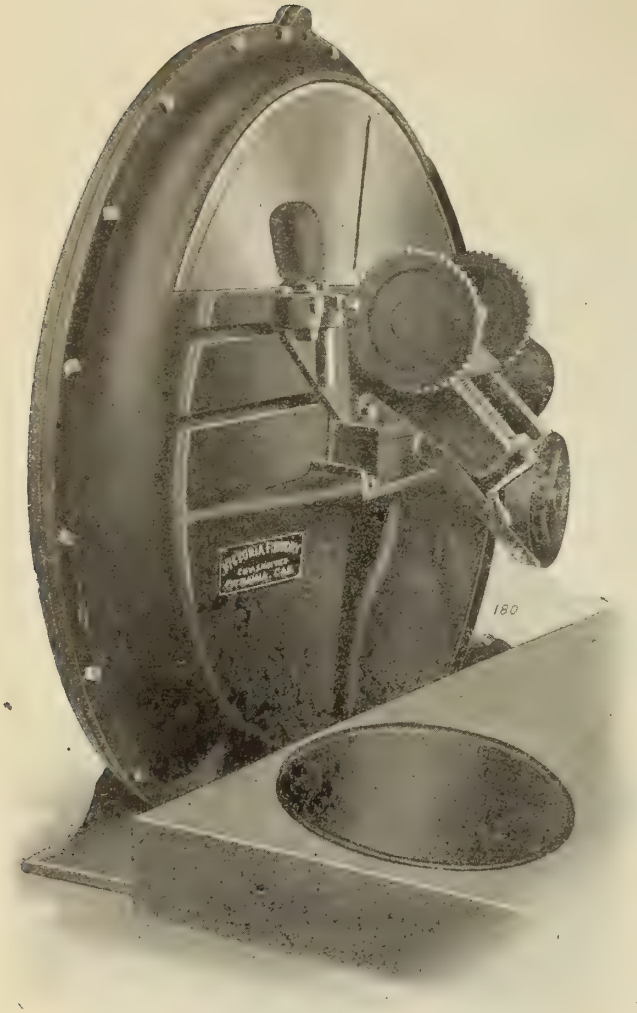
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que., June 17, 1920 No. 25

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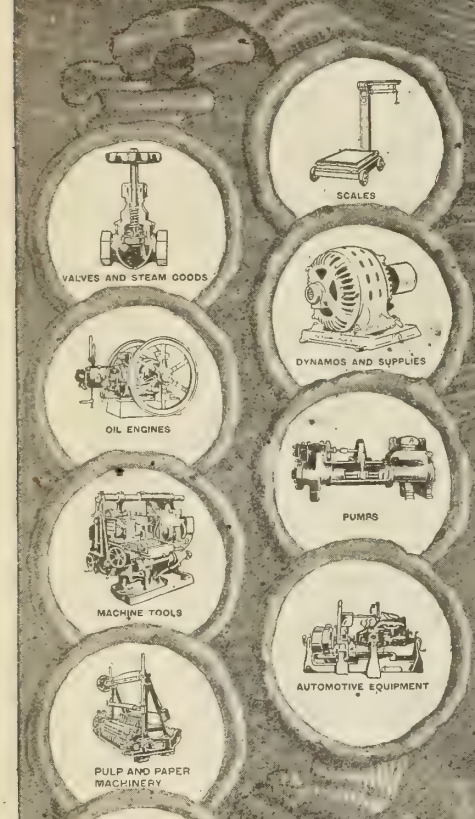
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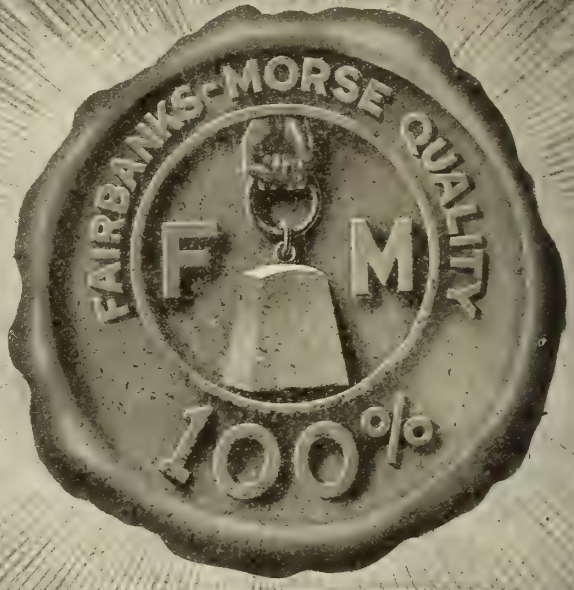
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-:- EDITORIAL -:-

ALMOST LIBEL.

From comments from the side of the paper manufacturers on the report of Senator Walsh for the newsprint investigating committee of the United States Senate, it seems that the committee has disregarded much of the evidence submitted and has published statements such as are sometimes described as having been made out of whole cloth. It is certain that very disparaging remarks have been made concerning newsprint manufacturers and these are not wholly offset by the attempt to excuse a few members of the industry on the ground that they are supplying paper at from 3 to 5 cents a pound while the majority are accused of gross profiteering. Of course no names are mentioned, but when the mills are so nearly specified as is done in mentioning, as a group, those which signed the Federal Trade Commission's agreement, there is no question about who is meant. The committee mentions that some companies are selling at a low price, but of course does not mention whether they are bound by long term contracts or whether the mills that may be so bound are in any way controlled by or associated with, any large publisher. There would probably be good ground for a statement that some manufacturers have made unusual profits by taking advantage of a peculiar and unfortunate condition of the paper market. Every industry doubtless has its black sheep and apparently the black sheep is the last one to be trimmed. We believe, however, that the scathing indictment of the newsprint manufacturers of Canada and the United States is going quite a bit too far. Such methods will certainly not bring about any better feeling between the manufacturers and publishers nor create a greater desire on the part of the former to aid the latter.

Statements made with regard to decreasing production of newsprint from what we consider to have been credible reports do not accurately represent the situation. Machines have been turned from other grades to newsprint and where some concerns have found it necessary or advisable to turn their newsprint to other grades the committee could have found perfectly proper reasons for having done so. The industry has passed through a period of dificulty in getting raw materials which it would be hard to duplicate in its history. With some mills it has been the case of use what they could get and turn it, if possible, into a marketable product. There has been a demand for all grades of paper which it is the legitimate business of the papermaker to supply if he can, and it is his business to decide on what paper it is most convenient and remunerative for him to produce. The committee perhaps did not consider the perfectly natural and proper desire for avoiding the complications of government control and interference and the almost continual harassing of their business, by going into lines whose consumers are not continually holding them up to the public as a bunch of criminals. There is such a thing as the satisfaction of doing an honest business peaceably.

If profiteering in paper as well as any other line could be run down and exterminated, the industry would benefit by the result. This, however, is admittedly a difficult matter to pursue and a more difficult one to finish. The statement is made that newsprint sold for one and a half cents a pound in 1913 and is now five and six cents a pound on contracts. It is equally true that sugar sold for about four cents a pound at the beginning of the same period and now sells as high as thirty. Newsprint paper has undoubtedly brought considerable profit to those who have it or could get hold of small lots of spot paper by the simple process of turning over their stock. It is reported that the most horible example of this method so far discovered was the re-sale six times of a car load of sugar which stood for months on the railroad tracks in Chicago. We would not excuse the profiteering newsprint manufacturer or dealer by mentioning offenders in other lines, but would simply point out that the majority of paper manufacturers are conservative, honest American and Canadian business men who think more of their reputations than of making a few extra dollars by taking an unfair advantage of a peculiar business situation. The whole matter rests on the disturbance of underlying, fundamental laws and causes. The larger part of the industry is doing its best to get back on the sure and solid ground in spite of the appearance of encouraging or taking advantage of the present situation in an unfair manner. It has been pointed out in publishers' conferences for many months past that the situation is largely in their own hands. It has been impossible to construct mills rapidly enough to catch up with the increasing demand, and there is naturally some hesitation in creating new properties on the basis of what gives some indication of being an artificial condition, as indicated in the committee's comment on buying advertising to escape taxes. Furthermore, there have been enormous difficulties in transportation, and natural causes, such as drought and cold, have

not been without their effect. Even if these were not enough, there comes the forest fire to wipe out thousands of cords of potential pulpwood.

Abusing the industry or enacting ill-considered legislation will not help matters in the least. Co-operation and conservative business methods on the part of both publishers and manufacturers are what is required at the present time.

MEAT FOR THE TECHNICAL SECTION.

In arranging food for thought at the meetings of the Technical Section, the secretary shows his ability as an Epicurean. The meeting next week at the Soo will be no exception, and those who are so fortunate as to make this interesting trip will certainly find plenty to keep their mental digestion well occupied for some time.

A number of interesting papers of great current interest are to be presented, but the business meetings held in the summer time are purposely kept as free as possible from a lengthy program. On this account the addresses will be short and few. The principal interest of the meeting will doubtless centre on three points that will be brought up by the reports of some of the standing committees. The committee on Mechanical Standards has continued its work as outlined and authorized at the meeting in January, and their findings will be a valuable addition to the important work that has already been done along the line of improvements in the efficiency and safety of pulp and paper mill machinery, as well as the economy to be derived from the use of standard designs.

Another matter which should be considered by all members of the section, so that they may come with some constructive ideas, is the matter of organizing the educational forces and facilities in connection with vocational education in the pulp and paper industry. That is the next logical step following the work of preparing the text books. While that work has not been completed, it is far enough advanced so that consideration must be given to the organization of the educational work in Canada.

The discussion which probably will result in the greatest interest at the present time is the revival of work in the pulp and paper division of the Forest Products Laboratories. It has been intimated that the industry has crippled the work by offering inducements in the way of salary to members of the staff, which could not be met by the government. It is certain that the place has been dead for some time, as far as productive research is concerned, and there seems to be no probability of an early revival of interest on the part of the Forestry Branch. Some good work has been going on in other departments of the Laboratories such as their timber physics, wood preservation and fungus studies, but the pulp and paper machinery has remained idle. Fortunately, it has been cared for so that we believe there would be little delay in starting it up again. Besides the apparatus which is in place, there is some equipment on hand that has not yet been installed and provision has been made for several important pieces of equipment that would be required to furnish complete experimental pulp and paper plant. Even without this there is enough machinery already available to begin immediately on a number of important problems that are awaiting solution.

A proposal is to be made at the meeting next week with regard to the acquirement and operation of this plant. The terms, conditions and line of work as well as the relations between the industry and bodies now interested in the Laboratories will have to be carefully considered and thoughtfully worked out.

At the annual meeting of the Pulp & Paper Association Sir Lomer Gouin proposed a school for pulp and paper makers in the Province of Quebec, and urged the co-operation and support of the industry in such an undertaking. It would seem advisable to consider the two propositions (education and research) as possible parts of a large program, although either one may be considered by itself.

The Spanish River Pulp & Paper Mills are putting themselves to considerable trouble in the entertainment of the Technical Section and it is to be hoped members will show their appreciation by a large attendance. A number of friends from across the line will be present. This is an opportunity for mill men and managers to meet one another and to become acquainted with some of the problems, both of a technical and manufacturing nature, as well as of the more general type such as matters of research and education. The advice of many will make the solution more nearly the correct one.

COBWEBS.

We hear rumors again that Sir Lomer Gouin will retire from public life. There will be much regret in Quebec and Canada if the report is correct.

The newsprint supply committee, of wihch Secretary Kellogg of the Newsprint Service Bureau has been acting chairman, has supplied 268 tons to small country publishers in the United States who were without other means of obtaining a supply. Good work!

It is a bit premature to comment on the proposed legislation providing for export licenses on Canadian goods, including newsprint. Indications are that the trouble lies at the door of one manufacturer particularly, although others may also not be amenable to reason.

On another page is a brief summary of the Senate Newsprint Investigation Committee. There is enough, however, to arouse the indignation of the many paper makers who are endeavoring under some difficulty to help out their customers.

Some Properties of Commercial Silicate of Soda[1]

(By JAMES G. VAIL, Chemist, Philadelphia Quartz Co., Philadelphia, Pa.)

Sodium silicate is a name familiar to every chemist, but a somewhat extended experience and a search of the literature has led to the observation that the properties of commercial silicate of soda and the wide variety of physical characteristics which can be secured in its different types are often imperfectly understood. New uses for silicate of soda are continually being found, and it is thought that a more general knowledge of its properties may be helpful.

A definite compound of the formula Na_2SiO_3 is easily prepared in crystalline form from solutions containing sodium hydroxide and commercial sodium silicate. It crystallizes with 9 molecules of water. It melts in its water of crystallization at about 40 deg. C. It is rapidly decomposed by the carbon dioxide of the air. As far as known, this product has no commercial significance, because it lacks colloidal properties upon which practically all of the commercial applications of silicate of soda depend.

All the forms of sodium silicate in commercial use contain more silica than is indicated by the formula Na_2SiO_3, one grade having about four times this amount. The ratio between sodium oxide, Na_2O, and silica, SiO_2, may be varied between 1 to 4 and 2 to 3. Products more alkaline than the latter ratio are not made, on account of their tendency to form crystalline masses, which would interfere with their usefulness; and the practical limit in the other direction, namely, 1 to 4, is determined by the very low solubility of fused sodium silicate containing larger proportions of silica.

The fused masses resulting from the reaction between pure sand and sodium carbonate, or sulphate, have the physical appearance of glass, but are less permanent, and—especially the more alkaline types—effloresce in damp air in the course of a few weeks, so as to become practically opaque. The commercial grades are usually colored either greenish or yellow, due to the presence of small quantities of ferrous or ferric iron. Ferric iron is more frequently observed in the alkaline types, while those rich in silica usually appear on the market as a greenish glass, not unlike window glass or green bottle glass.

The solutions of these different silicates vary largely in their characteristics. To take the two extremes: that with a ratio of 1 to 4, as above, may be concentrated to about 37 degrees Bé., which corresponds to about 34 per cent. total solids. At this concentration its consistency is jelly-like, and masses of it may be picked up in the hand and shaken off without difficulty. If it is cooled to 5 degrees C. it may be molded in the hand into balls which bounce very much like rubber balls, but which, if subjected to too much strain, will break with a clear vitreous fracture. The same result may be secured at ordinary temperatures by slightly increasing the concentration. Any forms molded from such a solution will slowly flatten out if left on a smooth surface. In contrast to this type, a silicate with a ratio of 2 to 3 is thinly fluid at 37 degrees Bé., and may be concentrated to approximately 69 degrees Bé., or about 62.5 per cent total solids. At this concentration its consistency is such that one may push a pencil into it with some difficulty. It flows slowly. A bubble in a tube of 2 in. in diameter will rise about 4 in. in 24 hrs. at 20 degrees C. through such a solution. While the siliceous type breaks like a jelly, this type is very tough and may be drawn into long threads or "pulled" like molasses taffy until it becomes opaque and white. It is extremely sticky and dries much more slowly than the less alkaline forms. It will absorb moisture in damp weather.

Between these two exeremes any intermediate grade can be produced; thus a considerable range of characteristics which are of importance in the adhesive uses of silicate of soda can be secured. As the proportion of alkali increases, the possible concentration increases, and there are in regular use different silicate solutions 37 deg., 40 deg., 42 deg., 47 deg., 50 deg., 52 deg., 60 deg., and 96 deg., each adapted especially for some commercial use. Silicate is usually placed upon the market at a concentration near the practical limit, to avoid the expense of shipping unnecessary amounts of water. It is mostly sold in solution, however, on account of the difficult solubility of the anhydrous material.

The colloidal nature of silicate solutions is indicated by boiling points but little higher than the boiling point of water. This is true even in the case of the 69 deg. solution which contains more than 62 per cent of solids. The freezing points also are but slightly depressed from that of water. The ordinary 40 deg. silicate freezes at about —3 deg. C. It becomes opaque and white. The freezing process is characterized by the rapid growth of long crytalline masses, which contain more water than the 40 deg. solution. When such a solution is slightly warmed, the crystals tend to float, and it often happens that tank cars of 40 deg. solution silicate which have frozen and then thawed will contain a highly concentrated silicate at the bottom and a relatively dilute solution at the top. These are readily mixed together, and the solution thus secured is, as far as known, identical in properties with the original. Solutions above 60 deg. Bé. in concentration do not lose their transparency on freezing, but become progressively harder and finally brittle. They show no tendency to separate into concentrated and dilute portions when warmed to ordinary temperature.

Silicate of soda is precipitated by most salts of the heavy metals, and the precipitates are believed to contain free silicic acid along with metallic silicates, Precipitation is also affected by various liquids which tend to dehydrate the silicate solution. For instance, alcohol, glycerin, salt brine, and strong ammonia solutions will precipitate concentrated solutions of sodium silicate. Such precipitates may be redissolved, but the second solution has somewhat different characteristics from the original silicate solution ,notably in respect to viscuosity. An exact study of the nature of these precipitations would be an interesting field for research.

[1] Presented before the Division of Industrial and Engineering Chemistry at the Philadelphia Meeting of the American Chemical Society, September 2 to 6, 1919. Reprinted from the Journal of Industrial and Engineering Chemistry. Vol. 11, No, 11, page 1029. November, 1919.

Silicate as an Adhesive.

The viscosities of solutions of silicate of soda are of interest in connection with many of its uses. The forms rich in silica rise slowly in viscosity until the condition of jelly is approached, when they rise very sharply. This is true whether the rise in viscosity is due to decrease of alkalinity, decrease of temperature, or increase in concentration. To prepare a silicate adapted as a quick-setting liquid to a solid condition may occur with the loss of as little as two per cent. of moisture, this amount being very quickly absorbed into a layer of paper board when the silicate is thinly spread on its surface. Solutions adaptable for this sort of work do not air-dry below about 20 per cent. moisture. If dried in mass to this condition the solid solution has the appearance of glass, becomes hard enough to cut the hand, and is much more soluble than anhydrous silicate of the same relative composition. If suddenly exposed to a temperature above the boiling point of water, such a solution will expand into a mass of permanent bubbles of beautiful white appearance and apparent specific gravity as low as 0.01. Such a product is an excellent thermal insulator.

Silicate of soda is the most convenient source of gels of silicic acid which may be prepared with either alkaline or acid reaction by neutralizing more or less completely. Any mineral acid can be used for this purpose, and by varying concentrations of acid and of silicate solution, gels of a wide variety of physical characteristics can be secured. Strongly acid gels have been used to prevent the splashing of acid from storage batteries. Very hard neutral gels have been used for preparing material suitable for the adsorption of gases.

The strength of adhesives and cements produced from silicate of soda is very great. If pieces of hard wood are glued together, end to end, with a silicate solution containing slightly more than 3. molecules of silica (SiO_2) for each of sodium oxide (Na_2O), a tensile strength of 500 lbs. per sq. in. may be consistently secured. About 200 lbs. per sq. in. tensile strength is required to pull the fiber sidewise from gum veneer, such as is ordinarily used in packing boxes, while 50 lbs. per sq. in. is sufficient to pull the fibre from any of the kinds of paper usually used for making built-up board for shipping containers and wall-board. The tensile strength of silicate of soda mixtures used for acid-proof cements is easily brought up to 1700 lbs. per sq. in. for air-dried briquettes, while the bond produced by baking silicate of soda and clay, as is the practice in the manufacture of abrasive wheels, easily yields a strength above 2,000 lbs. per sq. in.

To recount all the uses of silicate of soda and the properties on which they are based is beyond the scope of this article, but in spite of its diverse applications in the arts at this time it is plain to those who have worked with it that much remains to be learned. Studies are in progress which it is hoped may be useful.

NEW YORK PAPER DELIVERED AT CONVENTION BY AIR.

The New York Times of Wednesday morning was delivered at the convention centers of Chicago Wednesday evening. The papers were sent by airplane to Chicago, reaching the flying field there at 4.35 p.m.

ANOTHER CANADIAN MACHINERY FACTORY.

Grand Mere is known over the world as the home of the Laurentide Company. In addition to this famous establishment there has recently been started a plant for the manufacture of machinery used in pulp aud paper mills. The Modern Patents Company is making a specialty among other things, of a machine for making the mats used in hydraulic pressing of pulp. The problem of always having sufficient mats is sometimes a difficult one and the new machine, which requires but one man to operate it, is designed to meet the situation. It weaves mats with single, double or triple wires which can be woven any mesh desired, and the size of the mats is quickly and easily adjusted. As these mats are used on groundwood, sulphite, and kraft pulp throughout the Dominion, there will doubtless be a good demand for a machine that will simplify this important operation.

SWEDES STANDING BY THEIR CONTRACTS.

The following letter from the two Swedish gentlemen who visited Canada last winter is self-explanatory.

To the Editor,

"The Pulp and Paper Magazine of Canada,"

Dear Sir,

May we ask you to publish the following letter in your next issue:—

We have read with astonishment and regret the report of a speech by Mr. G. R. Hall Caine published in your issue dated the 8th April (No. 15). Considering the position that Mr. Hall Caine has held it is incomprehensible to us that he should consider it justifiable to refer to the relations existing between Swedish Wood Pulp manufacturers and their British customers in the way which he did.

During the War many difficulties arose, the adjustment of which called for goodwill and fairmindedness on the part of both buyers and sellers. We claim that in the majority of cases settlements were arrived at to the mutual satisfaction of both parties concerned. We feel sure that our good friends, the British Paper manufacturers, do not share the views expressed by Mr. Hall Caine. The courtesy and fairmindedness which they have always extended to us we greatly appreciate.

Had Mr. Hall Caine only referred to the conditions existing during the war we should not have troubled you, Mr. Editor, with our views on the matter, as we should be quite content to abide by the opinion that our British customers have formed of us. But when, Mr. Hall Caine throws out the damning suggestion that the Swedish Wood Pulp manufacturers will not execute contracts at £21 per ton on account of the fact that prices have now risen to £50 per ton, we must protest in a most vigorous manner against such an unfounded accusation. If proof should be necessary, we may say that shipments are now in full swing against the very contracts to which Mr. Hall Caine refers.

Yours truly,

Svenska Cellulosaforeningen
(The Swedish Wood Pulp Association).
JNO. STORJOHANN,
President.
J. MANNERHEIM,
Vice-President.

A curt answer seldom helps things along.

Senate Sub-Committee Accuses Papermakers

Under date of June 11, R. S. Kellogg, secretary of the Newsprint Service Bureau, has sent us the following comment on the unfair criticism of the paper industry. Both Canadian and American manufacturers are involved in the denunciations:

Senate Resolution 164, introduced by Senator La-Follette and passed on August 20, 1919, directed the Committee on Manufactures of the Senate to make an investigation of the newsprint industry with a view of discovering whether discriminatory, unjust or illegal practices are responsible for the present conditions in the newsprint industry and have affected the prices for the products thereof.

A sub-committee consisting of Senator LaFollette as chairman and Senators Reed (Mo.), Walsh (Mass.), McNary (Oregon), and Gronna (North Dakota), was designated to hold hearings under this resolution, and hearings in accordance with this procedure were held in Washington from April 28 to May 17, 1920, inclusive. In all, 45 witnesses were heard, representing newspaper publishers, newsprint manufacturers, paper brokers, jobbers, press associations, etc. The testimony exceeded 500 printed pages exclusive of some testimony heard in executive session and not made public by the Committee.

Senator LaFollette took no part in the hearings because of absence from Washington on account of illness. Senator Reed acted as Chairman of the Sub-Committee and presided at most of the hearings. Owing to other duties on the part of Senator Reed, however, Senator Walsh was designated to draft the report of the Committee, which was signed also by Senators McNary and Gronna. Senator Reed was unable to go over the report of the Committee carefully after it was drafted, and reserved the right to express his opinion in a separate report to be filed later.

The report of Senator Walsh was presented to the Senate in the closing minutes of the last session before final adjournment on June 5th. It consists of about 3,500 words and is apparently either written without any reference to the large amount of uncontradicted testimony given before the Committee, or else it is an expression of personal opinion by the author, who evidently does not care to take the time to ascertain the real facts in regard to matters which he discusses. There would not seem to be any other explanation for the many misstatements which the report contains. At any rate, it utterly fails to give an adequate and truthful picture of conditions in the newsprint industry.

Curtailment of Production Charged.

After reviewing briefly but inaccurately the historical situation, the report says that the testimony has brought to light two predominating factors that have influenced conditions in the newsprint market:

"Firstly, that there has existed a shortage of newsprint paper threatening many small publishers with extinction; and secondly, that certain newsprint manufacturers have taken advantage of this shortage to exploit the purchasers of such paper and hold them up for excessive, unreasonable, and wholly unfair prices. If this shortage could actually be traced to the operation of natural economic laws, the offense of charging high and exhorbitant prices would not be so grave, although the committee is not willing to concede the right of the manufacturer, distributor, or any other person to make unfair use of such a condition. But all the evidence of the various witnesses and the substantial and absolutely authentic information we have obtained from official reports seem to indicate that many of the newsprint paper makers here and in Canada were active in collusion, with the apparent intent to bring about restraint of the normal flow of trade and engage in unfair competition by methods in some cases of creating an artificial supply, and in others of resorting directly through their bureau of statistics to an actual fixing of price. Indeed, there is sufficient evidence to warrant the finding that there has been a deliberate curtailment of newsprint paper upon the part of some newsprint paper manufacturers to 'get even' with the Government for its prosecution and also to hold up prices."

A reading of the testimony before the Committee by all the responsible witnesses is sufficient answer to the above statement.

Uniform Contracts Objected to.

Somehow or other the Committee seems to feel that uniform contracts for the sale of newsprint paper are not desirable. The report says:

"In regard to contracts made by manufacturers, the committee found that many of them were practically identical so far as terms were concerned. Except in the case of some small independent companies, the contracts nearly all have the same terms of delivery and reserve the right to readjust terms quarterly. Even the large publishers can not today in most cases contract for a year's supply at a fixed annual price."

Had the Committee pursued its investigations far enough it might have discovered that in making their case before the Federal Trade Commission following the agreement with the Attorney-General on the part of ten manufacturers, the publishers spent a great deal of time and energy in the endeavor to persuade the Federal Trade Commission to order the use of uniform contracts in the sale of newsprint paper, and in its decision of June 18, 1918, the Federal Trade Commission directed the use of the so-called standard form of contract with changes in terms to provide a definite tonnage specification, a uniform weight basis and the passage of full and unrestricted title to the customer upon delivery of the paper. Moreover, in a signed article published in the Editor and Publisher of September 14, 1918, Dr. E. O. Merchant, Paper Expert of the Federal Trade Commission and War Industries Board, said:

"The most sensible form of contract is one providing for an adjustable price. One large newsprint manufacturer has already adopted this form of contract, and the contracts of the ten newpsrint manufacturers in the United States and Canada whose prices are fixed by the Federal Trade Commission are virtually adjustable."

Sensational Charges.

The report makes absolutely unwarranted statements concerning the production of paper and, notwithstanding the detailed information presented to the Committee regarding the new tonnage under development, it says:

"The facts brought out concerning the manufacturers' statistical bureau and its influence in diminishing instead of increasing production of newsprint

in the face of new demands would seem to indicate that it was the deliberate intent of some manufacturers to reduce their output in order to find justification in scarcity for a large increase in price."

The report reads as if it were written for the purpose of making newspaper headlines and in this respect it has been highly successful. The Sunday issues of June 6 carried conspicuous articles under headings like the following:

"Senators Urge Prosecution of Paper Makers."

"Federal Control of Paper Advised."

"Urges Prosecution of Print Paper Men."

"Break up Trust in Newsprint, is Senator's Plan."

No newspaper report of the Committee's findings seems to have carried the following statement made by the Committee:

Some Manufacturers Ask Fair Prices.

"This committee is not convinced that over one-third the price now asked in the spot market is warranted, and in fact there are some well-regulated firms who, as the evidence has shown, consider 4 or 5 cents per pound a thoroughly fair and reasonable price for their product.

"While the testimony revealed certain paper mills that were reaping extra legal rewards for their dealings, the committee was deeply impressed by other concerns who continued to do business on a fair basis of return. These latter firms serve as a source of gratification and encouragement, since they prove that we still have left in America business men imbued with a desire to live up to the traditionally high character of American business, and to conserve some of the ideals of square dealing as distinguished from those who pursue the new selfish policy of 'get what you can.' These firms in the midst of an era of gross profit taking managed to resist the many strong temptations embodied in the success of their more unscrupulous paper makers. And the committee wants the honest concerns to know that it is our purpose to repudiate the practices of their fellow manufacturers and to restore the paper industry to a plane of respectability compatible with the trust and confidence of the American public."

The Committee's conclusions and proposed remedies for the situation are quoted in full as follows:

CONCLUSIONS.

There is no doubt that it is the manufacturers who have spot paper to sell that have and are reaping the large profits and placing such severe penalties upon the country press. There has been evidence presented which would show that jobbers and brokers and commission men are receiving very large financial returns as a result of existing high prices, though many of them frankly admit their disgust with the existing unhealthy and immoral conditions of trade, and candidly admit that they are ashamed to sell newsprint paper for the prices current today.

Although the committee has considered the various disturbing elements that the newsprint industry has been subjected to during war time, and the subsequent period of quickly rising material and labor costs, and has also taken into account increased consumption of print paper, the apparent scarcity of wood pulp, and numerous other unstabilizing forces common to all businesses of to-day, we feel that the scarcity of the product was more the result of artificial obstructions than of the natural laws, and that the market prices and the uniform contract stipulations were arrived at through the shortage of production, the efficient work of the Manufacturers' Bureau of Statistics, and the use of a virtual gentlemen's agreement. We believe that the profits taken by several of these concerns were totally out of keeping with the best business practices, that some manufacturers were and are guilty of breaking the spirit, if not the letter, of their own previous agreement with the Government, and that they took advantage of a condition, attributable for the most part to their own manipulation, in order to make gains far out of proportion to those of fair, legitimate business profits. That the practices were unjust, illegal, and discriminatory is established beyond any doubt, and also that the prices charged for newsprint paper are both excessive and unwarranted. Therefore, in order to remove the causes of this discrimination and excessive price charging, and to protect the country press—one of the chief means of enlightening and educating our rural population—the committee makes the following recommendations as a possible solution:

The measure suggested in some instances may be considered drastic. This committee, however, believes and deplores the fact that the existent emergency has made strong, determined action necessary. It is not the function of any Government to stand by and watch the enforced decadence of an institution so vital to the soundness and integrity of our nation as the country press, and the press managed and conducted by religious bodies, farm agencies, wage earners, and fraternal associations; nor did the committee feel as though it could witness the wholesale exploitation and imminent bankruptcy of our newspapers, large as well as small, without advising radical procedure against the offenders, aimed to prevent in the future the continuance or reception of any such process.

REMEDIES.

I.

Immediate action by the Attorney-General for the prosecution and punishment of the newsprint manufacturers guilty of offenses either against the Sherman anti-trust law, the Clayton Act, or the provisions of the court decree of 1917 in regard to the newsprint industry, and that in this procedure the Attorney-General be furnished with all the information which the Federal Trade Commission may at present have in its possession or which it may hereafter procure.

II.

In order to discourage wasteful use of newsprint paper we recommend that a tax of 10 cents be levied on all Sunday papers weighing over 1.28 pounds, until such time as the supply of print paper shall be adequate for the fullest needs of all publishers. The committee believes that this law would result in limiting the pages of Sunday papers to 80, thus resulting in large savings in the consumption of newsprint paper in Sunday editions that have reached as high as 140 pages in some instances.

III.

That the Congress shall amend the sundry civil bill by the appropriation of a sum of $100,000 for research, study, and experimentation into different methods of making paper, with a view of finding a substitute for wood pulp: that this work be conducted by the Department of Agriculture, whose experts shall first report their plans to a special committee of Congress appointed to supervise the work and to receive from time to time reports as to its progress.

IV.

We recommend also legislation to establish a parcel-post rate of 1 cent a pound, without regard for zones, for 10 or less packages of sheet print paper shipped weekly from any mill direct to a newspaper, without increasing the present limit of weight of 70 pounds. This would enable the small publishers to combine in the establishment of a mill to supply their needs. At present there is discrimination in postal rates in favor of the finished newspaper, and it is apparent that in order to sustain thousands of smaller papers a similar favorable discrimination is necessary for newsprint paper.

V.

And if the Government's effort to fix and maintain a reasonable price appears to be futile because of a virtual monopoly in the print-paper industry, or because of continued protests from the manufacturers that the supply is running dangerously low, we recommend that the Government by law establish a newspaper print board to supervise the manufacture and distribution of newsprint paper; and to enter into a a co-operative organization with the country newspapers which would eliminate the jobber or middle man and enable the country press to buy newsprint at the lowest mill rate.

VI.

That the Government consider seriously the possible purchase or establishment of a newsprint paper mill for the purpose of manufacturing the newsprint used at the Government printing plant, and that the overproduction of such mill be sold to the small consumers of newsprint paper.

VII.

Finally, that Congress amend the Lever Act to include the commodity—newsprint paper—under its provisions.

Manufacturers and importers of news print paper who do not like these recommendations may find consolation in the bill introduced in the House of Representatives on May 6, 1920 (H. R. 13958) by Representative Steenerson, which proposes to tax them 5 cents per lb. on all newsprint sold in case they do not get together and fix uniform prices!

PAPER MEN SPEND NIGHT AS GUESTS OF SHERIFF.

P. T. Dodge, president of the International Paper Company and Mergenthaler Linotype Company, and R. S. Kellogg, secretary of the News Print Service Bureau, when in Grand Rapids recently, found that they could get no accommodations at the hotels but were directed to a private home for rooms for the night. They discovered the following morning that their host was the sheriff.

Reports that two men spent the night in jail because they could find no accommodations anywhere else are declared to have been like the premature story of Mark Twain's death, greatly exaggerated.

Mr. P. W. Bidwell who has been in the sales department of B. F. Perkins and Son Inc., Holyoke, Mass., for a number of years has been appointed general manager. B. F. Perkins and Son Inc., are well known to the paper trade in Canada as manufacturers of Perkins Calender Rolls, Mullen Paper Testers and "Perkins-Coburn-Taylor Rag Cutters."

U. S. TAX ON FOREIGN COMPANIES.

A revised Ownership Certificate Guide for use in the preparation of income tax ownership certificates which are required to be attached to dividend coupons or checks of non-resident foreign corporations and interest coupons of corporations and foreign governments, has been issued by the National Bank of Commerce in New York. The guide reduces to tabular form the revised provisions of the income tax regulations regarding the collection of coupons. The form of ownership certificate required in each case and the manner in which it is to be filled out are shown at a glance.

There are ten different classifications of owners and more than thirty different ways for filling in the ownership certificate returns, depending upon whether the bonds contain a tax free clause and whether they are issues of domestic or foreign corporations or foreign governments. The guide simplified the work of filling out the certificates in all instances.

MAINE PULP AND PAPER CO. SUCCEEDS SAVAGE.

The Maine Pulp & Paper Company incorporated under New York State laws, has purchased the real estate, buildings, water and power rights, machinery, equipment, materials and good will of the Savage Manufacturing Company of Skowhegan, Maine. Capitalization is $350,000—8 per cent preferred stock, par value $100 per share, 6,500 shares common stock of no par value, the president is William O'Hanlon, Geneva, N.Y.,; vice-president, John B. O'Brien, Buffalo, N.Y.; secretary and treasurer, C. C. Hullinger, Buffalo, N.Y.

The directors are: William O'Hanlon, President Geneva National Bank, Geneva, N.Y.; C. C. Hullinger, treasurer Niagara Fibre Co., Penn Yan, N.Y.; Alfred H. Hayes, President Hayes Fish Co., Buffalo, N.Y.; Eugene E.Persons, President C. Persons & Sons Co., Buffalo, N.Y.; Edward M. Hall, formerly Superintendent Taggert Paper Co., Watertown, N.Y.; John B. O'Brien, President Niagara Wall Board Co., Buffalo, N.Y.; Lewis H. Manly, Secretary and Director Davenport Coal Co., Buffalo, N.Y.; Michael M. Bork, printer and bookbinder, Buffalo, N.Y.; William More Decker, President Hygeia Nursing Bottle Co., Buffalo, N.Y.

Coatsworth & Diebold of Buffalo are attorneys for the company.

Since 1908 the Savage Manufacturing Company has manufactured high grade crepe, book, tissue and colored papers. The new owners will manufacture newsprint paper for which there is an unusual demand. The capacity of the plant in its present condition can turn out about 14 tons of newsprint paper per day. It is the purpose of the company, however, to double the capacity by installing additional machinery.

The plant is situated on the Kennebec River at Skowhegan on the Maine Central R.R. in the heart of the spruce and fir timber region of Maine.

The company will grind its own wood pulp and turn out its finished products without depending upon outside sources for its supply of raw materials. The plant is modern and is operated by water power furnished by the falls a few hundred feet above the mill.

Executive offices are 303 Mutual Life Bldg., Buffalo, N.Y.; P. J. Evans is financial agent for the company.

British Trade News

(From Our London Correspondent.)

London, June 1st, 1920.

Raw Materials—New Sources.

The question of new sources of raw materials for papermaking is still being thrashed out in the London papers, and the discussion has drifted to the weekly trade papers. There is nothing new to announce, the old subjects being raked up and each writer pushing his own interests. Between the lines, however, one can read that there is nothing to beat spruce and fir, and next to these comes bamboo. Special attention is being given to Canada and it is admitted on all sides that in the Dominion a generous scheme, supported from this side, is required to develop and open up forestry.

German Paper.

News has reached England that the Germans are also feeling a shortage of paper and raw materials. Indeed, things have been so bad that Herr Faber, who is President of the Publishers, has stated that several newspapers would have to suspend publication if the German Government did not take immediate steps to stop the rise in the price of paper. The rise in price was due to the shortage and scarcity of paper and raw materials.

English Paper.

The Weekly Newspaper and Periodical Proprietors Association have recently had a lot to say on the cost of paper. They use mostly British paper and the Association announce that a publication using 20 tons of paper per week was spending on paper before the war £186 per week. The present cost is £1,156. Many publications are running at a loss. These conditions, naturally, affect a very large number of the smaller firms to a much greater extent than they do the big corporations, and, adds the Association, in the aggregate these smaller firms employ far more labor than the larger concerns. English newsprint sold to these small firms, who did not hold big contracts, are charged 6¼d (13½ cents) per lb.

Becker's Limited.

Every year Messrs. F. E. Becker & Co., Ltd., at the close of the annual meeting have a nice free and easy entertainment for the directors and their staff This year's function was a very pleasantt and social affair. As pulp importers the firm is in a prominent position. During 1919 they imported into the United Kingdom 70,518 tons of chemical pulps and 141,045 tons of mechanical pulps. This means that during last year, taking all the business together, their imports were well over £3,000,000. Messrs. Becker have a great wish for Canadian pulps and no doubt they would like all they could get at present.

Pulp Market.

The market is strong for sulphite and sulphate. Fair supplies are arriving from Canada. Groundwood is still in good demand and prices firm. Prices at the beginning of June may be quoted as follows:—Bleached sulphite, £80;easy bleaching, £61 10s; newsprint sulphide, £52 10s; kraft soda, £45; unbleached soda, £50; groundwood (moist) 50 per cent, £19; groundwood (dry), £39.

A Novel Idea.

Mr. Joseph Dixon, one of the best known of British papermakers—and a newsprint producer—has written a fatherly letter to his workers in which he reminds them that the present conditions will not continue and they should provide for a rainy day. He suggests that the firm is willing to receive loans under fair conditions and for these loans the employees would get 8 per cent interest. The idea is a novel one. It will materially help the worker and incidentally the firm will benefit a trifle—not to speak of the interest the worker will take in his job in the mill.

Canadians in London.

Within the next few months some prominent pulp and paper men are to visit London. They are coming to have a look around and a finer thing they could not do at the present moment. Just now the eyes of the British public are turned towards Canada. Mistakes have been made in the past and, of course, it takes time to rectify them. In the past the British buying public have shed their money on Norwegian, Russian, German, Swedish and Finnish pulps and paper, and it is only in 1920 they have commenced to realise that there is the great Canada—the sister Dominion. It took Lord Burnham and a few others to tell them of Canada and I hope the Canadian pulp and paper men expected here shortly will tell some more home truths.

Sir Lomer Gouin.

Sir Lomer Gouin, Premier of Quebec during his visit here told paper consumers and manufacturers a few truths about Quebec. "We offer British capitalists 80 million acres of forest areas," he said, "with hundreds of millions of cords of pulpwood; and we wish at the same time to remind them that paper manufacture is nowadays as valuable as a gold mine. We want British capital to come and develop our immense native wealth, our vast accumulations of raw materials of all sorts, and we offer promoters from the United Kingdom the best part of our seven million horse-power in water power to help them to open up new industries at the lowest possible cost. I make bold to say that by 1930 Quebec will be the largest paper-making centre in the world; I wish to claim further that we own sufficient water-power to allow many other industries to make a bid for the world's supremacy. We cherish hopes that all these Canadian assets will be developed by men and capital from within the Empire." I have been waiting for Scandinavia's comment on this speech of Sir Lomer Gouin, but today there is a dead silence.

Notelets.

Recourse is being had to the re-pulping of old paper with keen energy in England at present. The work, of course, is not genial, but dirty and expensive.

Storage charges have risen 150 per cent for importers of pulp and paper.

British papermakers maintain that when groundwood is sold at £36 a ton, the profit is nearly 50 per cent per ton.

The British newspapers have just become alive to the fact that most of Canada's pulp goes to the States.

No pulp or paper has yet been received from Austria.

Scandinavia says British coal sends up the price of pulps. This means that a ton of coal does not now produce a ton of pulp.

The late President of the British Papermakers' Association (Mr. Lewis Evans) has been invited to accept the honorary membership of the Association. His father occupied a similar position.

The Experimental Pulp and Paper Laboratory

(Continued from last issue.)

Liquor Making Procedure.

In making the cooking liquor for the first cook, the gas from the SO_2 cylinder is passed to the bottom of tank No. 2, which contains the desired amount of milk of lime and water. For subsequent cooks, instead of water, tank No. 2 is supplied with partly made up acid from tank No. 1 into which the gas from the previous cook has been relieved. By analysis at half-hour intervals, the time necessary to bring the acid up to the desired strength can be readily estimated.

Liquor analysis is made with a 2 c.c. sample of liquor and 1-16 normal standard solutions of iodine and caustic soda* This permits a direct reading of the percentage composition of the acid on the burrette. If it is feared that too much chemical is being used a 1 c.c. sample can be taken for rough work. A sixteenth normal solution of iodine has been found more stable than a tenth normal, and it is recommended for both its stability and the absence of calculations.

While liquid SO_2 is by far the most convenient form in which to obtain the gas, it can not be assumed that it is free from all faults. The presence of a small percentage of moisture, of course, has no deleterious effect, but SO_3 sometimes occurs and is decidedly detrimental to the acid. While it is true that in commercial operation there is nearly always a small percentage of SO_3 present in the burner gas, trouble is experienced only if the amount increases beyond certain limits. Every attempt is therefore made either to prevent the formation of SO_3 or to remove it after once formed. In studying the effects of the variables upon the character of pulp produced in experimental sulphite pulping, it is important to eliminate as many variables as possible in order that cooks may be comparable, and, therefore, very desirable to have a gas which is free from SO_3.

While no detailed studies relative to the effect of SO_3 upon pulp have as yet been conducted by this Laboratory, general mill experience has clearly indicated that SO_3, when present to the extent of 0.2 per cent. of more, is detrimental. It causes uneven cooking, harsh pulp, trouble in bleaching and coloring, and weak paper.

It is a simple matter to test for the presence of SO_3 in liquid SO_2, though a quantative test is somewhat more difficult. The method employed is as follows: Connect the cylinder under test to a flask containing a hot acid solution of $BaCl_2$ and pass the gas in slowly. The formation of a precipitate will indicate the presence of SO_3 in the gas. This may be eliminated by first passing the gas through a sulphuric acid absorption tower, through a wash bottle or trap, and then into the acid system. Sulphuric acid mist is removed by the absorption tower and no precipitate should appear in the test solution. If it is desired to test the efficiency of the sulphuric-acid tower, a $BaCl_2$ wash bottle can be introduced into the system or the appearance of mist can be noticed through a sight glass. Pure gas can be obtained, however, at a present price (Jan. 1920), of 11 cents a pound in iron cylinders of about 150 lbs. capacity. Should it be found too costly or impractical to obtain pure gas, the next best thing is to provide a gas filter made up like those used in many sulphite mills. In its essentials, this filter consists of a wooden tank provided with a cone-shaped false bottom, covered with sawdust spread upon matting or bagging. The gas is admitted at the top and discharged at the bottom. The drawback to such an installation in filtering gas under compression is that the tank must be absolutely tight or the atmosphere of the room will soon become unbearable.

This Laboratory feels that it is very desirable for any plant considering the installation of experimental sulphite pulping equipment to include an acid plant of the type described above. The cost will not be great and will be more than repaid by the flexibility and independence thus secured. By the use of liquid SO_2 the acid composition can be controlled very easily, and because of the concentrated form of the gas the most simple type of absorption apparatus can be used. In fact, with this concentrated gas, an acid approaching 10 per cent. total SO_2 can be made.

Cooking and Washing the Pulp: An experimental sulphite digester is much more difficult to control than a soda or sulphate digester, but after experience it will be found possible to duplicate any cooking curve within reasonable limits. At this Laboratory, where all kinds of woods are studied, an acid strength of 5.4 per cent. total, 4.3 per cent. free and 1.1 per cent. combined has been found satisfactory for the first trials, and a cooking curve approximating that shown in the chart is easy to follow and produces satisfactory pulp. Any of these conditions, of course, can be changed at the will of the operator. The digester is filled to approximately the same mark with acid for each cook; that is, the chips are just covered. The amount of acid per one hundred pounds of chips varies, however, from 60 to 110 gallons, depending almost entirely upon the specific gravity of the wood.

Chips intended for sulphite pulping should be more carefully prepared than those for soda or sulphate. The reason is that the sulphite cooking acid cannot so easily reduce bark and dirt as the alkaline liquors. Otherwise, there is no difference in the method of handling the chips.

The screened chips, the weight of which has been previously determined by means of bone-dry samples, are charged into the digester through a large funnel which fits into the neck. The required amount of acid is run in and the perforated lead plate put into position. The cooking acid is sampled as the liquor runs into the digester, half of the sample being taken at the beginning and the other at the end of charging. A wet gasket of heavy paper or pulp is used to make the cover joint tight. The relief line is then connected and steam turned on in the indirect coil. A temperature reading of the acid is taken at once and this value used as the starting point of the temperature curve. Temperature and pressure readings are taken every 15 minutes and plotted on the charts. When about 40 pounds pressure has been reached, it is customary to relieve the air from the top of the digester and cover the chips with liquor, after which the relief line is closed until it is desired to relieve constantly. The cooking is carried on with indirect steam

*See Report of the Committee on Sulphite Pulp-Paper, Vol. 18, p. 11.

until the liquor suddenly drops, as will be indicated by the gauge glass, at which time the indirect steam is reduced and the direct admitted to the digester to prevent turning "the crown" (the top chips.) This absorption of the liquor by the chip occurs about the third hour with most woods. When the digester pressure reaches 100 pounds, the relief is started, following a straight line drawn from that point on the chart to another 10 pounds above the steam pressure curve. By proper relief and steam control both the temperature and the pressure can be made to follow the curves as drawn, although constant watchfulness is required to accomplish this satisfactorily.

Many methods for determining the time to blow the cook are in use, but while they are adequate for commercial purposes where the same species of wood are pulped under consistent conditions, all of these methods fall short when it is desired to study the effect of many variables. After much experimentation, it has been decided to adopt a color indication for blowing such cooks, and a standard has been made of a coffee solution clarified with white of egg and preserved by formaldehyde. After the most satisfactory color for blowing has been determined upon, two coffee solutions, one dark and one light, are made up as above and blended until a match is obtained. Such a standard solution will keep unchanged for months. The blow color will, of course, change with the various woods pulped, and the coffee standard can be used only when performing a series of experiments upon the same wood. In other cases, small samples of each blow are taken and the following cooks compared with them.

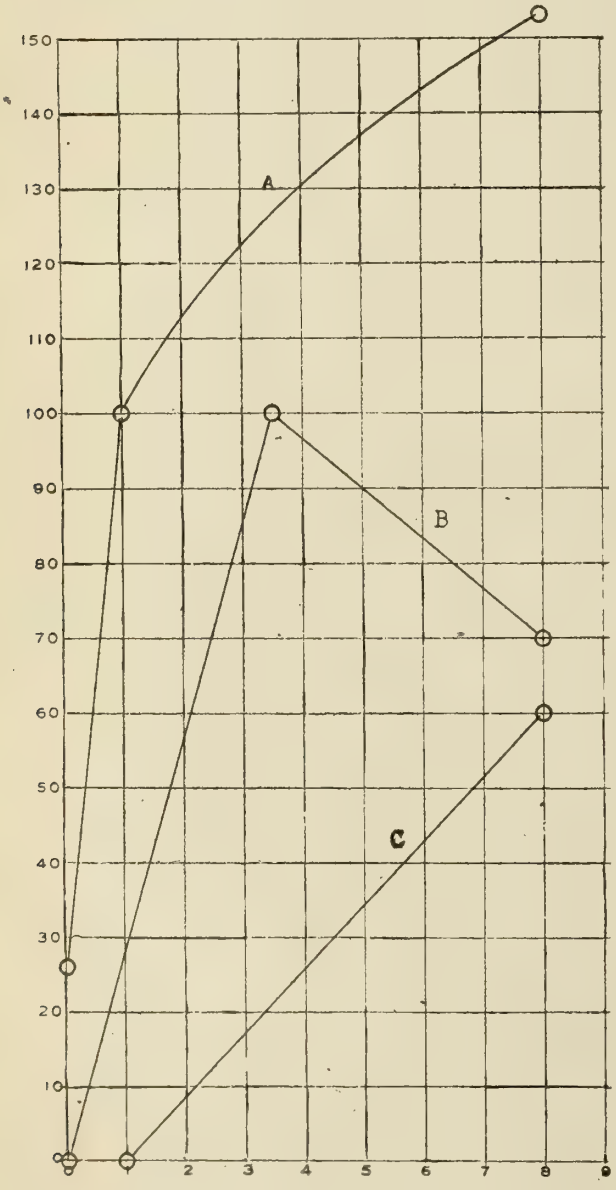


Fig. 9
Typical Sulphite Cooking Chart
Curve A.—Temperature; degrees Cent.
Curve B.—Digestor Gauge Pressure.
Curve C.—Steam Pressure.

When it is desired to blow the digester, the steam and relief lines are closed, the water spray turned on in the blow pit, and the bottom strainer in the digester dropped to clear the blow line. The quick opening valve is loosened and made ready for operation. Next, the Y valve is opened wide, and finally the quick-opening valve. The drain catch is placed under the blow pit outlet and the liquor allowed to waste. As soon as possible after blowing, the blow pipe is disconnected, the cover of the digester removed, and the small amount of stock adhering to the sides is washed down with hot water and caught in a screen, along with dirt particles. While this procedure is hard on the lining, it tends toward a cleaner pulp and is necessary where accurate yields must be obtained.

The stock is well washed with water and allowed to drain over night. When a cook is made each day, the digester should be prepared immediately after blowing. By this is meant, that all valves and connection should be looked after, the blow valves cleaned out and packed, and, if possible, the digester should be charged with chips. All of this makes an early start possible.

Pressing, Shredding and Sampling: After starting the digester the next morning, the pulp is removed from the blow pit, loaded into the perforated basket, and squeezed in the hydraulic press. The various cakes are loaded into a can and taken to the Williams infant shredder.

It is the opinion of this Laboratory that shredding the pressed cake is the most reliable means of obtaining a representative sample on which to base the bone-dry factor and the yield of pulp. From a standpoint of quality, especially with sulphite cooks, this procedure is decidedly objectionable, inasmuch as any uncooked chips are completely broken up, first in the press and finally in the shredder. The resulting sheet is full of dirt since it is impossible to remove the broken chips by screening, and it can never be compared with a commercial sheet for cleanliness. The necessity of obtaining a reliable yield figure, however, will usually outweigh these objections. By exercising every precaution it is possible to obtain yield figures, accurate to 1 lb. on 30 lbs. of pulp, by sampling the cook at frequent intervals as it comes from the wet machine. By this procedure a much cleaner sheet and equally reliable yield figures are obtained.

After shredding, the pulp is weighed and sampled for moisture determination. The sample is taken in a graniteware can with cover and as soon as possible transferred to two large watch glasses. These two samples are accurately weighed and placed in the oven, where a temperature of about 105°C. is maintained. The samples are weighed at intervals until check weights are obtained. The bone dry factor as determined by the two samples should agree within ½ per cent.

Screening: The shredded pulp is opened up in the beater and run over a four plate diaphragm screen to a stuff chest, from which it is run over a wet machine and collected in a basket. At the end of the run the screenings are collected from the screen and their bone-dry weight determined.

Beating: The screened pulp is next beaten in order to develop the greatest possible strength and run into a waterleaf sheet over the paper machine.

Miniature Apparatus.

It is often desirable to make cooking tests by the soda or sulphate process, where either only a few pounds of material are available or preliminary cooks are desired to furnish data which will serve as a guide in planning cooks in the larger digester. For this purpose a fairly complete equipment is used, consisting of three rotary, horizontal, cylindrical autoclaves, a small diaphragm screen, ½ pound Noble and Wood beater, hand mould, making-up vat, letter press, felts and wine press.

Rotary Autoclaves.—The rotary autoclaves are horizontal cylinders having a capacity of about two pounds of chips each. They are made of extra heavy six-inch wrought iron pipe with the ends and the seat for the cover welded on. The inside length is 15 inches and there is a 3¼-inch opening on one side fitted with a cover, which seats on a ground joint. The trunnion at one end is open and threaded for fitting a pressure gauge of the diaphragm type. The other trunnion extends 3 inches into the autoclave and is closed on the inner end, forming a thermometer well. Mercury is used as a means of contact between the thermometer and the walls of the well and is held in place by means of washers, asbestos packing, and a gland nut on the end of the trunnion.

In the operation of the autoclaves at least ¼ of a gallon of liquor per pound of chips should be used. and a two-inch vapor space should always be left in the top. Heavy oil is used to lubricate the ground joint of the cover, before clamping it down, in order to minimize wear and insure against leaks. The autoclaves are heated with Bunsen burners, which are regulated to give the desired maximum temprature in the desired time, and to maintain it. Pressure readings are taken and recorded, but no effort is made to regulate the pressure, since any gas or vapor pressure other than steam has been found to exert but slight influence on the cooking action where the proper temperatures are employed and sufficient mixing of the contents is secured by the rotation of the autoclaves. At the end of the digestion the autoclaves are placed on a rack over a sink and cooled by running cold water over them until the pressure is reduced below 10 pounds. The screw on the clamp that holds down the cover is loosened until the residual pressure has been relieved, and then the cover is removed and the contents washed into a wooden box fitted with a piece of Fourdrinier wire for its bottom. The washing is continued until all traces of black liquor are removed.

Yields are obtained in the same manner as with the large cooks, using a small wine press to remove excess water and breaking up and sampling the pulps by hand.

Sulphite Autoclaves.—Preliminary cooks by the sulphite process have been made in bronze autoclaves heated by direct flame and sufficiently large to accomodate one pound of chips. These were provided with gauge, thermometer, and relief. Much has been done by using this small apparatus, but we have come to the conclusion that the results have not justified the expense or time spent on these cooks. Difficulty of control and dirty pulp were the chief objections to the use of these autoclaves. To overcome the latter, small acid-proof stoneware linings were set in the autoclaves. These were instrumental in reducing the amount of dirt, but more serious faults caused this method of pulping to be abandoned except where only approximate indications are desired. Better results can be obtained in general mill operation by suspending a wire cage of the chips to be tested in the large digester.

Diaphragm Screen...The diaphragm screen used for autoclave cooks takes a screen plate 10 inches by 12 inches. About half a cook at a time is dumped in and a small stream of water is run through. This carries with it the screened pulp which is caught in a box with a Fourdrinier wire bottom, such as is described under autoclaves. The screenings are removed, dried, weighed, and recorded.

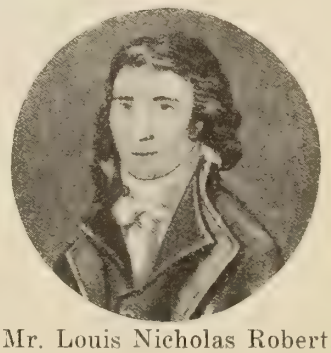
Hand Mould and Accessories.—The hand mould used will make a sheet 10¼ inches by 7 inches. It was furnished by J. J. Marshall and Company of London, England. The vat is made of soapstone 16½ inches by 21 inches by 8½ inches inside dimensions. (At the University of Maine a copper lined wooden vat was found satisfactory—Edit.) The vat should be no larger than necessary to allow proper manipulation of the mould, and this one has been found to give good results.

White broadcloth has been found to be the best material for felts in making hand sheets of the size mentioned above. An ordinary letter press is suitable for pressing the hand sheets, and they may be dried on one of the dryers of the paper machine or a single dryer outfit of the same type.

(To be concluded.)

THE PAPERMAKING MACHINE INVENTOR.

Robert invented the papermaking machine in France. He completed his work in 1798. Fourdrinier afterwards introduced it into a more perfect state. Robert introduced his first machine at M. Didot's Paper Mill at Essonnes in 1798. Born December, 1761, he died at Vernouillet, in August, 1828.



Mr. Louis Nicholas Robert.

EASTERN PULP AND SUPPLY HOUSE MEN VISIT THE PACIFIC COAST.

Mr. Orvar Hylin, of the Lagerloef Trading Co., New York, was inVancouver recently on a pleasure trip. This firm are agents for Finnish Pulp Mills, in the United States.

Mr. E. H. Williams, of the firm of Williams, Gray & Co., Chicago, dealers in pulps and mill supplies, has been looking over prospects in British Columbia recently.

NO DRASTIC REDUCTION OF COMMODITY PRICES IN SIGHT.

Bank pressure for the curtailment of commercial credits has become stronger both in this country and in the United States in recent weeks, and is responsible for the symptoms of hysterical and spasmodic liquidation and price-cutting in clothing and luxuries which have been much exaggerated in the newspaper press. Undoubtedly retailers will find it harder to dispose of large quantities of current-consumption goods, especially of the somewhat luxurious and unnecessary kind, than they did last year, and very much harder to obtain bank credit for the carrying of them. Moreover, transportation difficulties in the United States are serious, and are causing some districts to be cluttered up with goods, many of them perishable or fashionable, which ought to be on their way to other markets. This puts additional strain on banking facilities and enforces a certain amount of liquidation. But these very difficulties of transportation and credit are reducing the output, even of the most necessary articles, and enhancing costs.

It is still our opinion, as it has been for months, that it is useless to look for any important reduction in costs of basic commodities, such as iron and steel, coal, paper, etc., in the immediate future, while strong factors tending in the other direction are likely to become operative. Transportation, for example, is still being carried on all over the continent at rates which afford much less than a fair remuneration to capital employed. The American roads are applying for a 28 per cent. increase in freight rates, and their demand is justified by the terms of the legislation under which they were handed back to their owners. Any increase granted in the United States should be immediately accompanied by a corresponding increase of the utterly inadequate rates now in force in Canada. The new Canadian taxes will increase somewhat the cost of living, while any benefits resulting from their discouragement of extravagance will be slow of realization.

If there were any overly large stocks of commodities in Canada, and we have seen no evidence of their existence, which could be precipitately thrown upon the market, and which could satisfy the consumption demand during a period of slackened production, a definite move to lower levels might be in prospect, but such is obviously not the case. There are no reserves of any size which can be drawn upon. Production must go on at its present rate or better if even the ordinary needs of current consumption are to be satisfied.

Lord Shaughnessy's statement that there can be no real liquidation of wages until commodity prices are lowered, and that prices can only be lowered by greater production and a lessening of wasteful consumption is the whole case in a nutshell. There is too much hysteria and too little real labor and common sense abroad in the land.—Investment Items.

William I. Bishop, Limited, have been awarded the contract to build the transformer house and addition to grinder room and boiler house for the Belgo Canadian Pulp and Paper Co., Limited, at Shawinigan Falls, P.Q. The piling contract has been awarded to the Raymond Concrete Pile Co., Ltd.

Never expect too much from a friend and you will never want for one.

EXPORT LICENSES FOR NECESSITIES.

Ottawa, June 14.—The Minister of Customs has given notice of legislation which will authorize the licensing of exports "necessary or desirable for the use or consumption of the Canadian people." The motion, which is to come before the House on Wednesday, while not specifically mentioning newsprint, is, it is understood, designed to meet the needs of Canadian newspaper publishers in that regard.

The resolution reads: "That it is expedient to bring in a measure to amend the Customs Act, and to provide that the Governor-in-council may from time to time make regulations for or relating to the exportation of any article, commodity or material which is produced or manufactured in Canada, and which is, in the opinion of the Governor-in-council, necessary or desirable for the use or consumption of the Canadian people, or for the encouragement, maintenance or preservation of any trade, industry, business or occupation, and may by such regulations order and direct that any such article, commodity or material shall be exported only under license issued by the Minister of Customs and Inland Revenue, or by an officer appointed upon the Minister's recommendations for that purpose; and that the issue of any such license, and the exercise of any right or privilege thereby conferred, shall be subject to such conditions as the Governor-in-council, upon the recommendation of the Minister of Customs and Inland Revenue, shall prescribe."

The penalty clause provides for a fine of $5,000 for each summary conviction.

MAINE MILLS BUY WOODLANDS.

One of the largest timberland deals ever consummated in this state was completed Thursday afternoon when papers were passed which changed ownership to the Eastern Manufacturing Co., the Orono Pulp and Paper Co., the Dead River Timberland Co., and E. B. Draper of the Eaton holdings for which negotiations have been in progress for some time and which comprise about 260,000 acres of timberlands together with mills and rights both in this country and Canada. The price paid for the purchase was between $2,000,000 and $3,000,000.

Representatives of the individuals and concerns making the purchase met Thursday in the offices of the Merrill Trust Company and for the purposes of building the proposition organized a new corporation to be known as the Passamaquoddy Land Co. The officers elected were: D. A. Crocker, the present vice-president of the Eastern Manufacturing Co., president; Charles F. Hutchings, of the Dead River Co., treasurer; D. A. Crocker, Charles F. Hutchings, E. C. Ryder, Esq., E. B. Draper and F. E. Bragg, directors.

The Eaton lands, so-called, are located in the three countries of Penobscot, Washington and Hannock, together with small places in New Brunswick.

The Eastern Manufacturing Co., the Orono Pulp and Paper Co., and E. B. Draper, according to the contracts made, are to have the wood from the land. The Eastern and the Orono people will have the pulpwood which will give them a supply over a long term of years in addition to that which they already have.

PULP WOOD BARGE SINKS.

The barge Cuba, loaded with pulp wood from Quebec for Ogdensburg, N. Y., foundered in deep water in the lower St. Lawrence during a storm early this week and was a total loss. The crew were rescued.

Technical Section

TECHNICAL SECTION TO CONSIDER CENTRAL LABORATORY

Mr. A. L. Dawe, Secretary of the Technical Section, has sent to members, the following letter. It will bear repeating. Some of the most important items of business ever brought before the Section will come up at the summer meeting. Members, mill men and managers should be out in force.

I have sent you a copy of the program for the summer convention of the Technical Section. It is not, I think, necessary to dwell on the excellent points of this trip, but I would like to draw your attention to some points in connection with the business meeting which are not mentioned in the program.

In the first place, we are going to be favored with a talk from Dr. Ralph H. McKee on "Waste Sulphite Liquor Utilization," and Dr. McKee has promised to give us the benefit of his researches into the recovery of sulphur dioxide from smelter gases, one of the subjects in which sulphite mills are very much interested at the present time. We are also going to have a paper from Mr. H. S. Taylor on "Gypsum Roofs for Paper Mill Machine Rooms." We have also invited Mr. Buncke, of the Abitibi Company, to give us a paper on the "Regulation of Froth and Foaming."

There is also another subject of vital interest to the industry which will be brought up for your discussion, and that is the matter of a central laboratory for the industry. At the last meeting of the Executive of the Canadian Pulp and Paper Association, when the matter was discussed, it was agreed that it is a matter for the Technical Section to study and decide as to whether it would be worth while to proceed with the formation of a central laboratory operated by and for the industry. It is, I think, pretty well accepted that the present laboratory is inadequate for the requirements of the industry. Nothing has been done, and apparently nothing will be, to make it of any value. There is considerable equipment which has not been touched for years, and which could at this very time be utilized profitably by the industry. Only the other day a shipment of flax was sent out of the country to Washington and made into pulp, when the Government is supposed to have a laboratory just for testing such materials as that particular one.

It might interest you to know that a letter of inquiry was sent to the industry, asking three questions; (1) Advisability of the industry taking over and operating a central laboratory, (2) Indicate some of the problems in research that might be undertaken with profit by such laboratory, (3) Your opinion as to whether you consider routine testing work in connection with products of industry. Seven of the largest mills have already expressed themselves as being quite favorable to a proposal of this nature, and it remains for the members of the Technical Section to assist the industry in deciding the future course in respect to a central laboratory.

At the business meeting which will be held at the Soo you will also have an opportunity of hearing the reports of the different Standing Committees, some of which have been doing good work, particularly the Committee on Mechanical Standards, which has been making a number of very valuable tests on materials, and if you have not already replied on the card which we provided with the programs I urge you to do so at once because we have to make reservations with the railroads. The summer traffic has cut down the number of cars available, and we all want to travel comfortably and together.

WOODWARD TO WORK AT M. I. T.

Mr. P. G. Woodward, a member of the Technical Section who is employed in the Chemical Engineering Research Department of Laurentide Company, has accepted a position with the Massachusetts Institute of Technology at Cambridge, Mass. Mr. Woodward is a graduate of the Institute and will take up work in connection with the School of Chemical Engineering practice. It will be recalled that just before the United States entered the war the Institute established in connction with its course in Chemical Engineering, a series of five practice stations in connection with typical industries. Just following what would be the middle of the third year in the ordinary curriculum, an opportunity is given for students to obtain a practical knowledge of the problems and processes of certain industries. Students are placed in groups at the various stations and work under the direction of a resident member of the Institute staff who is also connected with the research work of the plant where he is. Each group remains about two months at each stations and gets in a lot of practical work as well as valuable instruction. The student comes in everyday contact with the industry.

Among the industries is included the pulp and paper industry as represented by the plant of the Eastern Manufacturing Company at South Brewer, Maine. The first resident professor was H. H. Hanson, a graduate of the Institute who had served at the plant of the Brown Corporation at LaTuque, Que. During the war Mr. Hanson's work was transferred to war activities in Washington and there was necessarily a break in the plans of the Institute. It is interesting to note that another Canadian mill has assisted in the practical training of a man who is to undertake his part in this important educational work.

BIG DISTRIBUTION OF SAFETY LITERATURE.

The Ontario Safety League continues to place a large amount of literature in the hands of motorists, school children, industrial workers, and others throughout the Province. In the first three months of 1920, the League has distributed an enormous amount of safety material, including 35,000 industrial safety bulletins: 32,400 school safety bulletins; 8,500 special bulletins; 8,500 traffic bulletins; 2,700 electric railway bulletins; 150,000 motorists safety book-marks; 10,200 health bulltins; 65,000 news letters; 9,000 safety calenders 12,000 leaflets to the "new man"; 125,000 gummed seals; 3,000 safety cards and posters.

REVIEW OF RECENT LITERATURE.

A-1. Constituents of Wood which give color reactions. III. H. Wichelhaus, Ber., 1919, **52**, 2054-2056. The active constituents have been removed from the distillates by extraction with ether and purified by distillation under greatly reduced pressure; two fractions b. pt. 88 deg. C. at 0.4 mm. and 95 deg.-105 deg. C. at 0.4 mm., are obtained together with formic acid. Analyses of the fractions give results in agreement with those required by the formulae, $C_{16}H_{22}O_9$ and $C_{16}H_{22}O_{11}$ respectively, which are simply related to the formulae of brasilin and haematoxylin.—J.S.

A-15. Heating Cellulose with benzene under pressure. F. Fischer and W. Schneider, Ges. Abhandl. Kenntn. Kohle, 1919, **3**, 287-300. Chem. Zentr., 1919, **90**, IV, 879. Cellulose heated with benzene under pressure at 250 deg.-260 deg. C. is gradually decomposed, with the formation of water and products dissolved in the benzene, but scarcely any gas products. The decomposition products are about 6 per cent greater in amount than the normal yield of tar on destructive distillation. They are dark-brown viscous liquids, and about 90 per cent is soluble in alkalis. On acidification the solution deposits brown flakes (47.5 per cent). The bulk of the extract is insoluble in light petroleum spirit, soluble in cold chloroform, and almost completely soluble in cold alcohol. The presence of water accelerates the process of extraction and improves the yield. Thus a double extraction of dry cellulose (5.4 per cent H_2O) 6.4 per cent and in presence of water 12 per cent. By protracted heating of air dry cellulose with benzene under pressure a yield of 12 per cent is also attainable.—J.S.

E-2. Sulphite spirit manufacture influence of the design of the digester fittings on the quantity of waste liquor. A. D. J. Kuhn, Woch. f. Papierfab., 1919, **50**, 2317-2319, 2388-2391. Chem. Zentr., 1919, **90**, IV., 1016. In sulphite pulp mills which work up their waste liquors for the manufacture of spirit it is very important to have the correct proportion of fresh liquor to the quantity of wood and to employ a liquor which is rich in free sulphur dioxide. The ratio of liquor to wood depends upon the method of digestion, the species and the moisture-content of the wood, so that the quantity of waste liquor may show variations between 5 and 10 cub. m. per ton of cellulose. The digestion itself proceeds most favorably when the proportion of free sulphur dioxide is at least 70.80 per cent of the total. A liquor rich in free acid increases the yield of sugar and alcohol. The digestion must be stopped when the concentration of sugar in the liquor has reached its maximum, because the sugar which has been formed then undergoes a gradual decomposition. Moreover, the use of a liquor of high concentration effects an economy of sulphur and steam and a higher sufficiency in the digester with uniform results in the product. In order to obtain the maximum quantity of waste liquor, the digester must be drained under pressure. By blowing off under a pressure of 4-5 atm. the cellulose retains only 4 cub. m. of liquor per ton, whereas when blown off under 2-3 atm. the pulp retains 5.25 cub. m. per ton. In it also advantageous to introduce hot water on to the pulp under pressure, because in this way the water displaces the spent liquor, whereas the introduction of water without pressure merely results in the dilution of the spent liquor. The spent liquor coming from the digester under high pressure should be conducted to a pressure relief vat, where a powerful evolution of sulphur dioxide takes place, and this gas may be recovered for use in the preparation of fresh liquor.—J.S.

P-2. Paper mill accidents illustrated by posters. Al Kroes. Paper, **25**, 178-80, (1919). Pulp and Paper, **17**, 933-4, (1919). An appeal to superintendents, "to get close to the men", to make them understand the necessity of safety and the means of attaining it.—A.P.-C.

P-0. Cost of unsafe practices in money and men. H. H. Mathiesen. Paper, **25**, 182-6, (1919). Pulp and Paper, **17**, 930-2, (1919). During the 19 months the U. S. were at war, the war casualties were 56,227 killed and over 200,000 injured or wounded in battle. During the same period the "accident casualties" in the U. S. were over 126,000 killed and over 2,000,000 so badly injured as to be disabled for four weeks or longer. In one particular plant the average cost for each of 292 lost-time accidents was $315.66.—A.P.-C.

Q-0. Care of paper mill roofs. Prevention of decay in the timber of the roofs of pulp and paper mills. R. J. Blair, Forest Products Laboratory, Montreal. Paper, **25**, 127-30, (1919). Pulp & Paper, **17**, 707. The decay of timber is caused by various fungi, which require a certain min. amount of moisture to grow. If this moisture is not supplied, or if the timber is treated with a fungus poison (such as creosote) decay will be prevented. Moisture condensation in paper machine rooms is the usual manner in which moisture is supplied to the fungi. This can largely be prevented by means of hoods over the machines, together with proper ventilation. Air systems of heating are preferable to those with steam coils. The roof should be built of a wood which naturally resists decay (e.g., cedar), and should have an extra layer of wood or other material on its upper surface for heat insulation, which layer should be separated from the main part of the roof by at least three thicknesses of mopped tarred paper.—A.P.-C.

R-1. The papermaking industry in Finland. Paper, **25**, 402-3, (1919). Translation of an article in Le Papier, **22**, 200, (July, 1919), giving a short sketch of the development of the paper industry in Finland.—A.P.-C.

R-2. History and economics of paper making. Job Taylor. Paper, **25**, 164-70, (1919). Early origin of the art, and rise and development of wood fibres in papermaking.—A.P.-C.

R-1. Pulp production in the new states of Europe. Paper, **25**, 1040-2, (1920). An analysis of the resources in raw materials and in mills of the respective new European states.—A.P.-C.

R-7. The existing industrial problem. Chas. Riez, President of the Link-Belt Co. Paper, **25**, 48-9, 72, (1919). A review of the present critical situation with suggestions for the improvement of conditions.—A.P.-C.

R-7. Making the most of men and other factors in the successful operation of a modern paper mill. N. P. Winchell, Jr. Paper, **25**, 43-5, (1919). For the successful operation of a paper mill and the economical production of paper it is necessary to have the most efficient equipment, the latest and most scientific methods, and the highest possible efficiency of the working force, the last being the most variable and the most difficult to regulate. Care should be taken to see that every employee is physically fit to do the work required, mentally able to look ahead of his own job, able to work well with his immediate superior, and interested in his work.—A.P.-C.

R-13. Fall meeting of the T. A. P. P. I. Paper, **25,** 190-212, (1919). Discussion of the report of the Soda Pulp Committee on "Principles and Practice involved in Washing Unbleached Soda Pulp". Discussion of the waste sulphite liquor problem. Discussion of a paper presented by Otto Kress, F.P.L., Madison, Wis., on the "Deterioration of Wood and Woodpulp due to Infection by Fungi, with Suggestions as to their Control," and text of a resolution asking Congress to appropriate $50,000 for the investigation of this problem. Reports of Committee on Abstracts and Literature and of Committee on Bibliography. Discussion of the report of the Committee on Standard Methods of Testing Materials used in the Manufacture of Paper. Discussion of a communication by L. H. Shipman on co-operation in solving problems. (Continued.).—A.P.-C.

RECENT PATENTS.

E-5. Cellulose from wood or other cellulose materials. Zellstoffabrik Waldhof, and H. Clemm, Mannheim, and R. Willstatter, Munich. Ger. Pat. 304,314, 20.10.16. The material is treated with liquid or gaseous reagents at a comparatively moderate temperature, but at a greatly increased pressure created entirely by heating the liquid, but largely by forcing in a liquid or gas. The digestion may be carried out under a pressure of 50 atm. in order to obtain a good penetration of coarser material and a more complete digestion. The avoidance of high temperature while maintaining all the advantages of a high pressure gives a cellulose fibre in a better state of preservation than by the usual process, and the constituents of the spent liquors are less profoundly decomposed, so that the by-products may be more advantageously utilised. The process may also be utilised in the saccharification of cellulose.—J.S.

K-2. Utilization of the spent liquors from straw paper and straw board factories. R. Adam, Bremen. Ger. Pat. 314,054, 28.3.17. The spent liquor separated from the straw pulp by mechanical means is evaporated, dried, and the residue submitted to destructive distillation. The products resemble those from the distillation of wood and comprise acetone and methyl alcohol.—J.S.

K-2. Cleaning material: from the waste of the paper industry. Reis und Co., Friedrichsfeld. Ger. Pat. 306,461, 18.9.17. The alkali in the liquor is partly replaced by salt, and the treatment is effected in the cold; e.g., the waste is treated with a liquor containing 40 parts of caustic soda to 60 parts of salt for three to four hours.—J.S.

K-2, 4. Detergents from vegetable fibrous materials. The Amber Size and Chemical Co., Ltd., London, and C. Waygang, Maidenhead. Eng. Pat. 135, 240, 15.10.19 (Appl. 16,285/18.) Straw, wood, flax, jute or the like, is boiled with water containing a mixture of 1 part of an alkali metal compound of low alkalinity, such as a sesquicarbonate, or "Crex," and 1 to 4 parts of calcium carbonate. The relative proportions of the constituents, the strength of the solution, and the time of boiling are varied according to the product desired; thus, if straw is boiled for 5-10 hours in an open vessel with water containing 6-8 per cent. of a mixture of 1 part of the alkali compound and 2 parts of calcium carbonate, the fibre is reduced to a gelatinous condition and gives a horny and more or less transparent paper, but if the proportions of the mixture are halved the fibres are left more distinct, but are softer and tougher than the untreated fibres. The liquor obtained after separation of the fibrous material may be utilised as such in the manufacture of soap, or it may be allowed to stand and the sediment, either in a pasty condition or dried and ground, may be added to soap, to which it imparts increased detergent properties.—J.S.

K-4. Cellulose from slightly lignified plants. M. Luders, Magdeburg. Ger. Pat. 301,716, 30.8.16. Materials such as jute, manila, bullrush, typha, flax straw and flax waste, hemp straw and hemp waste, nettle straw, etc., are digested in a closed vessel under pressure with a weakly acid magnesium sulphite solution, which, according to the degree of lignification of the material, may contain up to 90 per cent. of its sulphur dioxide in the combined state.—J.S.

K 4. Rotary digesters and like boilers. K. Hellner, Falun, Sweden. Eng. Pat. 137,742, 28.5.19. (Appl. 13,436/19.) In rotary digesters for the manufacture of cellulose and the like the liquor is heated with indirect steam in order to avoid dilution by condensed water. Heating elements are provided outside the digester in such a manner that they take part in its rotation and are connected with the inside of the digester in such a manner that the liquor can pass constantly through the heating elements and be heated by means of steam pipes located therein, the supply of steam being passed through one trunnion of the digester while the condensed water is discharged through the other.—J.S.

K-6. Treatment of straw, hay, wood, etc. E. Hauss, Canabruck. Ger. Pat. 208,863, 1.1.16. The material is treated in a boiler with suitable reagent in presence of air, oxygen, or a substance yielding oxygen, e.g., hydrogen peroxide. Economy of time and reagent are thereby attained.—J.S.

K-6. Preparation of pulp from mallow. L. H. Skinner, London. Eng. Pat. 137,105, 30.12.18. (Appl. 21,-790/18.) Fibres of a silky nature are obtained from the tree mallow plant or from the tree mallow grafted or budded on to the stalk of a Jerusalem artichoke or sunflower. The stems are collected in the late autumn, preferably after frost; they are chopped, boiled with water for about eight hours, and reduced to pulp in a beating engine.—J.S.

K-6. Cellulose:—from moss or peat by heating with dilute acids. C. F. Hildebrandt. Hamburg. Ger. Pat. 314,712, 22.12.17. Moss or peat is digested with dilute at a temperature below 100°C. and under atmospheric pressure, without subsequent treatment with alkaline liquors, and the process is arrested before saccharification commences. After washing, or partial or complete neutralisation, the cellulose obtained may be employed as fodder or for the production of paper, nitrocellulose, etc.—J.S.

K-6. Fibre from hop bark. U. Dammer, Berlin-Dahlem. Ger. Pat. 299,164, 27.1.17. The stripped bark is steeped for a short time in a highly-dilute solution of lactic acid; it is then transferred to pure water and the fibre is separated from the bark. The mass surrounding the fibre is converted by the lactic acid into a form in which it can be easily removed by water.—J.S.

L-7. Paper thread. Vohwinkler Papier-u. Salicyl-Pergamentpaper-Industrie, Vohwinkel. Ger. Pat. 314,-490, 16.4.18. Paper threads of suitable strength are impregnated with a mixture consisting of paraffin or stearine, linseed oil, mineral oil, and varnish, and afterwards drawn between corks to remove the excess.—J.S.

PULP AND PAPER NEWS

Folding Paper Boxes, Limited, and the Dominion Cone Co., Limited, two companies under the one management, are negotiating with the town of Ingersoll, Ont., with a view to locating there, provided a loan is granted. The firms agree to give security to the value of about $55,000 and they ask a loan of $25,000.

Premier Drury made the statement in Toronto this week that he had heard nothing of the application for more pulpwood concessions for the Backus pulp and paper interests in Fort Frances. "I can say that they won't get any more unless they come through with a fair share of paper for Canadian publishers," said the Premier, "We are taking up with them at present this matter of more paper for the Canadian publishers. In a letter I just received there was no mention of any additional concession for pulpwood from them."

No tenders for the Toronto World property have as yet been received but several are negotiating, according to the official assignee. Tenders were called for up to a few days ago and as none were received it was decided to go ahead and continue negotiations with those who are negotiating without making a definite offer.

A circular issued by Canadian Press, Limited, states that the office of the assistant general manager has been abolished and as a result V. M. Kipp, who has occupied the position since December last, will hereafter have the title "Superintendent of the West." He will exercise supervision over the editors of the western relay at Ottawa and will be in general charge of the western division, from the head of the lakes to the coast, inclusive, reporting direct to the general manager.

W. F. Christie, of John Christie & Co., paper stock dealers, Adelaide Street, Toronto, has gone on a business trip to Yarmouth, N.S. where he will visit the Cosmos Cotton Company, makers of dryer felts for paper machines, which firm he represents in Toronto.

The American Barking Drum Company, Royal Bank Building, Toronto, report additional contracts for their drums with the following firms: St. Regis Paper Co., San Rafael Paper Co., Nekoosa-Edwards Paper Co., Gulf Paper Co., J. &. J. Rogers Co., Union Bag and Paper Corp., Cushnoc Paper Co., together with four for delivery to Manchuria. The firm now have 171 drums in operation or under construction. The Union Bag and Paper Corporation has the drum in two plants in the United States and its subsidiary, the St. Maurice Paper Company, has it in three plants in Canada.

The new addition to the factory at Brantford, Ont., of the Barber-Ellis Co., Ltd., envelope manufacturers and stationers, has been completed and is now in operation. The addition is 100 x 100 feet and is built of solid concrete. As an illustration of the high cost of building material these days it may be mentioned that the recent improvement cost as much as the entire building, which was put up some considerable number of years ago.

Dr. J. A. Macdonald, formerly Managing Editor of the Toronto Globe, was presented with a sterling silver tea service by the members of the staff at the annual meeting of the Globe Printing Company held on Wednesday of this week.

John Dick, a stereotyper, was instantly killed and Edward Vitek was seriously injured in an explosion of the steam-bed in the stereotyping department of the Toronto Telegram on Tuesday. The dead man was 57 years of age and was born at Plattsville. Ont. He had been on the Telegram staff for sixteen years.

Owing to the blowing out of a cylinder head No. 2 machine of the Georgetown mill of the Provincial Paper Co. was closed down for several days. The machine is now running again, the necessary repairs having been quickly made.

Among those from the Ontario paper mills who attend the summer convention of the Technical Section of the Canadian Pulp and Paper Association at Sault Ste. Marie beginning June 21, is Mr. George Carruthers, President of the Interlake Tissue Mills. Among the important matters to be considered at the meeting is that of the establishment of a central laboratory for the use of the Canadian industry, while a number of papers on technical subjects are down on the program for reading and discussion.

Mr. J. C. Wright, of the Educational Department at Washington is at present engaged in making an estimate of the educational requirements of the different positions in the Canadian paper industry. Mr. Wright, who spent last week at Welland, where he surveyed the mills in the Niagara district, has been extended a hearty welcome by the Educational Committee of the Canadian Pulp and Paper Association, who are co-operating in the work. He has already prepared a similar estimate for the United States Government, of the positions in the pottery and textile industries and these have been found to be of great value to teachers and men who are holding positions in the respective industries.

Mr. A. P. Costigane, Secretary of the Ontario Pulp and Paper Makers' Safety Association has just returned from the Hawkesbury Mill of the Riordon Company, where he found a fine spirit existing between foremen, administrative staff and men which will no doubt be reflected in a downward trend of the accident curve for the current year. Mr. Costigane also attended a big meeting in Hamilton of the executive and heads of departments of the Steel Company of Canada at which an address was given by Mr. R. M. Little, Director of the Safety Institute of America. The occasion was the inauguration of an extensive accident prevention organization. This organization will embrace all the plants under the control of the Steel Company of Canada. Before putting the organization into effect it was submitted to Mr. Costigane for criticism, his services in a consulting capacity and the accumulated information of the Ontario Pulp and Paper Makers' Safety Association, having been placed at the disposal of the Company.

Fire, which started from a hot box in the Provincial Paper Company's mill at Thorold, did about $2,000

damage and caused a shut down for the machinery for a couple of days.

A business visitor to Toronto this week was Mr. L. R. Wilson of the Abitibi Power and Paper Co.

Mr. George Erskine, of the Toronto office of the George H. Mead Co., attended the meeting in Montreal of the card board section of the Canadian Pulp and Paper Association at which a number of important matters were considered.

Mr. J. F. Ellis, President of the Barber-Ellis Company, Toronto and Brantford, and treasurer and past president of the Canadian Manufacturers' Association, retired from active work in the organization and was made a life member of the Association at the annual convention in Vancouver this week.

The Ritchie & Ramsay Paper Co., Ltd., are moving from their office on Bay Street, Toronto, to the Empire Building, 64 Wellington Street, West, where more commodious quarters have been secured. The firm expects to be in the new offices in about a week's time.

The Copp, Clark Company, Toronto, has bought the property at No. 512-14 Front Street, West and may make use of it as a building site which would give access on Front Street to their plant on Wellington Street. In the old days the building on the acquired site was used as a military hotel and was known as the Ontario House.

William L. Argue, Circulation Manager of the Toronto Star was elected president of the International Circulation Managers' Association at its annual convention in St. Louis.

The Presbyterian, which has been published in Toronto by a private company, has decided to suspend publication shortly and the good will of the property has been offered to the Presbyterian Church in Canada. A church weekly may result.

On the plea of scarcity of paper and that the system would be a nuisance to merchants, the Hamilton, Ont., Board of Trade passed a resolution of protest against the ruling of the Inland Revenue Department obliging merchants to supply the department with a copy of the sales slip of every article taxable under the luxury tax.

The Howard Smith Paper Company, Limited, state in regard to the Gaspe limits that the company is now building a new pulp mill at Cornwall and that the limits will be used to supply it. The wood will be brought up in barges and handled there. The increased production of sulphite is expected to become effective by October next.

A bylaw fixing the assessment of the Montrose paper mill at Thorold, Ont., at $125,000 was carried by over 400 majority. The Montrose mill is a branch of the Provincial Paper Mills, Limited, and some years ago the first building was granted a fixed assessment of $20,000, which was renewed in later years. From a small plant the Montrose has grown to be one of the town's leading industries.

The sympathy of newspaper and paper trade circles generally will be extended to Mr. Norman Smith, Vice-President of the Ottawa Journal, in the death of his wife which took place in Ottawa after a prolonged illness. One daughter and one son are left.

By a certificate issued by the Secretary of State of the State of Maine, the corporate name "Continental Paper Bag Company" has been changed to Continental Paper and Bag Mills.

Mr. James W. Sewall of Old Town, Maine, is establishing a forest tree nursery for pine and spruce. Mr. Sewall says there is considerable interest in reforestation making manifest. Mr. Lewis T. Calhoun of the Sewall office, has active charge of this department.

MR. UNDERWOOD.

(From the Journal of Commerce.)

Senator Underwood should be grateful to President Wilson for relieving him from a very unpleasant and perhaps embarrassing situation. In a moment of indiscretion, assuming a state of Canadians affairs that to a large extent was imaginary, Mr. Underwood, a prominent member of the Senate, moved a resolution requiring the President of the United States to appoint a commission to proceed to Canada, to enquire into an alleged embargo on the shipment of pulp and paper, to negotiate for its removal, and failing that, to suggest remedies for the condition of affairs so disclosed. Mr. Underwood carried his resolution through the Senate and later obtained the concurrence of the House of Representatives. If the President had given his approval and had appointed commissioners, as was proposed, they would, on coming to Canada, have discovered that the alleged embargo did not exist, that the regulations of the Provincial Governments respecting the manufacture of the wood in Canada were entirely within the legitimate authority of the Provinces, and in short that there was really no ground for any complaint by the Government of the United States. Finding no real grievance, they would have been unable to make any proposals for a remedy. They would have been obliged to frankly report that the whole proceeding was unwarranted.

In the last days of the session of Congress, President Wilson found himself very busy. Some reports say he was so busy that he could not find time to consider the Underwood resolution. He did not sign it. What is most likely is that the President did consider it and that by letting it alone he did a kindness to his friend the Senator from Alabama, who may now be allowed to forget a foolish movement that could have accomplished no good and might easily have been the means of making trouble between the British Empire and the United States.

KELLOGG CORRECTS US ABOUT KANSAS.

It grieves our friends to find inaccuracies in the Pulp and Paper Magazine and they are not bashful about correcting us. This is appreciated. Mr. R. S. Kellogg submits the following. We don't believe he remembers the roaming buffalo and roving Indian, however.

"I am reluctant to criticize the usually correct and always interesting Pulp and Paper Magazine, but I really cannot allow you to get away with the statement on page 586 of the June 3rd issue, regarding:

"The clearing of the land in Kansas was largely accomplished by the destruction of the forest."

Had you lived as many years in the short grass section of that noted state as I did, you would know that there are a good many more trees in Kansas today than there were when the Indian and the buffalo were the only inhabitants. I really think you must have meant Indiana but by some strange fatality your typewriter said Kansas."

I like to see a man proud of the place in which he lives, and to see him so live that his place will be proud of him.

The Markets

CANADIAN TRADE CONDITIONS

Toronto, June 12.—The week just closed has seen no change in paper trade conditions. The market is still very much a buyers' one and from its surface indication it is in a healthy and prosperous condition. Consumers are out to buy under any and all circumstances and are besieging the mills for deliveries, while stocks of practically all lines are very low. So far there has been no turning away from the consuming end of the trade and the demand for paper is just as strong as ever. That this inordinate demand will keep up until the paper buyers are stocked up, is the prevailing opinion, but the indications are that this condition is a long way from realized. With the present tremendous under-production the era when the buyers will withdraw from the market still appears to be a considerable distance removed, although it is generally conceded that the time will come sooner or later when stocks will accumulate and the prices go down. No one, however, fixes this as an eventuality of the near future, the general opinion being that there are still many months of unprecedented prosperity ahead of the trade. In the meantime, while production is keeping up fairly well, the mills are being seriously hampered in their operations by the shortage of coal and transportation difficulties. The car balance is still heavily against the Canadian shippers and the claim is made that there are thousands of empties across the line that ought to be at the disposal of the Canadian mills. Not only the shortage of coal, but the high price as well, have had their effect upon manufacturing conditions. Some of the mills have shut off orders altogether until they get caught up and in one or two cases it is known that the mills themselves are actively in the market trying to get paper from other manufacturers. In the trade generally deliveries are slow and the jobbers are having the utmost difficulty in meeting the demands of their customers.

Pulpwood.

Pulpwood continues scarce and the contractors report that it is very hard to get. The peeling season is now on, which means a rather quiet season for the product. There is no definite market for any of the lines, but peeled poplar is quoted at from $12 to $14 a cord and spruce at $15. There is not much demand for hemlock which is quoted at from $11 to $12 a cord. The Thompson & Hyland Lumber Company, Limited, Toronto, are advertising for poplar pulpwood and state that they will buy any quantity from a car up of peeled poplar, basswood and balm at any station, liberal advances made as the wood is peeled and piled in the bush.

Pulp

The shortage of raw stock continues to hamper the production of pulp and the big demand for unbleached sulphite has caused it to increase in value to a point almost equal to that of bleached. The latter is selling at $175 in the open market and sales of unbleached have reached very nearly the same figure. Groundwood pulp is still in great demand and is bringing $125 f.o.b. mill. In the opinion of several of the mills prices of pulp have not yet reached the pack and the near future will see sales being made at even higher rates. Groundwood production will likely fall off during the summer months and there are already signs of this and with a big under-production characterizing the market it is argued that the present price of $125 may shortly be subjected to another rise. Chemical pulp, it is stated will also shortly be due for another jump.

Newsprint.

While newsprint continues to be sold at from 5 cents to 5¾ cents in Canada many publishers are glad to get it at any price. Spot lots have been sold recently for as high as 12½ cents and 13 cents and 14 cents to the United States in American funds. Canadian publishers for the most part are living from hand to mouth in getting their supplies and are exhibiting considerable anxiety as to the probable outcome of the efforts being made on their behalf at Ottawa by delegations of publishers to secure an enactment that will guarantee them freedom from worry in respect to their supplies.

Book Papers

The situation in regard to book papers is unsatisfactory to manufacturers and jobbers alike, due largely to the shortage of raw material and transportation difficulties. One of the largest mills has been compelled to cut out the manufacture of all but No. 1 grade of book and orders for this grade are booked for months ahead. A Toronto jobber quoted 16 cents a pound for M. F. book for immediate shipment only and advised his customer that by Monday it was possible the price would be 25 cents. The same jobber wrote one of the biggest mills, complaining that an order for book paper placed months ago for shipment any time this year and at any price, had not been attended to and received the reply that the supply of the grade of paper wanted was causing the mills the gravest concern, due to conditions beyond their control. It was stated that the mills are sold until Autumn. They are unable to obtain ground wood, bleached and unbleached, and the tonnage of pulp which they are receiving has been reduced, due to the insurmountable obstacles, which the pulp manufacturers are experiencing, in connection with the bleach situation. This is further accentuated by the reduction in power caused by the fuel situation. Several of the jobbers in Toronto are refusing to book orders for book papers and other short lines, the rule being to take care of old customers as far as possible and do business with new ones only in the warehouse. One jobber told the Pulp and Paper Magazine that he could turn the key in his door and do business from now until the end of the year looking after the orders already in.

Tissues and Toilets.

The greatest difficulty under which the tissue and toilet paper manufacturers are laboring is their inability to secure sufficient supplies of pulp. Strong natural sulphite which could be had for a little over a hund-



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red dollars some weeks ago this week cost one mill an even two hundred dollars by the time the manufacturer got it to his plant and he had great difficulty in getting the shipment at all. There is a great demand for the finished product and mills are months behind with their orders. Prices of toilets, already very high, are at present under an upward revision and the probabilities are that another week or two will see an increase in most lines. Toilet papers remain in big demand with prices unchanged.

Wrapping Papers

The wrapping paper and paper bag market is affected by the same trade conditions that mark other lines, with unchanged prices. Stocks in the warehouses are low and the mills are slow with deliveries while consumers are clamoring for supplies which the mills cannot furnish in any where near sufficient quantities to meet the demands.

Writing Papers and Prapeteries.

Manufacturers of writing papers, papeteries, envelopes and blank books are extremely busy, but are hampered by inability to get the necessary supplies of stock. One manufacturer, specializing in papeteries for next Christmas trade has sold out all its various lines which numbered close to a hundred, the entire appropriation for this line of manufacture having been disposed of. Writing pads, instead of being increased in price, have been reduced in size, in accordance with the high prices for paper and the consumer is now getting a much thinner pad for the money than has hitherto been paid.

Box Board.

The feature of the box board industry this week was another rise of 20 per cent. on all lines for July shipment, while in the meantime the product continues to be sold at the prices prevailing at time of shipment. The demand continues to be out of all proportion to the available supplies and the mills are still months behind with their orders.

SHOULD PROHIBIT THE EXPORT OF GROUND WOOD.

Quebec, May 17.—"The action of the Provincial Government of Quebec in prohibiting the export of pulp wood cut on Crown lands is on a par in its wisdom with Lloyd George's 'Patent Acts Bill' of England, and I am satisfied that not only should the export of pulp wood from Crown lands be prohibited, but that the export of groundwood manufactured from pulp wood from Crown lands, should also be prohibited," states Sir William Price, of Price Bros. and Co., in an interview.

United States Notes

A total loss of over half a million dollars is the amount of damage estimated to have been sustained by the Aldrich Paper Company through the fire which destroyed its paper mill at Natural Dam, near Gouverneur, N. Y., a week ago last Friday. Nelson R. Carswell, manager and treasurer of the company, announced, following a visit to the ruins, that the mill would be rebuilt on a much larger scale. The gutted plant, though ordinarily used as a hanging paper mill, had been turning out newsprint recently, its output reaching as high as 25 tons of print paper per day. The company was organized in 1900 and was successsor to the Weston, Deal & Aldrich saw mill. Newton Aldrich was the first president and later C. R. Remington became president. The present head of the concern is Herbert C. Aldrich. The fire was the second within a few weeks to cause serious damage to paper mills in Northern New York. Early last month the plant of the J. P. Lewis Paper Company at Beaver Falls was partly wrecked by fire.

The Manufacturing Chemists' Association of the United States held its annual meeting and election of officers last week in the India House, New York City. Dr. Charles L. Reese of E. I. Du Pont de Nemours & Co., was elected president; H. H. S. Handy of the Semet-Solvay Co., vice-president, and C. Wilbur Miller of the Davison Chemical Company, treasurer. The Association went on record as opposing the excess profits tax and endorses the work of the National Industrial Board, which seeks to substitute a sales tax.

The Annual Convention of the American Pulp and Grand Rapids, Wis., will erect and equip a hydraulic water power plant addition at an estimated cost of $64,000. L. A. De Guere is the consulting engineer on the project.

The Annaul Convention of the American Pulp and Paper Mill Superintendents' Association, held at Buffalo, N.Y., June 4 and 5, was marked by much interesting discussion and brought out numerous points and suggestions helpful to the industry in the papers read by various experts. Fred C. Boyce, of the Wasau Paper Mills Co., Brokaw, Wis., was re-elected president, and P. J. Massey was chosen secretary-treasurer for another term. A fitting tribute to the memory of the late John Fogarty, founder of the organization, was paid in the address by President Boyce which opened the meeting.

Representatives of industries using forest products, including pulp and paper companies are receiving invitations to attend the decennial celebration of the

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forest products laboratory of the University of Wisconsin at Madison, July 22-23.

The erection of new paper and pulp mills continues with no sign of a let-up in Wisconsin, despite the fact that labor and material remain scarce and high priced commodities. The enormous demand for paper keeps the mills running to maximum capacity and production is being increased wherever feasible. Millmen feel that while the present prosperity lasts it is using good business judgement to utilize a portion of their profits in enlarging production facilities and making repairs so that this work will not be necessary when adverse conditions return to the industry.

Among recent incorporations are listed the following: Puget Paper Company, Seattle, Washington, capital, $3,000,000; Vermont Pulpwood Company, Utica, N.Y., $100,000; Calcasein Paper Mills, Delaware, $2,000,000; Maine Pulp and Paper Company, Buffalo, N.Y., $382,500; New Era Pulp and Paper Corporation, Delaware, $800,000; Grave Fibre Pulp and Paper Corporation, Delaware, capital $150,000 to $1,000,000.

Announcement was made last week by the Fibre-Board and Pulp Products Dying Machine Company, 50 Church Street, New York, that the firm name had been changed to the H. P. Coe Drying Machine Corporation. This name is in recognition of the work of H. P. Coe, inventor of the original Multiple Deck Roller Drying Machine. Mr. Coe remains at the head of the present organization after twenty years of experience in the manufacture and installation of drying machines of roller type.

Advices to the effect that the French Government has placed an embargo against the exportation of any new or old rags, effective from June 7, reached the office of the National Association of Waste Material Dealers, Inc., in New York recently. The Association issued an announcement to its members informing them of the ban.

Henry Atterbury, who was actively identified with the paper trade for many years, died at Summit, N.J., May 30. Mr. Atterbury was president of Atterbury Bros., Inc., at the time of his death, having been at the head of this concern since 1910 when it was reorganized from Atterbury Bros., a partnership which he had founded in 1876 with his brother Robert Atterbury. Mr. Atterbury was also president of the International Casein Company of Buenos Aires, and was for many years president of the Paper Stock Dealers' Association of New York. A widow and son survive him.

Following the lead of the Globe and Hearst's Journal, two more New York dailies, Hearst's American and the Evening Mail increased the price of their daily editions from two to three cents a copy. Both publications claim that increasing costs of paper, labor and all the materials needed in producing a newspaper necessitated the advance in price.

Rumors are again current in Wall Street of a merger of three important chemical companies—the General Chemical, the National Aniline and the Barrett Company. According to reports said to emanate from insiders, the National Aniline is now controlled by the General Chemical and Barrett companies, so that it would seem only natural for the three to consolidate. Reports stated that General Chemical stock would go into the merger at 200 and Barrett at 150.. The failure of Congress to pass the dye bill a few weeks ago, is said to have resulted in a short interset being built up in National Aniline. No confirmation of the reports were forthcoming from officials of any of the companies involved in the rumored merger.

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WATEROUS TO MAKE MAGAZINE GRINDERS

Word has just been received that the Waterous Engine Works Co., has completed a deal, whereby they have obtained the exclusive right for the manufacture of the entire line of pulp-mill machinery, including pulper, refiner, paper machine screen, sliver screen, magazine grinders, etc., formerly owned by the J. M. Voith Co., of New York. Perhaps the most important of the machines mentioned, and certainly the most interesting, is the magazine grinder.

The capacity of these grinders is from 16 to 25 tons of dry pulp in 24 hours depending on the wood to be ground, and the pulp required.

The wood for these grinders is cut into 48″ lengths, instead of 24″, which represents a considerable saving in a year's sawing. Also, the cost of labor per ton of pulp produced by these grinders is about 50 per cent less than on the old styles, and the operators are working in a clean, steamless room, handling or cutting no wood whatever, so that their whole time is devoted to seeing that the grinder is producing properly. Three men, only, are required to operate each four grinders, producing 80 tons of pulp, one man on main floor to look after the operation of the machines, and two on charging floor to load the magazines.

As to the power consumed by these grinders, actual figures obtained from the averages of weekly returns show that one ton of news pulp is produced with 56.6 H.P., as aginst 67.8 H.P., required by other types. This low power consumption is due to the peculiar design of this machine, its operation is entirely automatic, and pockets are refilled from the magazines by gravity in a minimum time. Extremely sensitive governors are used which increase the pressures on the working pockets, to compensate for the reduction of load, while other pockets are being re-charged. Each machine has only two pockets, which are placed horizontal, and directly across the stone from one another. This construction eliminates to a large extent, friction in the shaft bearings.

The Waterous Co., have on their books at the present time orders for six of these grinders for the Laurentide Pulp Co., bringing their total installation up to twenty, four for the Belgo Canadian Pulp and Paper Co., and three for the Brompton Pulp and Paper Company.

ENGLISH CHINA CLAYS SALES CORPORATION.

English China Clays, Ltd., of St. Austell, England, owners and producers of over 500,000 tons of English china clay per annum, announce that they have completed arrangements whereby the consumers of English clays in America are placed in direct connection with the producers in England—by the formation of the English China Clays Sales Corporation of New York, for the purpose of conducting through them all their sales and service business.

The Sales Corporation will have a capital of $500,000, $250,000 of which will be paid in cash at once, the balance when necessary. The officers will be: Messrs. Sigmund Goldman, President; Hilliard M. Gillespie, Vice-President; Arthur H. Holbrook, Secretary.

Mr. Goldman has for the past fifteen years been associated with and in charge of the clay department of Perkins-Goodwin Co., sole agents for the West of England and Great Beam Clay Company, Ltd. Mr. Gillespie is of Messrs. Hammill and Gillespie, for more than sixty years agents for Martin Bros., Ltd., producers of the famous Lee Moor clays. Mr. Holbrook was associated for twenty-seven years with Richardson Company of Boston.

The Sales Corporation will also have as treasurer a prominent man from the St Austell office who is thoroughly familiar with the production of clay and shipping conditions in England.

The new organization will enable the consumer to obtain his requirements of clay more regularly and satisfactorily. It is intended to have the new Sales Corporation commence business July 1st, 1920, and announcement will be made later of office location.

Messrs. Sewall and Conners of the James W. Sewall office, Timber estimators and explorers, Old Town, Maine, have recently returned from an examination of some 20,000 acres of timberlands in the mountains of North Carolina and Tennessee.

Warren G. Harding, Republican, is to be the next President of the United States, according to echoes from Chicago. The nomination of a publisher by this party may be an indication that the Underwood Resolution is not quite dead yet, in spite of Mr. Wilson's kindly neglect of it. It may live in another form, a spirit reincarnate, as it were.

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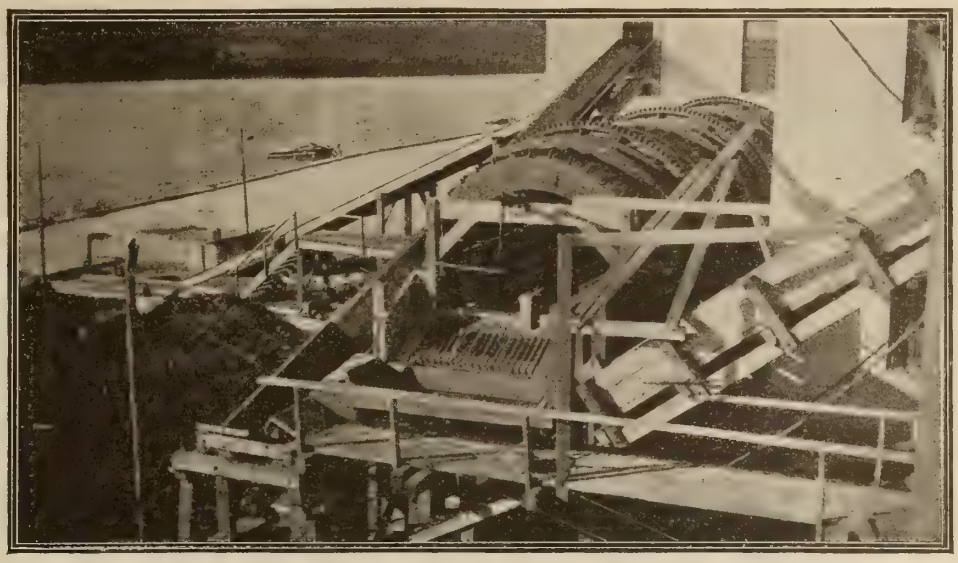
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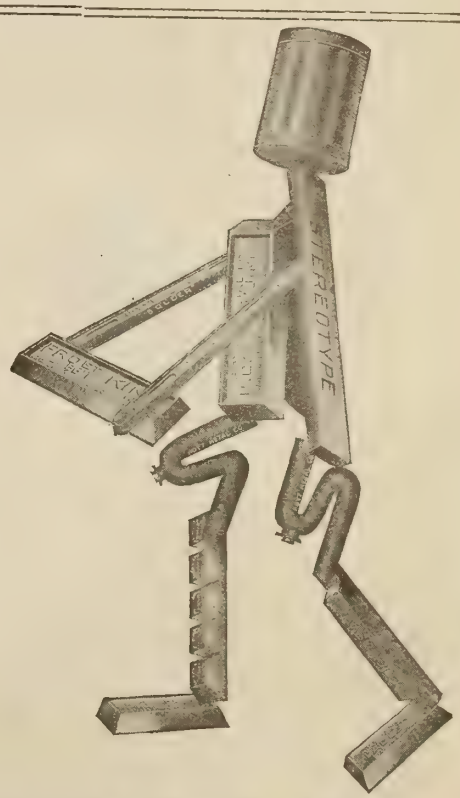
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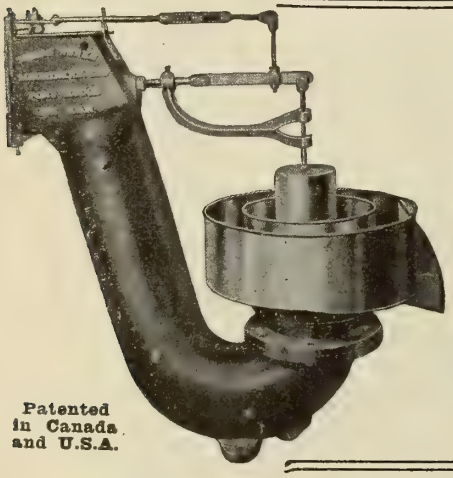
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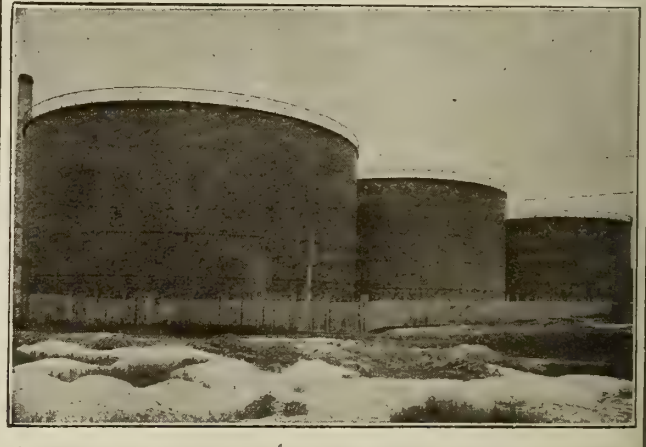
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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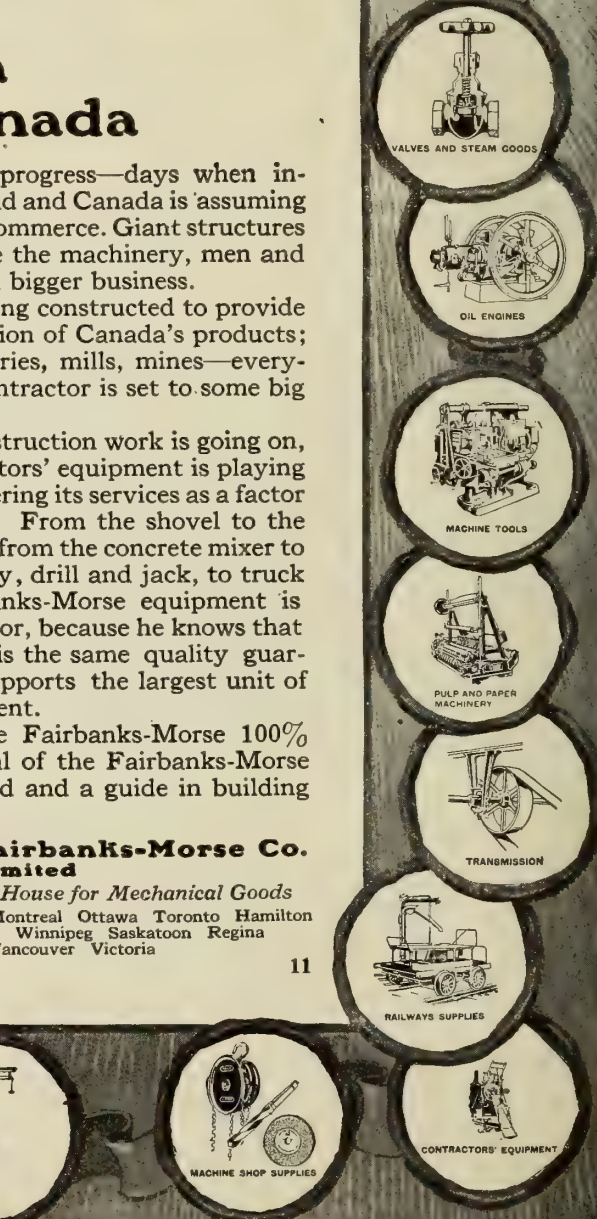
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-:- EDITORIAL -:-

CANADA'S FUTURE WOOD PULP RIVAL.

The newsprint industry and, in general, the manufacture of pulp in Canada, is a comparatively recent development and the growth in the past ten years has been tremendous. In this brief space of time the easily available pulpwood has been cut out and now the mills are going back to areas from which it requires two or three years to transport the logs to the mill. During a portion of this period there was a sufficient slump in the lumber industry to make it feasible and more profitable to make pulp than lumber from many of the saw logs that came down the streams. The demand for building material and the rapidly rising cost of lumber is likely to be a factor that will discourage if not entirely prevent the recurrence of such a condition, in spite of the fact that pulp and paper prices are now at levels that were not even dreamed of two years ago. All indications point to a continuation of present high costs of production and high prices for products for some time to come, as it is hardly possible for new capacity to overtake the entire demand for paper products in the next five years, and with normal increase in consumption, even if the present abnormal demand subsides, there must be another period of balance before there is very much actual over-production. This means that the next ten years will be a most critical period for our forests and the utmost care must be taken and the most stringent regulations must immediately be put in operation or the destruction of timber in the coming decade will be much more serious than has been the case the past ten years.

What will this mean to the industry in Canada? It seems to us that other countries with some forests and more prudence will take the lesson of the United States and Canada to heart and deliberately plan and prepare for a future supply of timber for their several wood-using industries. At the present rate of increase in cost of wood production or even at half the present rate of increase in this item the pulp and paper industry is rapidly coming to a point on this continent where the wood is the most expensive factor in the cost of production of both pulp and paper. Leaving out of consideration the effect of inordinate demand, one can readily see that with wood at more than $20 a cord it will be impossible to make cheap paper in this country. The effect of methods of cutting which cause either the erosion of soil so as to prevent future forest growth, or burns which destroy present stands and tend to encourage the growth of inferior species where future growth is possible at all, and attacks of forest insects such as the spruce budworm, together with the continual recession of the lumber camp from railway and water, is all to increase the price of wood and the difficulty and uncertainty of mill operation. The end of another ten years, however, is likely to see paper production costs in Canada at the critical point where it may no longer be economical for the public to use the product.

On the other hand in central Europe, there are belts of timber which are accessible to the pulp mills of Germany, Austria and Scandinavia. With the customary European ideas of prudence and economy it is quite safe to predict that these resources will be handled in such a way that they will be a perpetual source of supply to the pulp and paper industry in those countries. Sweden is a well known example of the foresight of a government which has the sense to provide for the future of its industries. With this in mind, the consumption of wood is limited to what is actually known to be the annual growth. With similar methods applied to the forests of Galicia, Poland and the Baltic provinces there will be established in Europe a pulp and paper industry which can predict with certainty how much can be produced, and knowing all the conditions of forest growth and operating methods a close estimate can be made of the cost of production and because of operating continually over the same area, as is done in France, it is not only possible to tell what operating costs will be, but it is possible to keep these costs uniform from year to year. It is even found that such scientific methods not only keep the costs of operation uniform, but as the improvement of the forest goes on, that costs are relatively reduced. This is obviously impossible with the methods followed on this side of the water. Canada cannot hope to compete in the future in the production of pulp and paper if manufacturers persist, with the permission of the government, in following lumbering methods which continually pile up an ever increasing cost of growing and getting their raw material.

Most of the pulp and paper produced in Canada is from wood cut on Crown lands and the rate of this ground rent and stumpage and the price of free-hold wood is bound to increase. This puts the onus of providing for the future of the industry squarely in the hands of the provincial governments. While some of our public administrators have shown a capacity for dealing courageously and sensibly with the problem

there have been indications that others have preferred to sidestep the issue, either neglecting it entirely or not daring to grasp what they had reason to fear would be a prickly situation. It is natural that a government should seek advice from those who have the most knowledge and are most interested in the matter in hand, in this case the pulp and paper manufacturers and lumbermen. In seeking advice, however, there is no reason why a government should permit itself to be dictated to by concerns that have only their own selfish money-making plans to guide them and inspire them.

The argument has been advanced that conditions in Canada are different from those in Europe. They are different from those in Europe. They are also different from those in the United States, but anyone with half an eye can see that present methods of exploiting our forests, combined with fire and disease, are just as surely devastating our forest lands as similar methods have devastated the forests of the United States and put the pulp and paper indutsry there practically on the rocks. There are too many who see only the geographical distribution of trees without considering the individual areas that are being cut over. There are too many who are willing to figure an annual increment by measuring a small carefully selected area where, under propitious circumstances there is a good increase in growth and then to apply that indiscriminately to the thousands of square miles where conditions are so unfavorable as to require hundreds of years to grow a saw log, where only one or two per cent of the seedlings come to maturity and where damage by fire, wind and insects is enormous, but entirely disregarded.

For this reason, namely, that if there is any annual increment it is very slight and mostly confined to the more favorable locations, we hold that any requirement that the annual cut be limited to the annual increment should apply to the relatively small area that is being cut and not be regulated as the total annual cut in relation to the total holdings of the company. The inauguration of such a policy, and we believe such a policy is the only hope for the future of the industry in Canada, will require a staff of trained foresters to assist in the administration of the requirements that should be put in force, after the manner of the forest administration of Sweden.

To summarize the matter: There is an absolute limit to the amount of timber which can be produced on a given area and the pulp, paper and lumber industries should be forced to limit their use of this raw material to the amount of the annual growth. No area should be allowed to be overcut, and the best interests of the forest should be considered. The cost of such limitation will be high *at first*, but will decrease each year as the timber becomes larger and the cut per acre increases. Under present conditions the matter is reversed, the cheapest wood to lumber has been all cut and each year sees poorer areas more remote which must be exploited, with the cost increasing by leaps and bounds. With proper management and foresight the number of pulp, paper and sawmills would be limited to correspond to the amount of raw material, and the cut to the annual growth and we would have an industry, stabilized and perpetuated, which would make the eastern provinces prosperous and productive for ever. Otherwise, we shall have a steadily declining industry, and our provinces will be left covered with poplar of non-merchantable quality, white birch and burnt land, devastated and non-productive. The governments need courage or posterity will rise and curse them.

A NEWSPRINT MONOPOLY.

The President of the American Press Association has sent out a bulletin which, if delivered from a soap-box on a street corner would sound exactly like the ranting of a radical socialist. In addressing the smaller newspapers, he says:

"Remember that the print paper manufacturers have an absolute monopoly and corner, and that if the city papers in which they alone are interested decrease their consumption, the print paper manufacturers will immediately decrease their production. They do not care for your business, for all the country weeklies do not use more than 30,000 to 35,000 tons of print paper a year."

Of course; and so do the sugar refineries have a monopoly—they make all the sugar, and the shoe manufacturers have a monopoly—they make all the shoes. it is also true that most mills would rather ship a couple of 30 ton carloads of paper a month to jobbers than to be bothered with a hundred separate shipments of a few hundred weight each and the keeping of as many current accounts.

None are so blind as those who won't see.

COBWEBS.

The proposition is made in the United States for the purchase by publishers of one or more paper mills which it is stated could produce paper in sheets at three or four cents a pound and if Congress could only pass a bill recently suggested, this paper could be sent by parcel post at a cost of one cent a pound to country publishers. The oil stock salesman is completely outpointed by the alluring statement that country publishers joining such a movement could get their paper at much lower than current prices and still make an excellent profit for the mill. With groundwood selling at over $100 a ton and wood costing anywhere from $20 to $40 per cord at the grinding plant, we don't quite see where the author of this statement learned arithmetic.

Limestone Analysis for Bisulphite Liquor*

The York Haven Paper Company, York Haven, Pa.

In the preparation of bisulphite liquors for the manufacture of sulphite pulp the character of the limestone used is an important factor. The relative degree of success in the operation of the limestone towers is dependent upon certain characteristics in the stone, and the quality of the pulp produced in cooking is influenced by the extent to which certain materials foreign to calcium carbonate exist in the stone.

If the truth of the foregoing is adequately realized, no question should arise concerning the advisability of choosing a limestone for these purposes on the basis of a relatively complete analysis. The importance of drawing correct conclusions is equally as great as that of making accurate analyses, but it is certain that the correctness of any conclusion is directly codependent upon the accuracy of the knowledge of the constitution of the sample under consideration, and the precise understanding of the nature of the influence of the impurities present.

The term "accurate analysis," so far as limestone is concerned, may have different meanings for the mineralogist, geologist, chemist, and sulphite pulp manufacturer, but in any case the term signifies the determination of the amounts of various substances present which exert a known influence, and produce a known effect upon the solution of the particular problem confronting the person in question.

For this reason sulphite cellulose manufacturers are not interested in the determination of the small amounts of titanium, manganese, phosphorus, barium, strontium, copper, nickel, cobalt, zinc, vanadium and molybdenum which are sometimes found in certain types of limestones. The United States Geological Survey Chemists have found that vanadium is almost always present in limestones, though in very small amounts. But these items are of interest only to the geologist; we do not know the effect of their presence so far as the use we make of the limestone is concerned, and consequently we may disregard them entirely.

In the opinion of the writer the chemical constituents of limestone which are of interest to the sulphite pulp manufacturer are as follows, named in the approximate order in which they are determined:

(a) Insoluble carbonaceous matter, silica, insoluble inorganic matter, iron sand ferrous and ferric oxides, aluminum oxide, calcium oxide, magnesium oxide, alkali metal oxides, carbon dioxide, sulphur trioxide, sulphur present as sulphide, hygroscopic (surface) moisture, crystal or combined water. In addition to the above it is sometimes desirable to know the mineralogical constitution of the stone, or at least determine the form in which the calcium and magnesium carbonates exist. The questions which arise concerning these points are, "Does the calcium carbonate exist as calcite or as aragonite, and does the magnesium carbonate exist as magnesite or as dolomite?"

*Presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, April 15, 1920.

Mineralogical Considerations.

The reason for investigating these points is the difference in reaction velocities of the various carbonates named.

For example, calcite effervesces vigorously when treated with cold dilute acids, while dolomite is scarcely attacked to a visible degree under these conditions. Magnesite acts very slowly, similar to dolomite, while aragonite, which is orthorhombic calcium carbonate, has a high reaction velocity.

The limestones used for bisulphite liquor manufacture, so far as the writer has been able to observe, consists of "calcite" stones, with varying admixtures of dolomite. The aragonite form of calcium carbonate is rarely found in limestones, because of the fact that aragonite can be deposited from bicarbonate solution only at temperatures exceeding the temperature of sea water.

Furthermore, aragonite changes itself into calcite in certain types of deposits, e.g., the oolites. Magnesite, or simple molecules of magnesium carbonate are very rarely found in limestones, the magnesium present existing as the double carbonate, with calcium as dolomite.

Detailed discussion of methods for distinguishing between these various forms of calcium and magnesium carbonate is out of the scope of this paper. The writer wishes merely to call attention to several established tests. The Meigen test distinguishes between aragonite and calcite by their conduct toward a dilute solution of cobalt nitrate. The former, upon immersion is colored lilac red, which color persists on boiling; the latter is not colored except on continued boiling when a dull greenish blue shade develops.

If magnesite or dolomite is present in admixture with calcite the color is modified to a brighter purer blue. In distinguishing between calcite and dolomite the Lemberg test is useful. While the Meigen test depends upon the formation of basic cobalt carbonates of differing colors, the Lemberg reaction for distinguishing calcite from dolomite depends upon the formation of a violet colored lake by union of the coloring matter of logwood with aluminum hydroxide selectively precipitated by calcite from a solution of logwood extract (hematoxylin) in aluminum chloride. By boiling a mixed stone in powder form for fifteen to twenty minutes, and examining the powder under the microscope the particles of calcite are found to be colored deep violet, while the dolomite (and magnesite) particles are unaffected. For further and more detailed discussion of these tests the writer desires to refer the reader to the (a) Meigen articles in **Zentralblatt fur Mineralogie**, 1901, page 577. (b) Hutchinson, in **Mineralogical Magazine**, vol. viii, 1903, page 28. (c) Lemberg, in **Zeitschrift der deutschen geologischen Gesellschaft**, vol. xv, 1905, page 1. (d) Vaubel in **Journal fur praktische Chemie**, 86, 366-381. (e) Niederstadt in **Zeitschrift für angewandte Chemie**, 25, 1219. On the subject of the geology of the formation of calcite and aragonite, Lincks' paper in **Neues Jahrbuch fur Mineralogie, Geologie, und Palaeontology**, Beilage Band 16, page 495, will be found interesting.

In the writer's experience he has found as nearly as can be recalled, only one stone suitable for bisulphite liquor manufacture which gave the aragonite reaction. In one or two instances observations seemed to indicate that free magnesite was present in certain types of stone used for "acid making." Assuming that dolomite decomposes as a unit under conditions existing in this process, which I believe can be proven to be the case without any difficulty, and taking into consideration the fact that the velocity of decomposition of calcite is much more rapid than that of dolomite at the temperatures prevailing in a tower system for liquor manufacture, it is difficult to understand how it is possible to have a "sludge" form which contains more than equimolecular proportions of magnesium carbonate and calcium carbonate. This was observed on several occasions by the writer, there being present somewhat more than one molecule of magnesium per molecule of calcium. The writer does not wish to convey to the reader the idea that such stones as those referred to above are very desirable for bisulphate liquor manufacture. For reasons to be explained later, this type of stone is to be avoided.

The author recently made a few determinations of specific gravity of stones, and noted in one instance that a comparatively very slight difference in the specific gravity of two stones very nearly alike in all other respects seemed to cause a relatively large difference in the rate of decomposition in acid solution of given concentration and temperature. This incident is mentioned merely because it is possible that it may lead to further investigation along these lines which may produce results of significant value.

Chemical Considerations.

The determination of the chemical constituents outlined in paragraph four are of interest because of the influence the presence or absence of these constituents and the variation in their proportions exert upon the conduct of the process of preparing the bisulphite liquor, and upon the results obtained in cooking pulp by using a liquor so prepared, and also upon the results obtained in case the waste liquors are utilized for the manufacture of by-products. The value of each determination is discussed below.

Insoluble carbonaceous matter. This is present in greatest amount in the highly colored limestones, particularly those of the purer blue color. It exists in these stones in extremely finely divided particles, colloidally suspended. It is nearly always in the form of free carbon. When the stone is dissolved in the towers this carbonaceous matter is put into suspension in the liquor to a large extent, the balance depositing in the base of the towers. By a series of tests extending over a considerable period of time, the writer has found that the carbonaceous matter in suspension in the liquor was proportionate to the amount present in the stone, and that in the cooking process the carbonaceous matter was deposited out of the liquor in the early part of the process and was attached to the fibres.

It was readily seen that when the amount becomes considerable, an undesired effect or result upon the pulp may be experienced. If agglomeration takes place, dark specks of "dirt" will be found; otherwise the color of the pulp will be influenced. One percent carbonaceous matter can make its presence quite evident in this respect.

Silica should be determined in a sample of stone for these uses, because it occurs so frequently in relatively large quantities, in many instances between 5 and 15 percent. Needless to say, such stones are undesirable for acid making because of the large amount of waste occasioned by their use. Silica, when present in these amounts, collects in the bottom of the limestone towers, and interferes with the proper operation of the towers. In addition to this, portions float or are carried along through the pipes and pumps by the liquor and do injury to pumping equipment and valves in the pipe line.

Aluminum oxide is determined because it gives a good idea of the state of combination in which the silica exists. The aluminum oxide in the soluble portion of the stone, found in the filtrate from the silica determination, is present as the result of the decomposition of a metal or orthosilicate of aluminum and an alkali metal. If the insoluble portion remaining after the determination of the silica is appreciable, which is often the case when the total inorganic insoluble is large in amount, this residual inorganic insoluble should be analyzed, and will likely be found to consist largely of aluminum oxide. A large amount of soluble aluminum oxide also points to a relatively large amount of alkali metals present in the stone. The effect of the presence of aluminum solution in the bisulphite liquors has not been made a subject of study.

Iron, which usually exists in the stone in the form of ferrous carbonate, exerts known influences in the cooking process, so far as the resulting products are concerned. All the ferrous iron as carbonate in the stone is dissolved in the making of the liquors and part of the iron dissolved may have existed in ferric form as oxide (hydrated). Unless the amount of total iron in the soluble portion is large and the amount of carbonaceous insoluble matter is considerable, it may be considered as being totally in the ferrous state as carbonate. It should also be remembered that if sulphur if found in the insoluble portion of the stone, iron will likewise be found as such sulphur exists as pyrite. This occurrence is comparatively rare in a stone which is at all suitable for bisulphite liquor preparation.

Iron is detrimental to the permanency of strength and color of pulp and paper. Several investigators have shown this, and have simultaneously pointed out the affinity of cellulose fibres for iron in solution. A large proportion of the iron present, even in every dilute solution, is readily absorbed by the fibres. Such absorbed iron functions as an oxygen transfer agent resulting in an oxidation of the cellulose and consequent weakening and also a production of a brownish tint in part due to ferric compounds. This seems to take place most rapidly in rosin-sized papers. A further objection to iron in the stone is the resulting contamination of the waste sulphite liquors, in case these are to be utilized by conversion into substances suitable for use in the leather-tanning industry. Any iron present in such a tanning extract exerts a decided darkening action on the leather produced.

The necessity for the determination of calcium and magnesium as oxides is selfevident, since they, in the form of the carbonate, are the principal constituents entering into the reaction in the bisulphite liquor making process. The proper relationship between the amount of calcium and magnesium has been the subject of considerable discussion, and cer-

tain misconceptions exist among the operatives of sulphite pulp mills in reference to this point. Until a few years ago the majority of acid making systems were of the milk of lime type. At that time it was generally agreed that a burnt lime made from dolomite was best adapted to this process, for at least two or three reasons. A theoretically pure lime of this sort, consisting of equimolecular portions of magnesium and calcium oxides, would contain 41.83 percent of magnesium oxide. Many manufacturers endeavored to obtain a lime containing as close to this percentage of magnesium oxide as was possible. The high magnesia content was advocated for these reasons chiefly—to wit:

(a) Such lime had a higher absorption coefficient for sulphur dioxide gas.

(b) The high magnesia lime was said to make better pulp than the ordinary lime. In the opinion of the writer this assertion has never been thoroughly justified.

(c) In the processing of the liquor any sulphates formed would be shared by the magnesia, producing a portion of magnesium sulphate, which is more soluble than if the equivalent calcium sulphate had been formed. The percentage of calcium sulphate would be thereby reduced somewhat.

The losses due to incomplete slaking in the making of the milk of lime solution, and the higher temperatures required for this purpose were in most cases ignored.

When limestone tower systems were introduced many operatives endeavored to apply the same concepts regarding magnesia ratio to the selection of a stone for the towers. Certain disadvantages were experienced as a result. To enumerate these disadvantages and correct any misconceptions which exist at the present time, the writer wishes to summarize the facts of the cases in the following statements.

When a stone containing considerable calcium magnesium carbonate, or dolomite, is used in towers a sludge is formed on the bottom, consisting chiefly of calcium magnesium carbonate and sulphite, because of the fact that the dolomite in the stone is so much more slowly attacked than the calcite portion at any given temperature and gas concentration. As this sludge is washed away to make proper tower operation possible, this represents a loss which at least partially equalizes the gain due to greater absorption capacity of the magnesia or dolomite portion over that of the calcite portion. Furthermore, if a straight dolomite stone is used, which decomposes more uniformly, a higher temperature must be carried in the towers, which is detrimental to the subsequent recovery of the relief gases in the recovery tower and fortification of the liquor to the desirable composition of cooking liquor. In addition to the foregoing, if a mixed stone is used, particles of the undecomposed dolomite float along in the liquor until the recovery tower is reached. Here the concentrated relief gases dissolve these particles, resulting in an increase in the amount of combined acid.

Since the amount carried with the liquor is variable, this complicates and often renders impossible the control of the precentage combined acid to the desired degree of accuracy.

Furthermore, the magnesium bisulphite in the solution reacts with the chips in the digester at a lower speed than the calcium bisulphite, according to the observations the writer is now making concerning this point. The magnesium compounds formed as a result of this reaction are apparently not so readily reversible to sulphurous acid as the corresponding calcium compounds. This is one possible advantage in the use of a dolomite stone, provided the difficulties enumerated above can be overcome. The relation taking place in the digester seems to progress more smoothly under these conditions.

Sulphur trioxide should be determined in a limestone used for these purposes. The presence of calcium sulphate is detrimental in a cooking liquor because its maximum solubility is greatest at the making temperature, being one-fifth greater at 32° Cent. than its solubility at 100° Cent., and upon heating such a liquor in the digester, small particles of calcium sulphate separate, forming nuclei about which resinous and pitchy matter can and does agglomerate.

The sulphur present as sulphide should receive some consideration. Except in rare instances practically all of this exists in the stone in the form of pyrite, and because of the relative insolubility at the temperatures and concentrations of acid in the towers, a very small amount is acted upon. While nearly all of the pyrite is precipitated as sludge, any that is carried along in fine state of division in the liquor into the digester is there acted upon to a far greater extent, resulting in the liberation of hydrogen sulphide and the consequent formation of pentathionic acid, and precipitation of sulphur. Other unstable thionic acids are also formed . Penthationic acids and these other unstable thionic acids at boiling temperatures decompose into sulphuric acid, and also precipitate more elemental sulphur. The elemental sulphur again unites with sulphur dioxide forming a very unstable trithionic acid, which very readily breaks up into sulphuric acid and sulphur. It is, therefore, evident that the changes are continually progressive as well as cumulative in respect to sulphuric acid, sulphates, and free sulphur. Furthermore, Professor Klason has shown that these reactions are very destructive to the making of good pulp, and create a marked disturbance in the control and progress of the reaction in a digester when the elemental sulphur exists in a concentration of only one-sixtieth percent. His observations were made on trial cooks by the Mitscherlich process. Dangerous as these conditions are in Mitscherlich procedure, how much more dangerous they become in the high temperature short cook process!

While it is true that the presence of sulphide sulphur in amounts exceeding what may be considered traces is relatively uncommon, because of the character of the above reactions, it should always be looked for in the examination and evaluation of a stone for this purpose.

The carbon dioxide content of a stone should be determined because it is a main constituent, and the amount present in excess of that which is equivalent to the magnesium and calcium oxides present permits the analyst to form a more definite conception of the condition in which the iron present exists.

Water present in a sample of limestone should be determined in two forms, hygroscopic water and combined water. The combined water indicates the condition of some of the mineral constituents, and

is derived chiefly from hydrous silicates which are of zeolitic character. Of course, in the determination as given below, hydrogen present in organic matter is included as water in this result. These facts must be taken into consideration.

The sodium and potassium oxides should be determined, though it is not always necessary to separate them. Practically the entire amount of alkali oxides present exist in combination as silicates. Silica combined in this manner is more likely to go into colloidal solution as hydrosol than when otherwise combined, if treated with comparatively dilute acid at low temperature. Such silica would not precipitate in the acid making towers, but some observations indicate that it does precipitate in the digester.

Note:—

Details of analytical methods are given in Paper, April 21, 1920, p. 78.

A Real Forestry Program for Canada

The following is a summary with recommendations arising from the report of the Committee on Forests, Commission of Conservation, 1920, presented by Clyde Leavitt, Chief Forester.

1.—There is but inadequate public appreciation of the vital part which Canada's great forest resources are playing in after-the-war reconstruction. This contribution to the public welfare is particularly notable in connection with the building up of a great export trade, thus largely ameliorating the serious effects of the adverse balance of trade with the United States, as reflected in the unfavorable exchange situation. According to the Bureau of Statistics, exports credited to the lumber industry for the calendar year 1919 total $93,000,000. Exports of pulpwood, pulp and paper are now at the rate of over $100,000,000 annually. In both cases, the great bulk of the exports went to the United States.

2.—The Dominion and provincial governments have wisely adopted the policy of requiring home manufacture of pulpwood cut from Crown lands. Without this policy, and in view of the rapidly approaching exhaustion of the pulpwood resources of the north-eastern states, virgin supplies accessible to Canadian mills would be in great danger of rapid exhaustion, with most serious later effects upon our industrial fabric.

3.—There is an increasing appreciation that the forest is a crop, which may be reproduced by wise use, as well as by planting. While an increasing development in forest planting is to be anticipated, it is nevertheless inevitable that for an indefinite time to come, the perpetuation of the forest upon the great bulk of our non-agricultural lands must depend upon natural regeneration.

4.—To secure satisfactory results in the perpetuation of our forests by natural regeneration, the first great essential is adequate protection from fire. While great progress has been made in this direction during recent years, much still remains to be accomplished. Appropriations must be increased, and, particularly in the governmental organizations, more attention must be given to the development of a thoroughly competent field personnel through the payment of larger salaries, a larger percentage of year-long employment, the further elimination of political patronage in the selection of men, and the more general development of permanent improvements such as roads, trails, lookout stations and mechanical equipment for transportation and fire fighting.

5.—Aside from fire protection, there is still much to be accomplished before our forests can be placed upon the basis of the highest permanent production consistent with existing economic conditions. There should be fuller utiliation of the merchantable content of trees and elimination of all unnecessary waste in logging. In the mixed hardwood-softwood forests of eastern Canada, some method should be found for transporting and utilizing the great quantities of hardwoods, particularly birch, which are so greatly retarding the growth of the coniferous reproduction. In the pulp and paper industry, there is still in some quarters a prejudice against the full utilization of balsam in paper-making. That balsam can be used practically indiscriminately in mixture with spruce has been proved beyond question by the experience of many companies, and its full utilization should be enforced by company managements generally, as well as by governmental authority.

6.—The wider use of thoroughly practical men with forestry training is essential, in both governmental and private employ, that adequate attention may be given the vital question of how best to regulate cutting methods, with a view to leaving cut-over lands in the best possible condition to produce another crop. This is the very essence of forestry.

7.—New Brunswick has today one of the most progressive forest services in Canada. It has been developed by practical men along practical lines. The benefit to the province in a financial way is indicated by the fact that during the fiscal year 1920, the forest revenue to the provincial treasury will be around $1,500,000, which is nearly equal to the forest revenue of Quebec and within a few hundred thousand dollars of the forest revenue of Ontario. This is triple the amount received during the fiscal year 1917. Much progress has been made along the lines of forest protection and in the reduction of unnecessary waste of merchantable material in logging. The forest survey and classification of Crown lands progresses satisfactorily, 30 per cent of the area now having been covered. The Commission of Conservation has co-operated with the provincial Government in the soil classification and also in forest research work, of which one feature was an experimental cutting upon the lands of the Bathurst Lumber Company, the co-operation of this company being also involved.

8.—In Nova Scotia, the outstanding need is for the appointment of a Provincial Forester. This matter is now under consideration by the provincial Government.

9.—In Quebec, the four forest protective associations are doing splendid work, though still better results could be secured were more funds available. Outside Association territory, the patrol organization of the provincial Forest Service is being materially expanded and additional equipment provided. The Forest Service is working toward a policy under which cutting methods on Crown lands shall be in accordance

with specific plans prepared at least a year in advance of operation, on the basis of studies made on the ground by trained foresters of long practical experience. The idea is to modify the cutting restrictions according to local conditions, as of course is highly desirable where an adequate staff of trained men can be provided. Considerable attention is given by the Forest Service to land classification in advance of settlement. The Laurentide Company and the Riordon Pulp and Paper Company have embarked upon an extensive program of planting up portions of their holdings of privately-owned lands. An attempt is being made by the Provincial Government, in consultation with pulp and paper companies, to develop a policy for the reforestation of denuded Crown lands, on a co-operative basis. It is to be hoped that some such plan may be made effective.

10.—The outstanding need of the situation in Ontario is the extension of the responsibilities of the provincal Forestry Branch to cover at least the technical features of administration as applied to all Crown timber lands. In this vital matter, Ontario has thus far lagged behind the other forest provinces, with the exception of Nova Scotia, the forest having in the past been regarded primarily as a source of revenue only, with no particular consideration for its perpetuation. Technical administration of Crown timber lands is absolutely essential, if the forests of the province are to continue to play their proper part in contributing revenue to the provincial treasury and in maintaining the great wood-using industries of Ontario. Any efforts of the provincial Government in this direction should meet with the fullest degree of public support. The question of reforestation is also under consideration in Ontario, involving as one feature, possible co-operation between the municipalities and the province in the acquisition and planting up of non-agricultural lands, particularly areas liable to damage by drifting sand, in the older-settled portions of the province. This is to be commended, as is also a moderate beginning in the reforestation of denuded Crown lands. So far, however, as a general forestry program is concerned, it must be recognized that the problem of infinitely greatest importance is the stopping of the process of devastation, which results in the unnecessary annual destruction by fire of hundreds of millions of young trees, established by nature upon cut-over lands. So long as it is a question of funds, adequate fire protection must be the first consideration.

11.—A tribute is due Dr. B. E. Fernow, who has retired from active service as Dean of the Faculty of Forestry at the University of Toronto. Dr. Fernow has from the organization of the Commission of Conservation been one of the most active and useful members of the Committee on Forests. It is not too much to say that he is the father of scientific forestry in both Canada and the United States.

12.—As Dominion lands, it is to be hoped that action may now be taken by the Dominion Government, to add to the permanent forest reserves the very considerable areas in the northern portions of the provinces and in the Railway Belt of British Columbia which have been found upon careful examination to be chiefly valuable for permanent timber production.

13.—Alberta is now the only forest province which does not have legislation providing for the permit system of regulating settlers' clearing fires. The results of this system have been uniformly excellent wherever it has been made effective. It is to be hoped that some basis may be found whereby it may be made applicable also to northern Alberta, so far as this may be essential to the protection of present and proposed forest reserves. The provincial Government is to be congratulated upon the enactment of legislation, last winter, providing for fire protection by provincially chartered railway companies, along their lines. The Commission of Conservation and the Canadian Forestry Association were active in advocating this legislation.

14.—The Dominion Forest Products Laboratories, maintained at Montreal, under the Dominion Forestry Branch, in co-operation with McGill University, have rendered most valuable public services in both war and peace. Through an inadequate salary scale, these laboratories are now greatly disorganized by loss of personnel. It is greatly to be hoped that the reclassification of the Dominion Civil Service, now under way, may render it possible for these laboratories to be reorganized on an adequate basis. The branch laboratory at Vancouver, maintained in co-operation with the University of British Columbia, has also done valuable work and should be continued.

15.—The British Columbia Forest Branch has undergone a complete reorganization which, with the increased salary scale made effective, places it in an admirable position to render increasingly valuable services to the people of the province. Material progress is being made in the disposal of logging slash, particularly in the Coast district. The outstanding need at present is for the establishment of a full-fledged Department of Forestry in the University at Vancouver. The present large provincial forest revenue of more than $2,700,000 amply justifies the appropriation of the comparatively small sum required for this purpose.

16.—The survey of the forest resources of Ontario, by the Commission, is under way, in co-operation with the provincial Government. Timber owners are co-operating splendidly in furnishing specific information, with respect to their holdings, only totals of estimates by large drainage areas will be published, so that detailed information furnished confidentially will not be divulged. The project is under the immediate direction of R. D. Craig, assisted by G. H. Edgecombe and A. V. Gilbert. It has been endorsed by both the Canadian Lumbermen's Association and the Woodlands Section of the Canadian Pulp and Paper Association.

17.—The forest research program of the Commission has been continued and extended, under the immediate direction of Dr. C. D. Howe, assisted, as party chiefs, by C. R. Mills, G. A. Mulloy and J. M. Robertson. This project has received the endorsement of the Canadian Lumbermen's Association and of the Woodlands Section of the Canadian Pulp and Paper Association. Co-operation was continued with the Laurentide and Riordon Companies, in Quebec, and established with the Abitibi Company, in Ontario. In New Brunswick, Dr. Howe supervised the work of the research party maintained by the provincial Forest Service, and arranged also for joint co-operation between the Commission, the Forest Service and the Bathurst Lumber Company, in an experimental cutting on the limits of the latter. Cutting on about 300 acres has been completed, to different diameter limits, in addition to clean-cutting. Logging slash has been lopped, burned, and left on the ground untouched, on different plots. The results will be carefully observed through a period of years. Another experimental cutting, also

involving slash disposal, was made in the upper St. Maurice limits of the Laurentide Company, involving co-operation between the company, the Commission and the Quebec Forest Service. These several individual projects include all or part of such lines of investigation as growth studies, regeneration studies and permanent sample plots. They have for their object not only the determination of the rate of growth of the different coniferous species under given conditions, but also the extent to which the various species are being reproduced naturally and the conditions which are favorable to the reproduction of the more valuable species particularly spruce. This knowledge is at present largely lacking, but the need for it is obvious if our forests are to be intelligently regulated with an eye to the greatest possible permanent production. Its prospective value is indicaated by the fact that the Commission has more offers of financial co-operation from pulp and lumber companies along these lines than the limitations of its appropriation will permit it to accept. Other governmental agencies carrying on forest research work in eastern Canada are the Quebec Forest Service, New Brunswick Forest Service, Ontario Forestry Branch and the Dominion Forestry Branch. The latter has established permanent sample plots and is making experimental thinnings on the Petawawa military reserve, Ontario, in co-operation with the Militia Department. Some of the pulp and paper companies have also taken up certain classes of forest research, through their forestry departments. The Laurentide, Riordon, Belgo-Canadian and Abitibi companies are examples.

18.—A number of experiments in the disposal of logging slash, principally by piling and burning, have been conducted recently in eastern Canada, either by pulp or lumber companies independently or in co-operation with some other forestry or forest-protective agency. Most of these experiments were on a comparatively small scale. The results thus far have proved rather discouraging, on account of the high costs in most cases. However, with wages for woods labor somewhere near normal the costs would obviously be more reasonable. There are many difficulties to be overcome, such as the possible lack of a co-operative spirit on the part of local employees, the lack of experience in this line of work, and incomplete knowledge of the best methods of organization. Further experiments should obviously be made and on a larger scale. The Dominion Forestry Branch requires slash disposal on its timber sale operations in the west, as does, for the most part, the United States Forest Service on the National Forests. Until at least partial action along these lines can be developed in eastern Canada, it will obviously be wise for the provincial governments to move slowly and cautiously in the direction of reducing diameter limit restrictions, on account of the greatly increased amount of logging slash that results from each step in the direction of clean cutting, with consequent great increase in the fire hazard and damage to young growth.

19.—The use of aircraft in forest fire patrols and forest mapping constitutes a field of large possibilities. It is to be hoped that the Air Board may be able to carry out its tentative program of experiments during the coming summer, in various parts of Canada. It is of the greatest importance that both the possibilities and the limitations be fully determined, as also the costs. While it is not believed that air patrol can displace existing ground organizations, except in part and then only under favorable conditions it should be able to reduce the necessity of further large extensions of ground organizations, and to greatly increase the effectiveness of forest fire protection,—all provided that the cost does not prove prohibitive, as it is believed will not be the case. It is significant that the United States Air Service is requesting authority for a large program of air patrol over the forests of the western states. To the St. Maurice Forest Protective Association is due the credit for the first experiments along these lines in eastern Canada. The possibilities of aircraft in forest mapping appear decidedly encouraging.

20.—Due to the ravages of the spruce bud worm, probably 25 per cent of the balsam in Quebec has been destroyed and 75 per cent of the balsam in the southern half of New Brunswick. The Entomological Branch should be granted adequate funds for the study of this pest, that future infestations may be minimized so far as practicable.

21.—The preliminary study of the balsam butt-rot, conducted for the Commission by Dr. W. H. Rankin, shows that great damage is being caused by this parasitic fungus. The indications are, however, that on cut-over lands, where the growth of the young trees is not so retarded by overhead shade as in the virgin forest, liability to this disease will be materially reduced. To that extent, the outlook for the future is encouraging. It is greatly in the public interest that the Department of Agriculture should make a systematic study of forest tree diseases, comparable to the splendid work of the Entomological Branch in forest insects. The former line of work has scarcely been touched as yet, in Canada.

22.—The question of forest fire protection along the Transcontinental, Intercolonial and Hudson Bay Railways still constitutes a serious problem, the solution of which has thus far been left primarily to protective agencies other than the railways, though a limited amount of co-operation has been secured from the latter. It is anticipated that these lines will be brought under the jurisdiction of the Board of Railway Commissioners during the current year, and will thus become subject to the same fire protective regulations as now apply to the great bulk of the railway mileage in Canada.

HENRY E. SURFACE KILLED IN TRAIN WRECK.

The Pulp and Paper Industry of Canada and the United States, and particularly the Technical Organizations suffered a severe loss in the death of Mr. Henry E. Surface, which occurred in a train wreck near Scotia, New York, on Wednesday, June 9th. The remains were taken to his former home in Washington. Mr. Surface was a familiar figure at meetings of the Technical Association of which he has been a member for many years and to which he has contributed both by committee work and papers on bibliographic subjects.

NOTELETS.

Mr. Augustin Spicer, J.P. (chairman of Spicer Bros., paper manufacturers, London), who died recently, has left a fortune of £83,393.

Norway exports 90 per cent of the paper produced in the country, 50 per cent coming to England.

Great Britain uses about 500,000 tons of newsprint in a year, compared with 2,000,000 odd ton in U.S.A.

Kraft paper is selling up to £80 a ton in England.

The Experimental Pulp and Paper Laboratory

(Continued from last issue.)

Beaters:—The laboratory is equipped with three experimental beaters, respectively of ½, 25, and 50 pound capacity.

The ½ pound Noble and Wood beater is used for the beating of pulps obtained from either soda, sulphate, or sulphite autoclave cooks. Considerable use can be made of such a small capacity beater for the beating of special small lots of stock preliminary to preparing hand sheets, study of color matching, etc.

The 25 pound Appleton Beater and 50 pound Marx Beater are both equipped with washers and are used for the beating of stock preliminary to making the sheet paper. Bleaching of stock is usually done in the Appleton beater, the trough of which is made of wood. By means of the washer bleach residues can be removed, and by means of direct steam the bleaching or other operation can be conducted at any desired temperature.

The Marx beater has given excellent service, especially in the rapidity with which the stock can be beaten. The beater is of the single-roll type rated at 50-lb. capacity, having a roll 24 inches in diameter by 18 inches face, and a bed plate of the elbow type.. The roll is fitted with fifty Bessemer steel flybars, 3-8 inch thick, arranged in clusters of four. The bed plate is fitted with 14 Bessemer steel beveled flybars, each 15/32 of an inch thick and is fitted with a device to counterbalance the weight of the roll. The maximum dead load weight of the roll, without using counterbalance device, is 1,800 lbs. The tub of the beater is of concrete construction with a trough of special cross section, designed for rapid circulation of the stock, and is graduated by marking the volume in gallons at various heights of the beater so that it can be furnished to any desired stock density. The beater is driven by a 15 H.P. variable speed motor.

The experimental beating of the stock, where the results are to be interpreted from a 50-pound scale to the ordinary mill beater scale, offers considerable difficulty, as the rapid circulation of the stock and light weight of the roll directly affect the rate of beating. The roll is usually driven at 300-310 R.P.M. corresponding to a peripheral speed of 1,950 to 2,000 feet per minute. In general, experimental beaters prepare stock about three times as fast as commercial beaters, and, knowing the speed of the beater roll, and the number of knives in the beater roll and bed plate, it is possible to estimate the number of cuts that the stock receives per unit time, the only uncertain factor being the effect of the weight of the roll on the bed plate.

From experience at this laboratory, it is not believed feasible to attempt to record power consumption on experimental beater runs, if the data obtained are to be used in the estimating power of consumption under commercial beating conditions. Even on commercial sized beaters the power required in circulating stock is only slightly less than the power required to brush the stock, and it has been impossible to interpret successfully power consumption readings on a 50-lb. beater to an 1,800 lb. scale.

The beaters are placed on the mezzanine floor of the laboratory, so that they can be discharged by gravity into the machine chest or to the wet machine chest as desired.

Kollergang and Wet Machine:—A power driven koller-gang fitted with basalt lava stone runners, 14 inches in diameter by 6 inches face, was installed at the laboratory, but no concordant results were ever obtained by its use. General mill conditions in this country are such that Kollergangs, which can treat only a very limited amount of stock per charge with considerable expense in the time and power, will not find a large application.

A 20-inch wet machine manufactured by the Dilts Machine Company is used at the laboratory for obtaining stock in lap form or in making sheets heavier than can be obtained on the Fourdrinier. The wet machine is installed directly in line with the experimental Fourdrinier machine, so that it is possible, by means of a felt and a few additional guide rolls, to make experimental runs producing crepe paper, duplex paper, or papers comparable to sheets made on a cylinder machine.

All the piping and pumps are arranged so as to make the system as flexible as possible; for example, stock from the wet machine chest can be put over a four plate diaphragm screen on its passage to the wet machine or the screen can be by-passed.

Paper Machine.

The desirable size for an experimental paper machine is a point on which there is considerable difference of opinion. The larger the machine the greater the cost of upkeep, and still more important, the larger the quantity of stock required per individual run. In general, all that is required is a machine of sufficient size to obtain a sheet of good formation of sufficient strength to duplicate general mill conditions. With the installation of a 15-inch Pusey and Jones machine, giving a sheet of 12-inch trim, it has been possible to secure a fair sample for testing and for reference purposes on as low as a 10 pound sample of dry stock. The advantage of being able to make a machine run on such a small sample is evident. The width of the machine limits the size of the weight sheet which is a sheet ¼ of the standard 24″ x 36″ sheet.

The experimental machine is practically a duplicate of the commercial Fourdrinier machine, consisting of two presses, nine dryers, and a small stack of calenders. The paper is either collected on a paper core and stored in roll form or wound on a reel and cut for storage by a "Pearl," 17-inch hand cutter into letter size 8″ x 10½″. Samples of both calendered and uncalendered sheets for testing purposes are taken after the sheet has come to the desired weight basis. It is believed that a 15-inch machine with a 25-ft. wire, as shown in Fig. 7, is well suited for experimental work and that a larger sized experimental machine does not offer any special advantages.

Operating the Paper Machine:—There are a few points in connection with the operation and equipment of such an experimental machine that differ slightly from the commercial machine.

Spreader rolls should be provided under the first felt directly before the first press in order to prevent wrinkling of the paper. Spring scales on all the presses are desirable, in case a series of runs are to be

made under corresponding or special machine conditions in order that the pressure at the presses may be accurately known.

All felts should be ordered about four inches wider than the guide rolls; thus obviating constant attention to the guide-roll adjustment felts running towards the high side. Machine wires should be ordered with two selvedged edges although some wire manufacturers will not produce any experimental wires.

The tube rolls should have bronze spindles, as an experimental machine operates intermittently and rusting and pitting occur. This applies to all moving parts on the wet end of the machine. Considerable difficulty was experienced at the laboratory with the checking and warping of the wooden suction box covers, due to the intermittent drying and wetting. This trouble can readily be overcome by the use of ebonite covers.

Automatic wire and felt guides are desirable though not essential. A top dryer felt, while not in use in the laboratory, has the advantage of overcoming cockle in the finished sheet. Occasionally very free stock will stick badly on the first press roll; by covering this with alpaca cloth no difficulty will be experienced. (The experimental machine of the Forest Products Laboratory of Canada has a stone press roll.—Ed.)

Another point of difference between the operation of experimental and commercial paper machines, is in the lower density of the paper stock in the machine chest. With high-stock density there is danger of plugging the small opening on the gate placed on the regular box in the passage of the pulp to the Jordan. At the laboratory, with a stuff chest 4′ 3″ x 4′ 1″ inside measurements, a one per cent stock density has been found to give good results.

A small triplex pump with two inch plungers can be conveniently made from a water pump by replacing the rubber discs with ball valves. Stuff pumps of such small capacity are special equipment, while the water pumps of this size can be obtained on the open market. This special plunger replaced a two inch centrifugal pump to throw the stock from the pump chest to the regulating box on the Jordan. The excess of stock not taken by the Jordan returns to the stock chest. It was found that the centrifugal pump had a decided tendency to hydrate stock and this difficulty was overcome by installing the plunger pump.

The paper machine is equipped with nine 2-foot dryers, but twelve 3-ft. dryers would be more desirable. The machine is driven with a variable speed DC motor, the speed ratio being 1-5, giving a range of from 15 to 75 feet per minute. In order to permit the maximum flexibility in the operation of the machine, separate bevel-gear and large-cone drives should be used for the operation of the wet end, the two presses, dryers, and calender stack.

The general piping of the laboratory is of importance, since there is a tendency to increase the piping beyond that actually required. This is also true of belting, so some care should be taken in planning for the development of the laboratory. Independent motor group drives for a given set of apparatus are preferable to driving one main line shaft.

Clean water is essential and an ordinary mechanical sand filter will be entirely satisfactory. Hard water, especially in sizing dye studies, etc., is objectionable, unless the water can be softened. For an experimental laboratory, subject to frequent shut-downs and operating on widely different stocks, brass piping for all stock lines and long-radius ells in the piping tend to produce clean paper. Wooden apparatus, such as stock chests, screens, wooden beaters, etc., should be filled with water, when not in daily use, to prevent checking and cracking. The flat-plate diaphragm screens should be provided with cradles in which are placed plates with different slots in order to facilitate the charging of the screen plates to meet the requirements of the special problem.

Paper Testing

This is a necessary part of all experimental work. All pulps are run at the laboratory for testing purposes in the form of waterleaf paper, without size or alum. For detailed description as to the testing of the pulp and paper, the reader is referred to "Papier Prufung" by Herzberg and to reports on paper testing prepared by the Committee of the Technical Association of the Pulp and Paper Industry. For uniformity of results the testing must be done under conditions of constant humidity and for this purpose there is at the laboratory a special constant humidity room the equipment for which was supplied by the Carrier Engineering Corporation.

(To be concluded.)



U. S. Forest Products Laboratory, Madison, Winconsin.

Swedish Wood-Pulp Trade in 1919

(From Kommersiella Meddelanden, Stockholm, Mar. 31, 1920. Translated by the Research Division, Bureau of Foreign and Domestic Commerce of the U. S. A.)

The last two years of the war, 1917 tnd 1918, were trying for the Swedish sulphite cellulose industry, as production had to be reduced considerably owing to the shortage of certain important materials and lack of customers. The first year of peace naturally gave rise to great expectations; it was hoped that industrial products would find a ready sale, owing to renewal of trade connections, and that the aggregate turnover would soon reach normal figures if not surpass them.

The hopes that trade would expand and the sales increase were not fulfilled in the first half of 1919, for tonnage was scarce and the buyers limited their purchases in the expectation of a fall in prices. The result was that the sulphite mills had to reduce their output and worked only about 64 per cent of their normal capacity. The demand improved in the second half of the year; beginning with October the sulphite mills were fully employed.

Output of Sulphite Cellulose.

The following table shows the total output of sulphite cellulose during the last seven years as compared with the normal annual capacity of the mills:

Years	Production	Normal capacity (approximate)	Production in per cent of capacity
	Metric tons	Metric tons	Per cent
1913	699,937	700,000	100
1914	714,747	750,000	95
1915	742,000	760,000	97
1916	771,302	790,000	98
1917	554,966	825,000	67
1918	476,307	850,000	56
1919	581,167	850,000	69

These figures show that in 1919 production was larger than in either of the two preceding years, but still represented only about 69 per cent of the full capacity of the mills.

Difficulties of the Swedish Cellulose Industry.

During the last year of the war the paper market was disorganized both in Scandinavia and Canada; and in the first half of 1919 paper was freely offered, particularly in England and France, at prices so low that with the prevailing prices for cellulose the paper manufacturers in the countries named found it impossible to manufacture the corresponding sorts of paper at prices that would even remotely approximate those at which the foreign paper was offered. Under such conditions it was not surprising that the belief gained ground abroad that the Swedish quotations were unreasonably high, and that a restriction of imports was planned by the respective governments. Under such conditions the Cellulose Association sent two of its representatives to England and France to explain the situation to the authorities as well as to customers, point out the causes of the high cost of production and indicate the difficulties with which the Swedish cellulose industry had to contend. The result of the journey can be considered satisfactory, as no measures were taken to regulate or ration the imports of pulp although a proposal to such an end had already been formulated by the Allied Commission at a meeting in London. On the other hand both England and France continued Government control of the imports of paper in order to protect the domestic paper industry and enable it to resume operations on a large scale.

The summer brought a change in the paper market. The British paper manufacturers had obtained large orders under the protection of the restricted imports of paper and had all their paper machines working again, and an increasing activity and a livelier demand were noticeable in the paper markets of other countries also. By the end of the year the demand developed into a veritable scramble for paper. It soon became evident that there was an acute shortage of paper.

Improved Conditions During the Latter Part of 1919.

During the latter half of 1919 the sulphite market developed along about the same lines as the paper market. In July the British paper manufacturers began to purchase pulp on a large scale, and the sales increased until the end of the year. It was only during the last months of the year that the paper manufacturers on the Continent commenced buying. They had been holding back in the hope that the promised shipments of Canadian pulp would ease the sulphite market in Enrope. In the meantime it became evident, however, that Canada could not deliver quantities of any importance as the paper industry of the United States alone was able to absorb the entire Canadian surplus, and the continental manufacturers then made haste to obtain supplies in Scandinavia. The rush of orders commencing in November, 1919, continued well into the first months of 1920, resulting in a sharp increase in prices.

Prices of Sulphite.

Prices had begun to increase gradually in August and continued to increase throughout the autumn and winter. The prices prevailing at the close of the year were as follows: Easy bleaching sulphite about 550 crowns net per metric ton, f.o.b. Goteborg, and 525 crowns f.o.b. Gulf of Bothnia; strong sulphite, about 500 crowns, net per metric ton, f.o.b., Goteborg, and 475 crowns f.o.b. Goteborg. (The value of the Swedish crown is $0.268, at normal exchange. It was quoted, on the average, at $0.216, in New York during December, 1919.)

In January and February, 1920, the prices increased even faster but only small quantities of pulp were marketed. Fully 70 per cent of the estimated production for 1920 of prima easy bleaching and strong sulphite has been sold, and many factories are completely sold out, so that the Swedish sulphite industry can not take advantage of the present price level to such an extent as would be desirable, particularly in view of the difficulties with which it has had to contend. (By the middle of April, 1920, the price of easy bleaching sulphite had reached 1,000 to 1,100 crowns per metric ton, f.o.b. Goteborg. The crown was then quoted at about 22 cents.)

The average prices for delivery in 1919 were as follows: Prima easy bleaching sulphite, 407.65 crowns per metric ton, f.ob. west coast, and 404.40 crowns, f.ob. Gulf of Bothnia; prima strong sulphite, 383.25; and

356.50 crowns, respectively. The average price of all sales during the year was increased by the heavy sales made in November and December for delivery in 1920.

Manufacture of Sulphite Spirit.

In the course of 1919 a number of the sulphite mills completed the installation of machinery for the manufacture of sulphite spirit. The normal productive capacity of 15 mills where such machinery had been installed and partly in operation is about 10,000,000 kilos of 95 per cent sulphite spirit. In 7 other mills the installation was completed in 1920. The Swedish sulphite industry will thus have 22 mills, with an annual capacity of about 17,000,000 kilos of 95 per cent sulphite spirit. The marketing of sulphite spirit was unfortunately hampered by various official measures so that a majority of the mills had to curtail their production in 1919, but the question of rectifying the sulphite spirits has since been taken up and a special bill has been submitted to the Riksdag of 1920. If the bill becomes a law the production of sulphite spirit can be resumed on a large scale, which is certainly desirable from the economic point of view.

Decreased Production of Sulphate Cellulose.

For the Swedish sulphate industry the year 1919 was one of the most trying years through which that industry had passed. For the period of 6 months, March-April to September-October, nearly all the large mills were compelled to lie idle, as the accumulated stocks were large and the sales small. The additional income which the mills had derived during the last years from the sale of by-products, liquid rosin, and turpentine, ceased almost entirely in 1919.

The production of sulphate cellulose during the years 1915-1919, compared with the normal productive capacity of the mills, was as follows:

Years	Production	Normal capacity (approximate)	Production in per cent of capacity
	Metric tons	Metric tons	Per cent
1915	179,240	190,000	91
1916	217,102	218,000	100
1917	209,439	230,000	90
1918	181,917	235,000	77½
1919	103,297	246,000	42

The mills resumed operations in November and by the end of the year their output was normal again.

Fluctuation in Prices of Sulphate Pulp.

The sulphate market was influenced as usual by the course of the sulphite market. Owing to the large stocks of sulphate pulp held by the mills in March-April, when operations were suspended, the situation in the sulphate market improved much more slowly than in the sulphite market. In May the prices began to fall and in August-September, when there was a good demand, particularly from the United States, the prices were about 25 to 30 crowns per ton lower. The good demand continued and the prices increased gradually until at the end of the year easy bleaching sulphate cellulose was quoted at about 450 crowns per metric ton f.o.b. Goteborg and 425 crowns f.o.b. Gulf of Bothnia, and strong sulphate at 375 and 350 crowns, respectively. Prices have been increasing since much faster, and as about 75 per cent of the 1920 production remains unsold it seems that the year 1920 will make amends for the poor results of 1919. (About the middle of April, 1920, sulphate pulp was quoted at 750 to 800 crowns a ton for easy bleaching and 650 to 700 crowns for strong f.o.b. Baltic ports.)

ORGANIZING ALLIED TRADES ASSOCIATIONS.

During the last convention of the American Pulp and Paper Association at New York a meeting was held of several of the concerns doing business with the paper mills for the purpose of forming an organization, the object of which will be seen from the prospectus which follows. The organizers wish to have Canada well represented in this organization, and wish to get in touch with the Canadian manufacturers.

The meeting felt that aside from the actual business end of the organization every effort should be made to cement the friendly relations between the United States and Canada and any co-operation which they receive from across the border will certainly be appreciated. Correspondence may be addresed to the chairman of the committee, Mr. C. H. Kent, Paper Makers Chemical Co., Holyoke, Mass.

The Objects and Future Development of Proposed Allied Trades Association.

Similar associations of the Allied Trades in other industries have been particularly successful. This association accomplished the following benefits for their members and the Allied Trades Association of the paper and pulp industry has a broad field before it. an association can accomplish the following results:—

1—Give valuable information to the members.
- (a) Gather facts concerning buying prospects.
- (b) Act as clearing house for credit information.
- (c) Give information concerning general business conditions and conditions in the pulp and paper industry affecting the members.
- (d) Report on all legislation affecting the Allied Trades and manufacturers of paper and pulp and paper dealers.
- (e) Complete information concerning manufacturers of pulp and paper and paper merchants to supplement existing lists and directories.

—Give protection to the members.
- (a) Credit protection as stated above.
- (b) Protection against adverse legislation. More power can be exerted by a group of companies than by a single organization.
- (c) Protection against unfair trade practices to raise the standard of business relations.

—Extension of business.
- (a) Exhibits of supplies and equipments to acquaint buyers with the products manufactured by Allied Trades.
- (b) Development of good will among manufacturers of paper and pulp by co-operation with the American Paper and Pulp Association and other methods.
- (c) Co-operative advertising both to educate manufacturers concerning the newest developments in the industry and to sell the supplies and equipments manufactured by the members of the Allied Trades.

As soon as the association is organized, the following services can be rendered to the members:—

1—Establishment of Traffic Department to render weekly reports concerning transportation conditions. Transportation is the most important problem facing the industrial world today.

2—Arrange for an exhibit at the Saratoga meeting of the Technical Association or at some other place in the near future.

3—Weekly reports concerning information about manufacturers of paper and pulp and facts concerning raw materials.

Technical Section

RECENT PATENTS.

K 7. Continuous pulp beating and refining engine. T. H. Nash, St. Paul's Grey. Eng. Pat. 135,733, 5.3.19. (Appl. 5479/19.) A series of beating rolls is mounted in a common trough, the bottom of which is so constructed that the pulp or the like gradually ascends while passing under the rolls, and is thereafter returned, by pipes or ducts passing through or beneath the bottom, to an opening in the feed plate. An adjustable deflector is fitted near each opening in the feed plate, by means of which the stream of pulp passing from the feed plate may be narrowed, thereby causing the pulp to pass under the rolls a greater number of times.—J.S.

K-8. Coloring paper—with sulphur dyestuffs (thiophor-dyestuffs). .C. Jager, G.m.b.H., Dusseldorf. Ger. Pat. 298,826, 17.3.16. A colloidal suspension of a sulphur dyestuff which may be prepared by boiling the dyestuff with Turkey-red oil or "monopol oil" is reduced by an alkaline solution of hydrosulphite, and the leuco compound so obtained is added to the pulp and the coloring, re-oxidation, and fixation take place in the cold, the pulp being sized at the same time. If hydrogen peroxide be used as the oxidising agent and aluminum sulphate as the fixing agent, very brilliant shades are obtained.—J.S.

K-10. Sizing of Paper. O. Fuff, Breslau, Ger. Pat. 307,694, 19.1.18. The paper pulp is first made neutral or alkaline, then treated with an alkaline solution of condensation products of phenols and formaldehyde, and finally acidified. The finished paper is heated for about an hour at 120°C. in a drying chamber, or passed slowly over the rollers of a drying machine heated to 120°—140°C.—J.S.

K-10. Process for sizing—paper and other absorbent materials. Holzverkohlungs-Ind. A G., Konstanz. Ger .Pat. 303,925, 24.2.16. Alkaline solutions or suspensions containing products of the condensation of tar and aldehydes in the presence of alkalies are added to the paper pulp, and the sizing constituent is precipitated by substances with an acid reaction. Example: Beechwood tar is freed from acetic acid and other acid substances and then condensed with formaldehyde in the presence of alkali. The quantity of formaldehyde is so chosen that it is not sufficient to condense all the tar constituents. Paper can be satisfactorily sized with 1 per cent. of the product. The product may also be mixed with bakelite resins soluble in alkalis.—J.S.

K-10. Process of sizing paper. H. Wandrowsky, Berlin. Ger. Pat. 314,146, 30.11.17. Sizing is effected by means of the natural resins present in wood cellulose by adding substances having an alkaline reaction to the wood pulp during the beating, in order to convert the resin into a resinate, which is then precipitated on the fibre by aluminum sulphate.—J.S.

K-10. Engine-sizing of paper and pasteboard pulp. Zellkoll Ges. m. b. H., Cologne-Rodenkirchen. Ger. Pat. 303,828, 11.8.16. The sizinz agent is an easily dissociated organic salt of aluminum such as the acetate or formate, which may be obtained by the interaction of aluminum sulphate or alum and an easily obtainable salt of the organic acid, such as the barium salt. The use of soap or resins in addition is not necessary. —J.S.

K-10. Size for paper. A. Mitscherlich, Freiburg. Ger. Pat. 314,652, 22.9.15. Tannery glue is treated with waterglass and the dark-colored substance which is deposited after some time is separated. The purified clear liquor is aded to the paper pulp in the Hollander. —J.S.

K-23. Safety paper. E. Haussmann, Berlin. Ger. Pat. 303,989, 6.3.17. A composite paper has a middle sheet uniformly colored with an easily reacting coloring matter, and on either side of this one or more covering films of a thin absorbent paper, only slightly colored if at all. The coloring matter of the inner sheet is destroyed if the outer surface is attacked by chemical means, and the inner sheet is soon exposed to view by abrasion.—J.S.

K-18. Process and machine for the manufacture of easily folded paper or board. J. M. Voith, Heidenheim. Ger. Pat. 314,641, 25.7.18. Webs of paper pulp made on a flat or cylindrical machine with an uninterrupted wire surface are combined at the wet press with webs made on a machine, the wire of which is partly covered.—J.S.

THE GRADUATE GOES FORTH.

The annual induction into industry of its technically trained recruits is now in progress. The demand for directive and creative capacity in production and trade assures their rapid absorption in those positions, wherein is determined their fitness for growth.

The translation of the young technical professional man from a parasitic, academic environment to one of self-supporting independence, wherein his effort is justified only as it can show profit to the organization, calls for a degree of adaptability, wherein will be reflected the measure of the man.

To do what you are told to do and to do it cheerfully, quickly and in a way better than is expected; to study your co-workers as intently as you study industrial processes, that their respective deficiencies may be supplied by your alertness; to try to learn the boss's job as well as he knows it but with no sacrifice of loyalty to him, or of efficiency in your work; to set your mind on a place and qualify yourself to fill that place, for experience teaches that opportunity to do so sooner or later will come; with eyes always open and speech circumspect, but never niggardly of help to others; all these are practical suggestions to the technical novitiate that older men will tell him surely will get him somewhere along that devious road that leads to a contented mind.

Is it asking too much of erring human nature to admonish him to disappoint, neither the men who for four years have tried to bring out the best that is in him, nor that patient figure, with hair flecked with silver, who knows him better than he knows himself? —From the "Chemical Age."

British Trade News

(From Our London Correspondent

London, 8th June, 1920

An extraordinary General Meeting of Wall Paper Manufacturers, Ltd., has been held in London for the purpose of increasing their capital and other business. The proposal is to create £1,000,000 additional deferred shares of £1 each, ranking pari passa with the existing deferred shares. Mr. Edgar Smith, who presided, said, that owing to the increased business of the company and to higher costs of manufacture an increased working capital is required. As steps are being taken to increase the capital, it has been thought advisable to apply for an increase of £1,000,000, although only £641,000 odd is proposed to be issued, the balance being available for further issue as required, and for the purchase, for instance, of any other undertakings for which shares in the company are given in payment of the purchase price. He was glad to say the position of the company was very satisfactory. The directors are doing all they can to develop and foster the export trade and to open new markets by sending representatives abroad, and the company's export trade is now a very important factor in profit-earning. A resolution agreeing to the increasing of the capital was passed. The £641,000, it should be stated, represents money already employed in carrying on the business of the company.

Mr. Hall Caine in Canada.

Mr. Hall Caine having returned to England from Canada, he is now expressing his opinions, through the medium of the daily newspapers and the trade papers, on the pulp and paper position in the Dominion. He has stated that only five newsprint mills in Canada are controlled by British and Canadian money. All the rest are controlled by Americans and Belgians and owned by them.

Why is there such an outcry about the shortage of pulpwood? He gives two reasons: (1) an inclination on the part of owners of timber forests to conserve their pulpwood supply and make it perpetual. The Canadian forest owners have been brought sharply to realize the necessity of this conservation by the experience of their neighbors in the United States, where the wholesale cutting during the last 50 or 60 years, with little or no attention paid to reafforestation, has resulted in the sudden realization that there is now there only between 15 and 20 years' supply. This revelation has frightened forest owners and interests concerned; (2) havoc caused by fire. He estimates there is enough pulpwood at present in Canada for paper mills for the next 100 years, if all mills were situated in Quebec ,and in England there is no shortage of groundwood at the moment because the paper mills have been willing to pay the very high prices demanded. But there is a world shortage.

Newsprint Situation

Except in one or two cases, no newspapers have closed down in the United Kingdom owing to the shortage of newsprint. The leading papers throughout the country maintain the same number of pages, as they did nine months ago, and at week-ends they appear as strong as they did in pre-war days. Prices, however, are up owing to the increased cost of production and in cases where newspapers are not under contract they have to pay from 13 to 14 cents a lb. for their newsprint. In addition to Scandinavian supplies, Canada, Newfoundland, Germany, and Finland are supplying the market on a small scale and these, with the help of the domestic supply are keeping things going for the publishers. Mr. Hall-Caine has startled the publishers and consumers of newsprint by stating that the Americans are doing their best to get control of all the pulp and paper mills in Canada. They maintain that if this is the case the outlook for supplies reaching England in the future is very black. Perhaps so; but with the exception of a few gentlemen in the pulp line, people in England have in the past ignored the resources of Canada in favor of Scandinavia and the latter are now putting their thumb on the pulse of the consumer in the United Kingdom, much to his cost.

Compliments for Canadians

Himself a director of a most important mill in England, Mr. Hall-Caine pays a high compliment to the Canadian mill owners for their open and frank way of doing things. He wishes there were the same co-operation and helpfulness existing among the British mill men as exist to-day in the Dominion. In other words, the secrecy prevailing among the paper mills here is a policy unknown in Canada. and in the latter place he attributes the success of the pulp and paper industries to their manufacturers' attitude toward each other and in exchanging ideas. There is no doubt much can be studied in Canada and it is most gratifying to hear Mr. Hall-Caine come home and tell his kith and kin that the policy of the open door on manufacturing subjects is conducive to progress and prosperity.

The Pulp Market

Recently large shipments of pulp have reached the United Kingdom from Canada. The cargoes include sulphite and groundwood. At present the British pulp market is firm, prices showing a tendency to a higher level. Contracts for 1921 are now being entered into and if Canadians have a desire to participate in them they should cause enquiries to be made on this side. Some contracts have been fixed up at prices higher than those ruling for chemical pulps. Sellers show no desire to reduce values and they are covering themselves for 1921 by raising values. Groundwood contracts are being entered into at present prices. British paper-makers it must be remembered want the pulp and they are ensuring a future supply, no matter what the cost is, provided the price is not too exorbitant. Quotations are about as follows at present in the market:—

Bleached Sulphite	£80—£85
Easy Bleaching Sulphite	62— 63
Newsprint Sulphite	52— 55
Unbleached Soda (No. 1)	51— 52
Kraft Soda	42— 45
Groundwood (spot)	— 19

It will be seen from the foregoing prices that chemical pulps this month are being quoted by sellers on a higher basis. Good quality bleached sulphite for spot lots is selling at £81—£82 a ton. Small supplies of chemical pulps are coming into markets from Germany, N.S.A., and Finland, but, though helpful, they have no material effect upon prices. The feeling prevails here that it will a long time before a reduction in quotations will be seen.

People who mind their own business usually succeed. They have little competition.

UNITED STATES NOTES

One hundred daily newspapers in the United States without print paper supply and largely dependent on open market purchases have arranged to organize the Publishers' Purchasing Corporation, under the laws of the State of Delaware, for the purpose of co-operative buying of print paper and paper mills. The officers named in the incorporation papers are the following: W. L. Pape, Waterbury **Republican,** president; W. W. Weaver, Durham, N. C. **Sun.** vice-president; Jason Rogers, N. Y. **Globe,** treasurer, and George W. Marble, Ft. Scott, Kansas **Tribune,** secretary.

The water power development bill, according to an announcement from Washington last Friday, became law on June 11 when it was signed by President Wilson. This measure, passed by the Senate last January, differed in some respects from the bill adopted by the House in July of last year, but followed in a general way the same bill that has been before Congress in one form or another for the last decade. The law calls for the creation of a Federal water power commission composed of the Secretaries of War, Interior and Agriculture. This body will be authorized after investigation to issue licenses for water power projects "for a reasonable annual charge." The licenses are to run for fifteen years. Further provision is made for co-operation between the Federal Commission and the States and other Federal agencies that there shall be no charge on State and municipal power projects, and that industrial plants developing less than 200 horse power shall not be required to pay a license. At the expiration of licenses, the United States has the right, on two year notice, to take over and operate the plants. Power plants now in operation do not come under the provisions of the law. At the expiration of the fifty year license period, the Government can take over the plant, issue a new license or have the original license continue in operation. At the same time that the announcement of the signing of the foregoing bill was given out, it was also announced that the "President had failed to sign the Underwood resolution providing for negotiations with Canada relative to the embargo on the shipment of pulpwood to the United States." No explanation of the delay in announcing the President's approval of the water power measure was made.

The Periodical Publishers' Association, which met last week at the Yale Club, New York City, elected the following officers for the ensuing year: Frederick L. Collins of McClure's Magazine, president; Thomas A. Barrett, Orange-Judd Company, treasurer; P. S. Collins, Curtis Publishing Company, vice-president of the publishing division; R. C. Wilson, McCall Publishing Company, vice-president of the advertising division; John B. Kelly, Metropolitan Magazine, vice-president of the circulation division.

The recent financial slump in Japan has wiped out nearly all of the $50,000,000 profits made by paper mills in that country during the last five years, according to advices reaching the Department of Commerce last Friday. As a result, states this report, the owners of forty mills in the Fuji district of Shizouka-keu have decided to close their plants. In another advice from abroad, given out for publication by the State Department, Soviet Russia is reported to be affected by an acute shortage of print paper which has resulted in a largely curtailed newspaper output and has caused book publication to be almost entirely suspended for the present throughout Red Russia.

The Independent Paper Stock Company of San Francisco is planning the erection at Seattle, Wash., of a $200,000 reinforced concrete building to house its northwest assembling depot. When this structure has been completed it will become the centre of the company's northwest operations which will embrace the surrounding territory, including Washington and Oregon. The company acts as collecting agent of paper board mills on the Western Coast, gathering waste material capable of remanufacture, classifying it and preparing it for shipment to the mills. William Bowden will be the manager of the northwest district.

The extension division of the University of Wisconsin announces that correspondence course in paper making supplemental to the practical work in the mills, has been added to its instruction schedule. It is planned to interest workers in the paper mills in the new course. Instruction will start with the most elementary principles of papermaking and will take the students through the entire process.

Two former members of the selling force of the Seaman Paper Company of New York City, James C. Deery and Walter Conkey, have recently joined the sales department of the Dennison-Pratt Paper Company, New York. Mr. Deery comes to the Dennison Pratt Company from the Majestic Mills Paper Company where he resigns as sales-manager.

The Telulah mill of the Kimberly-Clark Company, in Appleton, Wis., was recently purchased by the Fox River Paper Company. Though this is one of the largest paper mill transactions in the Fox River valley in recent years, it could not be learned how large a consideration was involved. The Telulah plant, considered one of the most modern plants in the valley, has cost the Kimberley-Clark Company upwards of $200,000 for repairs and improvements within the last two years, and it is expected that the Fox River company will have to expend considerable to arrange the machinery and other details so as to convert the plant into a rag writing paper mill. The new owner will not take possession until January 1, 1920. Until then the Kimberly-Clark Company will continue in operation two Fourdriniers on book paper so that it will be enabled to fill its orders for that product during the present year.

At a meeting held recently in the Elmwood hotel, Waterville, Me., the American Pulp and Paper Mills Superintendents' Association, organized a new branch to be officially known as the Northeastern Division of the association. The officers of the division are: H. H. Hackett, Eastern Manufacturing Company, permanent chairman; and B. T. Larrabee of the S. D. Warren Company, secretary-treasurer.

The Miamisburg Paper Company of Miamisburg, Ohio, whose mill has been shut down for three weeks by a strike of some unionized paper makers, reports that operations have been resumed following the grant-

ing of a temporary injunction against eighty-six striking employees.

The Washington **Post,** unable to obtain a regular supply of newsprint this side of the Atlantic, is now printing on paper imported from Sweden. In an announcement carried in one of its recent issues, the **Post's** publishers state that this Swedish paper was bought in November, but was delayed in delivery at an additional cost of $4 a ton by the longshoremen's strike in New York City. Another supply is now being brought over from Sweden for the **Post** by way of New Orleans. This will arrive in July, and its cost will be materially increased by the freight charges from New Orleans.

At a special meeting of the Board of Directors of S. K. F. Industries Inc., held May 13th, 1920, the resignation of Mr. B. G. Prytz, as President, was accepted; Mr. Prytz having been elected Managing Director of the Parent Company, with headquarters at Gothenburg, Sweden.

At the same meeting Mr. F. B. Kirkbride, Vice-President since the organization of the Company, was elected President to succeed Mr. Prytz.

JASON WOULD PULL THE DRAGON'S TEETH.

Jason Rogers, publisher of the New York Globe has two plans for rendering the small publishers of the U. S. independent of the paper maker and jobber. His proposition is set forth in the following, which appeared as a full page advertisement in the Fourth Estate, June 12.

To Newspaper Publishers Without Print Paper Supply.

In accordance with my own conception of the best means of providing almost immediate supply of print paper to the smaller newspapers without supply or in the open market for the remainder of the year, I have developed two plans for consideration and possible action.

PLAN No. 1.

To Buy a Mill and Assure Supply At Cost Plus Expense of Supervision.

Under this program I am offered a mill capable of producing 30 to 35 tons a day. The mill is now in operation. It has sufficient timber to keep it going indefinitely. Its product is available immediately after the purchase is made. It is estimated that an investment of $200 per ton used in one year will buy the mill and timber rights and insure paper supply at cost.

A newspaper requiring 100 tons for the year would have to subscribe and pay $20,000 toward the purchase, and then would get its paper at cost. At the end of a year or two years at the outside, the amount invested in partial mill ownership would be less than the difference in price paid to speculators and jobbers in print paper.

Entirely aside from the fact that it would provide an excellent investment, the plan would take just so much tonnage of the spot market.

PLAN No. 2.

To Buy Bonds in a Thoroughly Efficient Paper Company on Assurance of Supply at Best Market Prices.

Under this plan, each small newspaper requiring tonnage would be asked to subscribe and pay for at approximately $100 a ton, the tonnage used in one year, in consideration of a contract providing for assured supply for ten years at the best market price quoted any customers (Canadian Export Paper Co., Ltd. price.)

Paper under this plan to the extent of 80 tons a day can be secured for shipment commencing in September, 1920, if proposals to me are confirmed.

If interested in either plan, write or wire me your authority to go forward for the tonnage you require.

In case either plan is made effective, there will be no charge for my services, except for actual expenses, legal fees, investigations, etc., which I will hold down to the minimum.

The mills are well located for average supply to points east of the Mississippi.

If greater tonnage is required than above specified, I have other offers before me which may develop an additional 30,000 tons per year.

JASON ROGERS, **Publisher,**
New York Globe,
June 3, 1920. New York City.

NEW SALES MANAGER, C. F. M.

Mr. C. J. Brittain, formerly Managing-Director of the Winnipeg, Calgary and Saskatoon Branches of the Canadian Fairbanks-Morse Co., Limited, has been appointed Vice-President and General Sales Manager of that organization, with headquarters in Montreal. Mr. Brittain succeeds Mr. C. Graham Drinkwater, who has been Vice-President in charge of sales for many years, and who has resigned to join the banking firm of Aldred and Company, Limited.

Mr. Brittain brings to his new post a wide experience of many years and a splendid record of achievement. He was one of the first salesmen engaged by The



C. J. Brittain.
General Manager, Canadian Fairbanks-Morse.

Canadian Fairbanks-Morse Co. Limited in the early days of the Company and he has made good in every position to which he has been appointed. He has the entire confidence and hearty support of all those who know him, both in the organization and as customers.

Mr. Forbes is succeeded at St. John, N. B. by Mr. W. J. Hill. Other changes in the management of the Sales Department—all of which represent well-earned promotion and increased opportunity to assume greater responsibilities—are the appointments of Mr. Malcolm Cordell to be Montreal Manager, and Mr. George L. Nies and Mr. Archibald Turnbull, who will become Managers of the Calgary and Saskatoon Branches respectively, taking up a portion of the duties which formerly came under the direction of Mr. Brittain.

PULP AND PAPER NEWS

The Penetang Fibre Board plant at Penetang is slightly increasing its capacity and report that they cannot make half enough to supply the demand, nor will they be able to for three or four months. The board is made 7-16-inch thick and the sheets are 4 feet by 8 feet. It is not necessary to use lath or plaster when using the board and another feature is that it is practically fire proof and can be used on ceilings or walls, either paneled or not paneled. When not paneled an adhesive tape to cover the joint is used.

The capital stock of the Corrugated Paper Box Co., Limited, 187 Geary Avenue, Toronto, has been increased from $200,000 to $500,000 by the creation of 300 shares of new stock of $100.00 each.

Mr. James Bolland, a former well known journalist of Toronto, has gone to Belleville, where he has been appointed manager of the Lazier Paper Mills.

Mr. William Turnbull, B. C. Lumber Commissioner of Victoria, B.C., spent a few days in Toronto this week on his way from Ottawa, Montreal, Grand'Mère and other centres. Mr. Turnbull came east in connection with the development of the pulp industry in his province, which he says is reaching great proportions, one factor being the expansion to British Columbia of the pulp industry in Japan. Many firms are contemplating establishing pulp mills in B.C. but are being hamperred through inability to get the necessary machinery.

S. H. Hart & Co., stationery manufacturers, 40 Willington Street, Toronto, has become an incorporated concern and will be known as S. R. Hart and Co., Ltd, with the same staff of officers.

The annual picnic of the Globe Printing Company took place on Saturday last, when the officers, directors and employees of all departments went across the lake to Queenston Heights and to the number of 400 enjoyed an old-fashioned summer outing.

Mr. Clark Hunt, Secretary of the John Martin Paper Co., Ltd., of Winnipeg, was entertained at an informal luncheon by the Canadian Paper Trade Association at the Ontario Club, Toronto, last week. The gathering proved a thoroughly enjoyable one and free from business, trade matters being chatted over in an informal way only.

The death is announced in Mitchell, Ont. of William Elliot, B.A., editor of the Mitchell Recorder. Deceased was well and favorably known in Ontario as an exceptionally clever newspaper man. He was a past D.D.G.M. in the Masonic Order.

From the office in Toronto of the Spanish River Pulp and Paper Mills, Limited, it is learned that 90 per cent of the shareholders, both common and preferred, have been heard from and with the proxies expected from the British Isles, the indications are that approval of the plan for the payment of deferred dividends on the preference stock, is meeting with general approval. In this connection it is to be noted that the common stock has undergone a substantial advance since the plan was announced.

A strong resolution to be put in the form of a memorandum to the Government was passed by the Methodist Conference in session in Toronto, against permitting the Hearst publications to use Canadian pulp asking that sufficient supplies be insured to keep Canadian papers in existence. Another resolution urged that the war order-in-council should be enforced by which only 15 per cent of the pulp of Canada could be exported.

Louis Gosselin, a manufacturer of Montreal, is suing Harold Gagnier, publisher of Toronto, for $25,000 for alleged breach of agreement on the sale of the Peterborough Metals Product Company.

Mr. William Crichton, who for 47 years had been with the Buntin, Reid Paper Company, was found dead in his office at the company's warehouse on Colborne Street, Toronto, on Tuesday, death having resulted from heart trouble. For the past thirty years the late Mr. Crichton had been general manager of the firm. He was a kindly gentleman, loyal to his firm and a friend to many in the paper trade. Born in Valleyfield, Que., 65 years ago, he came to Toronto in 1870. His father had been in the paper business, being general superintendent of the Alex. Buntin Paper Mills in Valleyfield. The deceased was prominent in Masonic circles. Besides his widow two children are left, Robert A. and Mrs. J. J. Trail of Toronto.

According to an announcement made in Toronto on Tuesday shareholders of Provincial Paper Mills, Ltd., receive an increased dividend by the declaration of 1½ per cent on common for the current quarter. It will be recalled that in April of this year the company was reorganized and a new stock distribution made, giving the shareholders three shares of the new company for two of the old, without extra payment. As the rate of dividend under the old regime was 6 per cent, holders of the stock previous to the change will now be receiving the equivalent of 9 per cent under the latest declaration.

Mr. Robert B. Foulls, superintendent of the coating mill at Georgetown of the Provincial Paper Mills, Ltd., has gone on a trip to Scotland, accompanied by his wife and family.

Mr. I. H. Weldon, of the Provincial Paper Mills, Ltd., Toronto, is spending a few days on a fishing trip in the Port Arthur district.

A visitor to Toronto this week was Mr. A. M. Wismer, manager of the St. Lawrence Division of the Provincial Mills, Ltd., at Mille Roche.

Mr. R. I. Worrell, pulp sales manager of the George E. Mead Company, Dayton, Ohio, was in Toronto and Montreal this week calling on the trade.

A special general meeting of the Spanish River Pulp and Paper Co., Ltd., has been called for June 23rd in Toronto for the purpose of ratifying the re-arranged dividend payment scheme recently worked out by the directors.

Mr. Williamson, vice-President of the Hudson Paper Company, Limited, of Winnipeg, was in Toronto this week arranging for his supplies for the latter part of the year.

Most of the leading box board men in Toronto will attend the annual convention in Quebec commencing June 21st of the Canadian Paper Box Board Manufacturers' Association, notices and program having been

sent out by the Secretary, Mr. S. J. Frame of Toronto, Mr. James Logie, representing the Canada Box Board Co., Ltd., will go down to the convention and act as Sergeant-at-Arms.

Mr. F. L. Ratcliffe, head of the Ratcliffe Paper Co. Ltd., Toronto, left on Thursday of this week by motor for Buffalo where he took the train for Atlantic City to attend the big Rotary Club convention. He was accompanied by his brother-in-law, Mr. George Matthews. After the convention Mr. Ratcliffe and Mr. Matthews will motor back via the White Mountains.

A BIG DREAM THAT MAY RE REALIZED.

A very interesting story on the possibility of a gigantic combination of paper mills in Canada appeared in a recent issue of the New York Sun-Herald under a Montreal date.

Fred Becker, of London, is one of England's very bright and successful business men. Coupled with his ability is an ambition to become the organizing head and directing mind of the largest commercial organization in the world, and there are evidences of the possibility of his realizing that ambition in the pulp and paper business, embracing Scandinavia, England and Canada, and perhaps some other parts of the world.

It is said that the great Harmsworth not only appreciates Mr. Becker's ability, but stands ready to back him financially, together with his endorsement.

Approximately a year and a half ago the initial moves were made to bring about the consolidation of practically all the worth-while paper mills located in Canada. This project had its birth in the mind of Mr. Becker.

G. R. Hall Caine was at one time connected with one of the Harmsworth publications. Later he was made Deputy Paper Controller of Great Britain, since which time he has been identified with the Becker interests. He is understood to be an unusually capable business man.

Trade gossip in London, at the time the British consolidation was being talked about in pulp and paper circles, was to the effect that mill expansion, particularly news print, was to have a gigantic growth in Great Britain, and that Scandinavia and Canada were to provide the raw materials—namely, ground wood and sulphite—to feed these British mills. Also, that the Becker-Harmsworth combination possessed sufficient influence to secure such preferential treatment for the product of these mills as would practically keep out of the British market paper made either in Scandinavia or in Canada; and it was not difficult to find many people in Britain who believed that the combination had sufficient power to accomplish this.

The paper making companies in Canada were not slow to realize what this meant for Canada so far as having any part of the British market was concerned; neither were other great publishers of daily newspapers in Great Britain inclined to accept this situation and thereby land in the hands of the octopus without any possibility of relief.

The authorities at Ottawa can tell you what Canada did, and some of the great daily newspapers in England can tell you what they did to head off this preferential program. These two chapters of the story will be written some day in the future.

From present appearances it would look as though the Becker-Harmsworth combination, having failed of the preferential program, have now decided to absorb all the paper making interests in Canada in combination with their combination. If this be accomplished, and there seems to be no financial reason why it should not be, there will ultimately be realized by Mr. Becker the wonderful dream which only big men can bring to fruition.

The Montreal story, above referred to, which appeared in the Sun and New York Herald, speaks of G. R. Hall Caine's recent extensive visit to Canada and his announcement that the pulp wood forests of Quebec are inexhaustible; also, of Sir Lomer Gouin and his recent visit to Britain and the intimation that he is not to retire from the Premiership, and also, that it may be expected that an act will be passed insuring the possession of crown limits in perpetuity to the lease holders.

To those in the United States and in Canada who are naturally familiar with the practices of the Dominion and Provincial authorities regarding the sacredness of leaseholds, it would seem entirely unnecessary to pass such an act; but if you are going to float a one-half billion dollar company among people who are all familiar with the history of leaseholds in Canada, it would seem like a very proper thing to do to allay any apprehension as to their arbitrary termination and loss.

The real point of this story, so far as it relates to the interest of the newspaper publishers of the United States, is, that if the above detailed program be realized—and there is no reason why it should not be—the time will not be very far distant when a great British corporation will fix the price that the publishers in this country shall pay for their news print.

Some day the publishers will wake up, after they have developed sufficient vision, as to what is taking place around them, and come to realize, as they never before have, what the Water Power Bill, the intelligent handling of the national forests, yes, and even the Underwood Joint Resolution mean to them.

Time, and time alone, will ultimately determine the wisdom of the passage of the Reciprocity Act, so called, under which Uncle Sam opened the door wide to Canadian news print paper without restriction, thereby arresting any further development of the news print industry in the United States, and without even a proviso that the United States should have a quid pro quo.—Editorial from "The Fourth Estate."

MASON CO. OPENS TORONTO OFFICE.

The Mason Regulator and Engineering Company Limited, of Montreal are opening a branch office at Toronto,, under the management of Mr. S. Balmfirth. Mr. Balmfirth is a member of the executive of the Canadian Association Stationary Engineers. The Mason Regulator and Engineering Co. are the Canadian Manufacturers of the well known "Reilly" Feed Water Heaters, Evaporators, Distillers, Grease Extractors and Feed Filters; as well as "Mason" Reducing Valves and Regulating appliances.

CANADIAN CABLES

The Postmaster-General in London announces that a government cable between Halifax, N.S., and London is now working. This is reckoned to be one of the quickest routes for transmitting cables.

Failure is not the worst thing in the world; the very worst is not to try.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, June 19.—Speaking generally the week has seen no change in Canadian paper trade conditions, although in one or two lines, notably coated book and kraft papers, price advances have been recorded. Both mills and jobbers have but one theme — the shortage of supplies and the sustained, inordinate demand —although there are many variations of it, while the jobbers and consumers tell of the high prices they have to pay for what supplies they can get. Several mills, which announced several weeks ago that they were not taking orders, are still following that policy by reason of the fact that they are still a month or two behind in their deliveries. Some of the manufacturers are in the market themselves to buy paper. Shortage of raw stock, the car and coal scarcity and the mounting prices for raw stock are still acutely felt and are having their effect on an output that for months has been inadequate to meet the heavy demands that are being made upon all classes of paper manufacture. In every branch of the paper trade prosperity reigns and the horizon is scanned in vain for any signs of falling prices in any where near the immediate future.

Wood Pulp Conditions.

A side-light on pulp wood conditions is thrown on the general situation by a letter received from Charlton, Ont., by the Pulp and Paper Magazine, which states that the peeling season has started in respect to timber, but very little actual peeling has been done as far as the settlers, who do most of the work, are concerned. It is gathered that there is a rather small peeled wood output in prospect as labor is scarce and men will not face the heat and flies, the latter being worse than in any peeling season. There is a very limited amount of poplar being taken out in and around Charlton and the last price quoted the contractor for this class of wood was $10.50 for summer delivery. The price for rough pulpwood, spruce and balsam, ten per cent mixed, is from $8 to $9. Poplar in the rough is not bought. Peeled spruce is $16 to $18 and balsam is the same. Spruce and balsam (fire-killed) is quoted at $11, summer delivery. The price paid for pulpwood in the long (12 and 16 feet) on the creek and river banks this spring, is from $6 to $7 a cord, according to driving distance. A considerable quantity of wood was left in the bush by reason of the early thaw, although quite a lot of it has since been gotten out by slooping, skidding, etc., which are expensive methods. Owing to the very sudden thaw most of the flood water got away before the ice broke up or rose in the creeks and there has been practically no rain this spring. Consequently the driving has proved very unsatisfactory and expensive and much of the timber is stranded for the season unless heavy rains come.

Newsprint.

The newsprint situation continues to loom large in paper trade circles and speculation is rife as to the outcome and effect of the legislation now under consideration at Ottawa authorizing the licensing of articles necessary or desirable for consumption by the Canadian people, included in which, at the instance of the Canadian publishers, is newsprint. At the present time it is predicted that the mills will be inclined to make a rate of $100 without recognizing the claim of publishers to consideration in connection with the exchange situation when the mills make money on their shipments to the United States. It is stated that some mills are showing a disposition to adhere to the $100 rate to Canadian publishers under contract, in face of sales being made at from $200 to $300 in the spot lot market.

Pulp.

Prices of pulp are still mounting. The past week saw transactions in ground wood as high as $150 a ton and while these were rather rare it is known that $140 a ton was paid in quite a number of instances. News grade sulphite is selling at $175 and $185 a ton and easy bleaching is bringing as high as $190 a ton. Bleached sulphite is quoted as high as $200 a ton, while kraft pulp rules at $160. All lines of raw stock are exceedingly hard to get and buyers are scouring the country with little success. The mills are anticipating a slightly lower production during the next few weeks owing to low water and the coal and car shortage and it is not expected that foreign imports, that were looked for some time ago will materialize. That the Ontario Government is more or less alive to the importance of the industry is evidenced by the increased rates on all timber, saw logs, and pulpwood cut under any license which may hereafter be granted on Crown lands. The advances amount in some cases to 100 per cent, but it is stipulated that the rates shall not be increased again for a period of five years. The Crown dues on spruce pulp wood per cord were formerly 40c and today they are 80c. On balsam and other pulpwoods the dues were 20c per cord and now are 40c. The dues on spruce per thousand feet b.m. which were $1.00 are now $2.00 and on hemlock, tamarac and other similar woods the rate is $1.50 per thousand feet b.m., the old rate being 75c.

Book Papers.

The feature of the week in book papers was the advance by one big firm of coated book, two and three cents having been added to the price and the commodity now selling by one mill at 19c and 20c per pound. Other mills are still quoting 18c but it is anticipated that the lead of the one mill in raising their prices will be followed shortly by the others. In this, as well as in other lines of book papers the shortage is still very acute, supplies simply cannot be secured, according to statements of the jobbers, who are at their wits end to keep their customers conciliated, and there is no sign of the difficulty abating. Several lines of book paper were increased half a cent this week and all orders are taken subject as to price at date of shipment, which is in the more or less dim and distant future. Coated board is also very scarce and it is next to impossible to get supplies.

Tissues and Toilets.

Fluctuation of prices and uncertainty of delivery in respect to raw and finished stock have produced a situation in the tissue and toilet branches of the trade that is little less than chaotic. Manufacturers are ex-

periencing the greatest difficulty in getting supplies of pulp for their machines and have to pay fancy prices for what they do get. There is no set price in any line and the jobbers and consumers are glad to get stock under almost any circumstances.

Wrapping Papers.

Stocks of wrapping papers in the warehouses are very meagre and jobbers and manufacturers alike have orders ahead for months that they have been unable to fill. Kraft, which has ben selling at 12c for the past week or two, took another jump of half a cent a pound this week and is now quoted at 12½c for immediate delivery f.o.b. mill but a comparatively small quantity is being sold owing to the shortage and as the sales price depends upon that prevailing when the goods are shipped buyers do not know just what they will have to pay for their shipments.

Stationery Manufacturers.

Stationery manufacturers report a continuance of an exceptionally busy season with a continued demand for all lines of papeteries, blank books, pads and envelopes and are hampered in their operations by the prevailing shortage of all lines of paper. Help, both male and female, is hard to get and in many cases female help that has been recruited from the ranks of girls coming over from the Old Country has proved restless with a consequent moving on to other lines of work.

Bag and Paper Stocks.

Mixed papers and print manilas are increasingly scarce and both rag and paper stock have undergone substantial increases in prices in most lines. News and magazine papers are showing signs of slackening and some of the mills are going out of the market in these grades. There is an excellent demand for all of the white grades. All grades of new cotton cuttings are in excellent demand and prices are on the up grade both in Canada and the States. The only grades not moving freely are flocks and satinet, of which there seems to be a good supply in the mills. Other grades are not plentiful.

Rag and Paper Stock Prices.

No. 1 shirt cuttings	20c
No. 1 unbleached cotton cuttings	17c
No. 1 fancy shirt cuttings	13½c
No. 1 blue overall cuttings	13½c
Bleached shoe clip	16c
White cotton hosiery cuttings	18c
Light colored hosiery cuttings	14c
New light flanellette cuttings	14c
No. 2 white shirt cuttings	13½c
City thirds and blues (repacked)	5½c
Flocks and satinettes	$3.25
Tailor rags	$3.50
Gunny bagging	4c
Manila rope	8½c
No. 1 white envelope cuttings	$6.75
No. 1 soft white white shavings	$6.75
White Blanks	$5.00
Heavy Ledger Stock	$3.80
No. 1 magazine	$3.90
No. 1 book stock	$3.15
No. 1 Manilas	$4.50
No. 1 print Manila	$2.50
Folded news	$2.25
Over issue, news	
Kraft	$4.25
No. 1 clean mixed papers	$2.00

NEW YORK MARKETS.

New York, June 19.—While it is a fact that demand for at least some kinds of paper has eased off to an extent and that spot supplies are not in such a tight condition as they have been, there is no semblance of a declining tendency in prices. Quotations on practically every grade of paper are firmly maintained and buyers in frequent instances are finding it necessary to pay premiums to obtain quick deliveries. The improvement in railroad conditions has resulted in larger amounts of paper being received in New York and at other large consuming points. Mills are getting shipments under way with less difficulty and consignments are reaching their destination with less delay. At the same time, local paper merchants have as yet succeeded but slightly in their efforts to increase stocks. This is because as fast as paper arrives from manufacturers it is being hauled direct from railroad cars to consuming plants and jobbers rarely get a sizable lot which they are at liberty to put on the shelves in their storerooms. Buyers seeking fresh supplies of most kinds of paper consequently experience much difficulty in locating the desired quantities. The great preponderance of supply coming from mills is paper already owned by consumers and represents deliveries which have been held up for some time.

Demand for certain kinds of paper is not as pointed as it was up to a short while ago. Nevertheless current demand is easily in excess of available supplies, so that the recession in buying in some quarters is scarcely noted and cannot be classed as an important market factor at the moment. Publishers of daily newspapers are keeping out of the spot market to as large an extent as their pressing needs will permit. Buying of wrapping and tissue papers does not approximate quite the volume that it did, and there are indications in other directions of buyers having reduced their operations in a measure at least.

Spot lots of newsprint in standard rolls are freely selling at 12 cents upward per pound and transient buyers are absorbing every pound of paper coming into the market. The fact that large publishers are refraining from buying in the open market has little visible influence on the market for the reason that other buyers are actively in need of supplies and are taking offerings as rapidly as they become available. Sheet news is in good demand but few are turning out this product at present and the amount is almost entirely shy of stocks. On the first of July the new contract basis of the International Paper Company on roll newsprint of 5¾ cents per pound at mills becomes effective, and it is a foregone conclusion that other manufacturers will follow suit and advance their price to contract customers to proportionate levels.

The book paper market is firm and available supplies are just about as tight as they have been at any time during the active period of the past few months. Publishers are taking all mills will give them and are constantly on the lookout for additional tonnages, so that demand shows no let up. It is an accepted fact that the average publisher of magazines and periodicals is short of paper against potential requirements during the balance of the year, and every probability would seem to be in favor of a very strong book paper situation for months to come. Machine finished book papers are quotable at around 16 cents a pound in the open market and sized and supercalendered at 17 cents and higher.



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INQUIRIES SOLICITED.

Wrappings are moving in little lighter volume, as are tissues, this being due apparently to the slowing up of activity in retail merchandising lines. Department stores and the general run of retail establishments are not doing the business at present they were some time back and there is consequently less wrapping and tissue paper being used. Quotations are maintained, however, and mills as a rule appear to have all the orders booked that they can comfortably accomodate for a time.

Fine papers are in steady demand and prices hold firm. Manufacturers are operating under pressure in an effort to make headway in catching up with orders, and mills are frequently raising prices on some grades of bonds and ledgers.

The board market is strong. Box makers are gradually commencing to cover late summer and early fall requirements and, with mills already sold ahead for several months, a very firm tone ensues. Prices, while hanging around the same levels, are looking decidedly upward, and it would seem that quotations will touch new high levels before the upswing of the market is ultimately checked for good. News board is today selling readily for spot shipment at $125 a ton and more, while plain chip board is quoted at $110 to $115.

GROUND WOOD.—The demand for groundwood is active and the market presents a very firm undertone. Consumers, who show clearly by their actions that they are in need of fresh supplies, are searching in every direction where they are likely to locate pulp and are freely meeting the figures asked when finding supplies available. Sales of spruce pulp of prime quality for spot shipment at $115 are growing quite common and there have been instances where buyers have paid $125 and higher, one case being definitely known where a sale of several carloads of groundwood was made at $127.50 per ton. Demand is coming from various sources. Board mills, newsprint manufacturers and various other consumers are inquiring for supplies and are all actively operating as buyers.

CHEMICAL PULP. — The demand for chemical wood pulp continues brisk and new high prices have been scored on some grades. The market is almost bare of most kinds or sulphite, as well as soda pulp, and such small tonnages as find their way into the transient trade are being eagerly snapped up at stiff prices. Newsprint sulphite has sold at 8 cents a pound at pulp mills, probably establishing a record value for this grade of pulp for all time. Domestic easy bleaching sulphite has fetched, close to 10 cents, and domestic kraft has realized above 7 cents per pound and Scandinavian kraft 7.50 to 7.75 cents. There is little or no foreign supply of sulphite being offered on the spot in this country. Warehouse stocks have been cleaned out and such pulp as is being brought across the Atlantic at present is foresold before it arrives. There is a little freer offering on the part of Scandinavian producers reported by importers but the prices demanded are almost prohibitory, being so far out of line with those prevailing in the domestic market.

RAGS.—Papermaking rags have eased off a bit in demand and value within the past few days. This condition is attributed to two main causes, one of which is the season of the year and the other that with railroad transportation improved mills are now getting rags bought some time ago, thus enabling them to hold off in buying in part. It is proverbial in the spring and early summer for paper manufacturers to limit their purchases of rag stock and it is not surprising that the market has assumed a quieter position just at present despite that mills are running on the voluminous scale they are. Roofing rags have been chiefly affected by the easing off in prices, which is but logical when it is considered that this is the class of material produced in greatest tonnage. Where felt manufacturers a short time ago were paying $70 per ton for roofing rags, they are now securing stock at as low as $60, and dealers are letting go of material freely at the lower level. Thirds and blues also are tending off in price and repacked blues are available in some quarters at 4.75 cents a pound at shipping points. Old white rags remain quotably steady and are moving into consuming channels in consistent fashion. One reason for the active demand for whites is that mills are still having trouble obtaining bleaching materials and are therefore buying white rags because they do not require bleaching. New cuttings of most kinds also are in good call and are ruling firm in price.

PAPER STOCK.—Reflecting the strong position of the woodpulp market, most grades of waste papers are in active demand and hold firm in value. Having difficulty in securing all the pulp needed, numerous paper and board manufacturers are utilizing larger amounts of old paper, and dealers and packers say they are hard put to it to satisfy the wants of their customers. Hard white shavings of No. 1 quality have sold at as high as 7.75 cents a pound at shipping points, while No. 1 soft white shavings are readily bringing in the neighborhood of 6.50 cents. Old kraft paper is in pointed call and is selling at 5 cents f.o.b. points of shipment. There is also a strong demand for No. 1 mixed papers, for which dealers are obtaining 1.90 to 2 cents per pound at shipping points. Books and magazines have shown a slightly easier trend and quotations, being the one exception, are a shade under recent levels, purchases of No. 1 heavy books being reported by mills at 3.50 cents.

GEN. WHITE FOR IMPERIAL FORESTRY CONFERENCE.

Gen. J. B. White, of Montreal, who commanded the Canadian Forestry Battalion in the late war and acted as official adviser on forestry subjects to the British army authorities in France, has been invited through the office of the Secretary of State for the Colonies and the governor general's office to be one of Canada's representatives at the Imperial Forestry Conference to be held in London, England, July 5 to 12.

The conference is the outcome of a special act passed by the Imperial Parliament, appointing a forestry commission and prescribing its functions. The conference will relate to the supply and utilization of timber in the Empire, the organization of forest services and the subjects of forestry education and research, including the education and training of forest officers and foresters.

Gen. White is a director of the Riordon Pulp and Paper Company Limited and directs the extensive forest operations of that company. He is chairman of the Woodlands Section of the Canadian Pulp and Paper Association and one of Canada's recognized authorities on forestry subjects. His selection by the British government to be one of Canada's representatives at the Imperial Forestry Conference is regarded as a recognition of the important services he rendered the Empire during the war.

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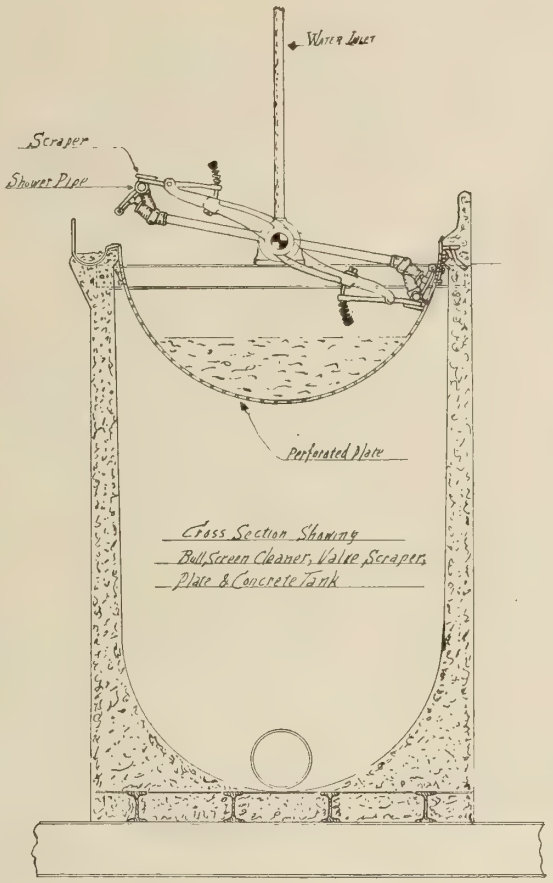
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FABLES FROM MILL PRACTICE

By H. TUESS

The chemist of the Wake and Doin Paper Co., being interested in machinery, and inquisitive as to an abundant use of lubricating oil evident on the floor and frequently on his collars, was strolling casually round the back of No. 1 machine—that is, his mental attitude was casual,—one does not stroll casually at the back of a paper machine without prejudice to one's dependents—when his attention was directed to the somewhat singular behavior of the line shaft in the bay just ahead. There was a post hanger but the bearing was gone and the center of the shaft was describing a circle which the chemist found to be roughly three quarters of an inch in diameter, by holding his rule to the wall and noting the swing of the shaft.

He remarked the fact to the millwright, old Lige Bolter, who frequently claimed to have initiated Mr. Boutan Doin into machine shop practice at the early age of five years and six months.

"Yessir, and 'ee sez 'Thank you, Mister Bolter. I like the forge best' 'ee sez—and him only five and a half."

"Yep, I know it, had to take the bearin' out, it got so blamed hot. Its allright, I slacked up the bolts on the next couplin'. I'm looking after it, just ease up the bearin's a little each side an' give 'er plenty of oil."

"That's just it, Bolter, we'er using too much oil round here, we've got to cut it out. Can't you line up that shaft?"

"Looka here Test Tubes, you go back to your little smell bunk. I've kep this old pile of junk movin', goin' twenty years, an' if I start linin' an' truin' all the places you'd like me to, we'd have to quit makin' paper.

"Didn't I take up the bolts on the stuff pump th'other day an' didn't she yank up the floor and bust a sprinkler head over old Sandy who wuz clearin' out number three filer down below with the extension cord an' he dropped it and was like to get drowned in the dark 'cept I heard him yellin' an' he holds it agin me that is rhuematiz is givin' him hell. No, we buys oil to keep us runnin' 'an I'll put oil where I want to."

MORAL:—If you can't teach an old dog new tricks, get a new dog.

You cannot dream yourselves into character. You must hammer and forge one for yourself.—**Froude.**

The man who hasn't the time to do things that are worth while is probably doing some things that are not.

WAR NOW TURNED ON "T.B."

Confidence that Canada will shortly be the scene of a nation-wide campaign against tuberculosis was expressed by the Superior Board of Health of the Province of Quebec at its latest meeting, through its committee on tuberculosis, Dr. J. R. Laberge, chairman; Dr. E. M. Desaulniers and Dr. C. R. Paquin. This committee has prepared for the province a comprehensible scheme for a permanent anti-tuberculosis service, and voices Quebec's desire to co-operate with the other provinces in a general war upon the White Plague.

Canada, with her new Department of Health at Ottawa, to co-ordinate and observe the whole country, possesses machinery for the most effective anti-tuberculosis campaign ever undertaken in the Dominion. Public opinion is ready and waiting, for the ravages of tuberculosis have received wide publicity in recent months. The need of the people for protection passes all precedents, since high food prices have tempted towards under-nourishment, or actually make such a mode of living inevitable.

The opportunity for a great national advancement is open before the public, a challenge to the sympathy and honor of responsible citizens. Many, many years of tiresome propaganda will not accomplish the good that will flow from a united effort now to make Canadians better fitted to resist this crushing disease.

Quebec is to be congratulated upon the readiness with which her health authorities have placed themselves ready to serve the province and the country.—Montreal Star.

OFFICE MANAGER NOT A PAPER MAKER.

Readers of the Pulp and Paper Magazine have probably smiled at the mistake which appeared in the advertisement of the Modern Patents Company, Reg. in last week's issue—

It is quite evident that someone on our staff does not know the difference between a Bull Screen and a hole in the ground, much less to say a One Man Mat Machine which is an entirely new article.

The One Man Mat Machine is a specialty of the Modern Patents Company, Redg. which also manufactures the Bull Screen, hence the interchange of the illusion.

The man who is really accomplishing something does not have time to stand around telling about it.

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 8313 MURRAY HILL NEW YORK

Write us when you have any surplus of **Ground Wood** Bleached or Unbleached. We are always in the market.

WHAT F. A. S. MEANS.

A correspondent writes the Pulp and Paper Magazine as follows:

"I have noticed in market quotations, material quoted at so much "F. A. S. Position." I have been unable to find out what F. A. S. stands for, and I would be obliged if you would give me any information regarding this."

As others may be interested in the matter, we repeat a definition of the term by Mr. Guy Tombs, transportation expert in the Canadian Export Paper Co.

On an f.a.s. or f.o.b. Seaboard quotation, the buyer must be responsible for loss or damage after the goods have been delivered alongside of the ship at the Atlantic port, and makes all claims to which he may be entitled under the insurance, directly on the underwriters, also takes delivery and pays costs of discharge lighterage and landing at the foreign port of destination, in accordance with the bill of lading clauses, and pays the foreign customs duties and wharfage charges if any.

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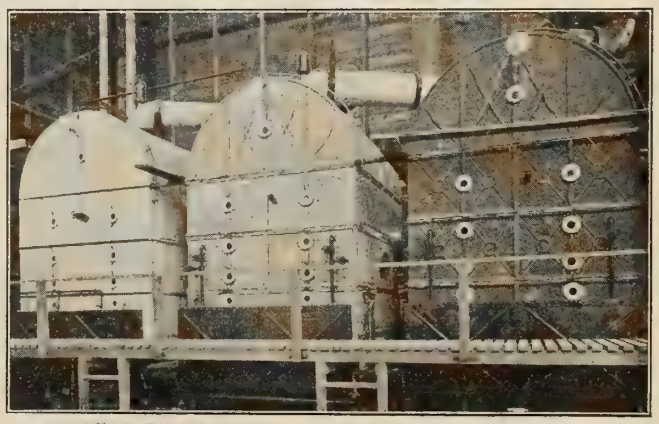
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Ontario has innumerable waterfalls capable of supplying power for all manufacturing purposes, which are obtainable on reasonable terms, subject to development.

Ontario has large pulp and paper mills in operation at Iroquois Falls, Metagami, Ottawa, Sturgeon Falls, Spanish River, Sault Ste. Marie, Dryden and Fort Frances.

Ontario is traversed east and west by three great transcontinental railways, affording excellent transportation facilities.

Ontario's natural resources of mineral, pulpwood, timber and water powers are unequalled in the Dominion of Canada.

For full particulars as to Ontario's great resources and the advantages offered for large wood-using industries, apply to—

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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que., July 1, 1920. No. 27

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J. NEWELL STEPHENSON, M.S., Editor.

The editor cordially invites readers to submit articles of practical interest which, on publication, will be paid for.

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Machinery has done this and today The Canadian Fairbanks-Morse Co. Limited are making it possible for the artisan to do the work of the master-craftsman at lightning speed. For quality of product, quality of tools is necessary. The workman does the job, but the machine assures mechanical precision—all those details which insure a product satisfactory in its last analysis.

That is why Fairbanks-Morse machine tools should always be specified. There is behind each lathe, grinder, shaper, planer, and so on down to the smallest tool, the dominating spirit of The Canadian Fairbanks-Morse institution, the never-relaxing effort to give 100% quality of produce and service.

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PUMPS

DYNAMOS AND SUPPLIES

SCALES

EDITORIAL

DOMINION DAY.

Patriotism is largely reverence of memories. The nation that fails to remember the noble men and the good deeds of its people is sure to fade. What better anniversary is there to celebrate than the birthday of the Dominion? For more than half a century Canada has been developing to nationhood and is already an important factor in supplying the world with food, mineral products and manufactured articles. While Canada is but an infant in the family of nations, the chances are exceedingly good for sturdy development and a successful future. Nature has been lavish in the endowment of great natural resources and the invigorating climate and inspiring opportunities have combined to bring out the best in a self-reliant, progressive people.

The fifty years since Confederation are but a beginning. The future is what we make it. The past predicts sanity, surety and success.

DISCARDING THE FOREST.

If the U. S. Senate believe all the talk that is forthcoming from its honorable members and spread on the records of that august body, it will certainly have a lot of nonsense. The statements have been made that the paper manufacturers are not interested in other sources of fibre than the tree and that nothing but spruce is considered worthy of their attention. Both of these statements can be seriously questioned. Because much of what is done in the research laboratory of the mill is not published is no indication that certain subjects have not been seriously considered and in some cases perhaps worked out to a negative conclusion and dropped. It is certainly untrue that spruce is the only wood considered by the paper mill and as large quantities of other trees are even now in successful use in paper mills the research of these manufacturers has resulted in success and in the use of even the weeds of the forest, the birch, maple and beech which it has been found possible to use and which have been used in the manufacture of newsprint paper. In the manufacture of other grades of paper a vast amount of work has been done and important results have been obtained and put to practical use. It is hardly to be expected that a publisher would know all about the investigations made in connection with another industry but it would seem advisable for people making public statements to be a bit careful of their ground.

The appropriation of $250,000 for the investigation of other sources of fibre supply would certainly be welcome to the paper manufacturers. That is the kind of activity they have desired for many years. It would relieve them of investing money that could be otherwise very well expended instead of carrying on individual researches. The provision for such an expenditure will be a big step forward in the conservation of the north American forest and the work on the problem cannot be started any too soon. There is an urgent need for the development of other sources of fibre and while we believe that the tree is the best source of paper making material for most grades of paper there is room for investigation of the subject. The result will doubtles be the discovery of methods for raising and using annual crop plants for some grades of paper and that emphasis will be centered on recommendations which foresters have made for many years and that steps will be taken for the commercial raising of pulpwood crops.

A DELICATE MONSTER.

The Editor had an interesting chat with a gentleman at the Banquet of the American Paper and Pulp Association regarding the building of successful paper machines. Our friend mentioned the early machines put out by some European, as well as by early American builders, as being delivered with the distinct expectation that it would require several months of operation before they would be in a condition to make good paper successfully. The reason for this was found in the lack of accuracy in the machining of bearings and other parts so that rather extensive operation was necessary in order to wear rubbing surfaces to a fit. It was usually necessary also to make a number of adjustments, even sometimes to the making of new parts. The success of the successful paper machine manufacturer was credited to the skill of the workmen and their sense of accuracy. The difference between the appreciation on the part of a workman that when a blueprint calls for a three inch journal, it must be three inches within a thousandth of an inch or less, and not anywhere up to a sixteenth of an inch out of the way, spells the reason.

Our friend mentioned in particular the Bagley-Sewall Company and recalled that when this concern began building their first paper machine some people thought the care and accuracy that they were putting on this job was quite unnecessary. The workmen in that plant had been making machine tools and their language was ten thousandths of an inch, a refinement

entirely foreign to the workmen in some other shops that had not so successfully built paper machinery. The result was that the first machine turned out was set up in the paper mill and the first roll made on the machine was a saleable product.

The size of a paper machine is likely to lead the casual observer to consider it rather crude but as a matter of fact it is one of the most delicate and careful articulated machines in use at the present time, especially when the size and weight are taken into consideration. For one who appreciates a nice job of engineering and construction, it is a source of pleasure just to stand in the machine room and watch one of these 200-inch modern monsters turning out perfect paper by the acre. Back of this wonderful accomplishment of our day stands the knowledge, the imagination and the courage of the designing engineer, the careful selection of the highest class of materials and the training and skill of workmen who appreciate refinements of measuring that are not foreign even to the watchmaker. The machinists and mechanics of the paper machinery plant have frequently spent a life time doing their particular part in the manufacture of the paper machine and take the greatest pride in the perfection of their work. It would take years for a plant making rougher equipment to be trained to the degree of carefulness necessary to make successfully a paper machine.

COBWEBS.

The correct definition of "some hike" is the inspection of the Algoma Steel Company's works.

We almost made a bad break by referring to the Mayor of Ste. Sault Marie as an enthusiastic "Soo-er."

Exports of newsprint from the United States decreased from 8,294 tons in April 1919 to 3,068 tons in April 1920.

It is a good sign of the times that an official of the Papermakers' Brotherhood attended the meeting of the Technical Section. We hope the example will be frequently followed.

It may not have been due to the absence of the editor at the Technical Section meeting, but the fact remains that an important line was omitted from our last issue. The interesting article on "Analysis of Limestone for Bi-Sulphite Liquor" should have been credited to W. E. Byron Baker, of York Haven, Pa.

It has been said that Canadian paper makers have American publishers by the thumbs, yet the Federal Trade Commission reports the weighted average price of $4.673 for U. S. mills and $4.457 for Canadian The figures are based on contracts involving 500,000 and 300,000 tons, respectively, of undelivered paper. No one can call this profiteering, even though a small tonnage was sold at an average of $9.905 per 100 pounds.

The intimation that the newsprint production in the United States is curtailed is absolutely refuted by the figures of the Federal Trade Commission. The production of total newsprint paper for May was 19 per cent. in excess of the average for the previous three year period and for standard news the increase was 22 per cent. Normal production, based on the average mentioned, was 108,400 tons. The mills actually turned out 129,230 tons.

It has been proposed that Congress appropriate two hundred thousand dollars for the study of new sources of material for the manufacture of paper. The United States already has a well equipped laboratory with an efficient staff for this very purpose in the Forest Products Laboratory at Madison, Wis. The laboratory is always handicapped for lack of funds and it would seem better business to increase the appropriation to a working organization rather than to start something new along the same line.

It is reported on good authority that one train on the Transcontinental Railway in one day started 27 fires. We have heard before of temporarily demented people burning money and much has been said of the extravagance of governments. It seems that an occasion like this calls for an expression of public opinion on such an unfortunate destruction of public property. The fact that Crown lands are leased is not an indication of no loss of revenue to the people since the revenue is derived from the cutting of timber rather than from the leasing of the lands.

C. P. R. courtesy is a well-known characteristic of that great organization. The attention the officials of the Sudbury division gave the Technical Section, however, went beyond the bounds of official duty and made the paper men feel that they were the personal guests of the railroad. Divisional Superintendent Wilson had his car attached to the technical men's special sleeper and he, with Messrs Bowen and Tremblay were most agreeable and solicitous for the welfare of the visitors. Needless to say, their kindness was greatly appreciated and the pleasant chats with these men certainly resulted in happy acquaintanceship and new friends for the great railway. The service throughout the trip was perfect and the rather complicated arrangements went through without a hitch.

Holidays are welcome, but they raise hob with a publisher's schedule.

The Summer Meeting of the Technical Section

Readers of the Pulp & Paper Magazine may be growing a little tired of reading that each meeting of the Technical Section of the Canadian Pulp & Paper Association was the best and most successful ever held. In spite of its frequent use, the expression, however, still holds good and truly, though inadequately, expresses the opinion of those who had the privilege of attending the summer meeting that was held last week. Members of the section were guests of the Spanish River Pulp & Paper Mills, Ltd., and were also entertained by the International Nickel Company to their smelting plant at Copper Cliff, Ontario, and the Algoma Steel Corporation at the Soo.

The members gathered Monday in Montreal and left in a special car on the evening train. It was a congenial party of friends who have been working together for a number of years in building up the Section and improving the industry. A number of others were picked up along the line, so that when the rtain left North Bay with the addition of the contingent from Iroquois Falls, there were just forty in the party. The Spanish River Mills, represented by L. H. Shipman, chairman of the Technical Section and assistant to the general manger of the company, took charge of the party at Sudbury. Mr. Shipman directed affairs from then on, and the success of the meeting is largely due to his attention to detail and careful arrangements, ably assisted and carried out by many willing assistants.

Before arriving at Sault Ste. Marie, an assistant boarded the train and distributed pictorial souvenirs of the visit. This beautiful interesting booklet begins with the following verses from Hiawatha, which are typical of the source of supply of the raw material on which the Spanish River Pulp & Paper Mills base their activities.

"Should you ask me whence these stories,
Whence these legends and traditions,
With the odour of the forest,
With the dew and damp of meadows,
With the curling smoke of wigwams,
With the rushing of great rivers,
* * * * *
I should answer, I should tell you,
From the forests and the prairies,
From the great lakes of the Northland,
From the land of the Ojibways."

—*Hiawatha.*

The booklet includes interesting pictures of the mills of the company, the Algoma Steel Plant, the First Lock (restored) on the falls of the St. Mary's River which was built by the Northwest Fur Company in 1797. There are also a number of interesting pictures of the locks and of vessels at this great inland water way. A few of the interesting items from the souvenir are as follows:—

"THE SOO."

The early days of Sault Ste. Marie are rich in the lore of a past that is slipping from us far too quickly. The country surrounding the present city was the scene of many an interesting tale of the life of Red Men. The Sault Ste. Marie Indians were of the Algonquin stock, the most numerous of Indian tribes. Where they came from we do not know. For over three hundred years the white man has known of their existence around St. Mary's Rapids, but statements made by the Indians themselves lead us back into a very obscure past. The legend tells of red men living by a great ocean to the west. They were fighters and hunters of the sturdiest type.

But Sault Ste. Marie was not always the name of this locality. As the waters tumbled down over the rapids, through the narrow straits, the braves gathered together on the shores murmured to each other "Baw-a-teeg," which was the word used in speaking of the phenomenon. When speaking of the place it was called "Baw-a-ting." The generations who lived and died in Baw-a-ting spent their time in hunting, fighting, fishing and feasting. From the earliest time the



COL. C. H. L. JONES,
General Manager, Spanish River Pulp & Paper Mills, Ltd.

tribe around St. Mary's River was known as the Ojibway tribe. The totem of the Sault Indians was the crane.

Until the time of the American Revolution there was no thought of dividing the history of the two shores of the St. Mary's River. Whatever happened on either side entered into the tale of the St. Mary's country. Voyageurs travelling up to Lake Superior portaged impartially on the north and south shores of the falls.

Just when the first white man set foot in St. Mary's country is not known, but in 1668 a small white settlement of between twenty and twenty-five voyageurs had been formed. Space does not permit an outline of the years which have intervened, but suffice it to say that they have been crowded full of tradition and history well worth reading.

The growth of the Sault has been steady since 1901, when the population numbered 7,169; in 1911 it had increased to 10,984 and in 1920 it has an estimated population of 22,000.

Sault Ste. Marie is the home of the Algoma Steel Corporation, which employs 3,500 men, and is one of the largest industrial concerns in Canada. In 1901 the walls of the first building of the steel rail mill



The Sault Mill.

were built, and in March, 1902, the first rail was rolled. The new $7,000,000 addition to the Steel Plant, which is in course of erection, will have a yearly output of 150,000 tons of steel.

With the new addition the mill will have a total output of about 400,000 tons annually of rails and structural steel.

The Spanish River Pulp and Paper Mills, Limited.

The General Offices of the Spanish River Pulp and Paper Mills, Limited, are at Sault Ste. Marie. The three mills of the Company are located at Sault Ste. Marie, in the District of Algoma; at Espanola, in the District of Sudbury; and at Sturgeon Falls, in the District of Nipissing.

The Sault mill is the largest of the three operated by the Company, employing 800 men. The mill commenced operations in 1911, being at one time part of the Lake Superior Corporation.

Espanola is a modern industrial community, inhabited almost entirely by employees and their families, who number about 2,500. The town has a fine hotel, a community hall and two up-to-date schools; also a hospital, a fully equipped athletic park with a baseball field, football field, tennis courts, skating rink, curling rinks, dancing pavilion and refreshment booths. There are three churches in the community.

The following are a few facts regarding the equipment and output of the three mills:—

PAPER MILLS:

Sault Ste. Marie—
2—156″ Black and Clawson Machines; 1—186″ and 1—198″ Pusey and Jones Machines.

Espanola—
2—120″ Rice, Barton and Fales Machines; 2—164″ and 2—166″ Pusey and Jones Machines.

Sturgeon Falls—
2—120″ Bagley and Sewall Machines; and 1—166″Pusey and Jones Machine (now being installed.)

Sault Ste. Marie—
Daily Normal Production, 225 tons; Annual Normal Production 70,000.

Espanola—
Daily Normal Production, 280 tons; Annual Normal Production 87,000.

Sturgeon Falls—
Daily Normal Production, 75 tons (2 machines); 130 tons (3 machines); Annual Normal Production 40,000 tons (3 machines).

SULPHITE MILLS.

Sault Ste. Marie—
Digesters, Four 17′ x 54′;Daily Normal Production, 130 tons; Yearly Normal Production, 40,000 tons.

Sturgeon Falls—
Digesters, Two—16′ x 54′; Daily Normal Production, 60 tons; Yearly Normal Production, 18,500 tons.

The equipment for making acid at the Sault consists of a Jessen four-tower limestone system. The Sturgeon Falls mill is equipped with the Barker Milk of Lime system.

GROUNDWOOD MILLS.

Sault—
Number of grinders operated by water—3-pocket, 16;4-pocket, 8; Number of grinders operated by electricity, 6; Average daily production 175 tons; Water head on wheels, 18 ft.

Espanola—
Number of grinders operated by water—3-pocket, 29; Average daily production, 200 tons; Water head on wheels, 63 feet.

Sturgeon—
Number grinders operated by water—3-pocket, 21; Average daily production, 130 tons; Water head on wheels, 36 feet.

WOOD ROOMS.

	Sault.	Espanola.	Sturgeon.
Knife barkers	2	..	11
Drum barkers	9	3	3
Chippers	3	..	2

SLASHER MILLS.

	Sault.	Espanola.	Sturgeon.
Average number cords sawn daily (summer months)	1,000	500	600
Total number cords wood used annually	130,000	65,000	75,000

BOARD MILL.

Sault Ste. Marie—One—100″ Black & Clawson 4 cylinder machine.

Daily normal production, 35 tons.



The Head Office, where the Business Meeting was held.



The Espanola Mill.

BOILER PLANTS.

	Sault.	Espanola.	Sturgeon.
Number of Boilers.....	14	10	10
Total Capacity B.H.P..	7,000	2,900	2,900

ELECTRIC POWER.

At Sault Ste. Marie the electric power necessary to operate the Sault Mill is generated by the Great Lakes Power Company in their power house adjoining the Sault mill, where 35,000 h.p. is developed, and an additional 8,000 h.p. will be developed on completion of a new addition now under construction.

At Espanola and Sturgeon Falls the company generates its own electric power, 6,500 h.p. at Espanola and 3,500 h.p. at Sturgeon Falls.

St. Mary's Locks and Canals.

The St. Mary's Rapids are about half a mile wide and three-quarters of a mile long. The fall ranges from 17 to 21 feet with the varying stages of water.

The first canal was built on the Canadian side of the river by the North-West Fur Company in 1797. The lock was 38 ft. long, 8 ft. 9 ins. wide with a lift of 9 feet. It is still preserved as a historic relic on the grounds adjoining the general offices of the paper company.

The Canadian canal is one and one-eighth miles long, 150 feet wide and 23 ft. deep, with a lock 900 feet long and 60 feet wide, having 22 feet of water on the sills. It was built during 1888-95.

On the American side there are four locks. The Weitzel lock, 515 feet long and 80 feet wide, with 17 feet of water, was completed in 1881. The Poe Lock is 800 feet long, 100 feet wide and has 22 feet of water on the sills. It was built in the years 1887-1896. The third and fourth locks, 1,350 feet long and 80 feet wide, with 24½ feet of water, were opened to traffic in 1914 and 1919 respectively, taking six years to build.



The Old Block House at Sault Ste. Marie

The American locks are filled or emptied in about nine minutes and the gates opened in 1½ minutes. The Canadian lock can be operated in about ten minutes. Electricity generated by water power is used for operating the Canadian and the third and fourth American locks, the other two locks being operated by hydraulic power.

Each member was given a distinguishing tag of most ingenious construction. The back was a small circular disk of spruce to which was tied by ribbon a disk of groundwood pulp, another of sulphite pulp and a sample of newsprint made by the combination of the two. On top of this was a picture of the Soo mills which was an actual photograph. Details like this were evidence of the thoughtfulness of the company throughout the trip.

Seeing the Soo.

The train arrived only ten minutes late after its journey of more than 600 miles and autos were waiting to take the guests to city hotels for dinner. Garments were left in the car which was switched on a siding to be used as sleeping quarters. The party was met at the Soo by a contingent from Toronto which had arrived a few hours before.

After dinner, which gave opportunity for easterners to become acquainted with the far-famed Lake Superior trout and white fish, the automobile squad again appeared and took the visitors around the city and up on the ridge from which a wonderful panorama can be seen. Great surprise was expressed at the size of the Soo and the wonderful view of the locks and river. A beautiful sun set was also provided by the committee (at least they didn't deny it).

According to schedule the party was left at the community Hall over the general offices at 9 o'clock and there were entertained by the very interesting film showing all the operations of manufacturing newsprint paper from the carrying in of supplies and building roads to the lumber camps, through the logging and driving operations and the manufacturing processes to the finished product, being shipped out by the train load.

On Wednesday morning the section gathered again in the hall for a business session and listened to interesting papers by Howard S. Taylor, of the Management Engineering and Development Company of Dayton, Ohio, on "Gypsum Roofs for Paper Mills" and one by Dr. R. H. McKee of Columbia University on "Waste Sulphite Liquor Utilization." The papers were well discussed and thoroughly enjoyed. The business meeting brought up a number of interesting and important points, the one arousing the greatest interest being the discussion of the situation on the forest products laboratories. The minutes of the meeting are not yet available but will be published in an early issue as will also the papers.

Reports were heard from various standing committees and accepted by the meeting.

Telegrams of regret at their inability to be present were read from Dr. J. S. Bates, Mr. George H. Mead, Mr. John Stadler and Mr. C. B. Thorne.

Lunch was served in the company's cafetria, after which competent guides conducted parties of the visitors through the extensive plant and those who wished were taken by automobile to the plant of the Algoma Steel Company. About twenty went. It was a full afternoon for all. Few members realized the extent of the steel industry in Canada and were greatly interested in the extensive plant, from blast furnaces to rolling mill, including a complete by-product coke plant.

The tired trampers were taken aboard to steamer "Premier" at five o'clock and treated to a trip up the Canadian locks and down the American side. Nature decided to take a hand in the entertainment of the party by arranging a shower which resulted in a beautiful double rainbow that made an arch over the end of the locks and under which it seemed necessary for the boat to pass in steaming to the dock.

Again on shore, a fleet of automobiles conducted the section, now considerably augmented by recruits from the Spanish River forces, to the Country Club where an excellent banquet was arranged. Here again the photographer was in evidence with an attractive photographic print on each menu. After partaking of the bountiful dinner. Col. C. H. L. Jones, general manager of the company presented what the local paper announced would be a formal address. Perhaps the Colonel can make a formal address, but he assured the gathering he wouldn't, although in his excellent remarks he certainly gave the members something to think about.

After the toast to the King, Major Farquhar was introduced by the toast-master. He extended a warm welcome to the visitors, incidentally telling them something of the city.

Col. Jones called on Mr. L. H. Shipman for a formal speech, but got from the Chairman of the Technical Section a response of appreciation on behalf of this section and some announcements regarding the program, which Mr. Shipman said was his principal business.

The toastmaster had better luck next time. Mr. George Carruthers was called on, and, as usual, came through with some interesting remarks.

Every one enjoyed the instructive talk of Judge Stone, the senior Judge of Algoma district. He told many interesting things about the history, traditions, extent and resources of his district, which covers well-nigh the western half of Ontario.

A number of American friends were present and their appreciation was eloquently expressed by Mr. T. J. Keenan, Secretary of the Technical Association of the Pulp and Paper Industry, whose name was included when a toast was drunk to the President of the United States.

The Canadian Pacific was represented at the banquet, and Mr. Wilson, division superintendent, made a few remarks.

"Back to the cars," was the word that came all too soon, and the party piled into the autos once more. Special arrangements had been made to get the private cars to Espanola, which was reached in time for breakfast. Here the visitors were received by Major P. B. Wilson, and all proceeded to the new Community Hall, where tables were spread. Major Wilson welcomed the members of the Section and invited them to inspect the mills.

About two hours were spent in this interesting plant and about the town. One who had visited the place only three years ago, noticed much growth and many improvements. The town has grown rapidly, both in size and attractiveness. Much new machinery, including two paper machines, has been installed, and further extension is still under way.

COPPER CLIFF.

A special engine was provided to take the party to Copper Cliff, near Sudbury, which was reached in time for lunch at the Club House. The International Nickel Company, ably represented by Mr. Collins, the general manger, entertained the Section with an excellent luncheon. The Club House is very complete and attractive, a statement that will certainly be approved by the member who accidentally opened the door to the swimming pool—it happened to be the ladies' hour.

At this extensive plant of the I.N.C. the ore, containing about 1.5 per cent copper and 3.5 per cent nickel, is received from the mines nearby and reduced in two stages to a matte containing about 80 per cent of the metals and 20 per cent of sulphur. This is shipped to Bayonne, N.J., to be refined and separated, or made into Monel metal.

The first smelting is done in blast furnaces and the second in converters of the Bessemer type. A battery of Wedge burners takes care of the flue dust and fine ore. Huge air compressors supply the enormous volumes of air required by the furnaces, which consume many times more air than ore.

The smelting of the ore is of particular interest to paper men because several hundred tons of sulphur go up the flue every day. The concentration of sulphur dioxide in the gas from the blast furnaces is only about .55 per cent, but from the Wedge furnaces is about .48 per cent and in the converters is from 10 to 12 per cent. It is economically and commercially possible to condense the SO_2 to liquid form and ship in tank cars to pulp mills. This is done in Washington, where the Camas mill of the Crown-Willamette Co. gets sulphur in this form from the Tacoma smelter. A conference was held to discuss the matter, and it developed that the railroad misunderstands the nature of the material and is asking a prohibitive freight rate, apparently based on explosives. Mr. Rawlins and Mr. Rogers, of the Nickel Company are keen to do something about using this waste product, and if a satisfactory rate can be arranged it is quite probable that some Canadian pulp mills will be able to have a Canadian source of sulphur supply. A description of the method of handling the liquid SO_2 at the Camas mill was published in the Pulp and Paper Magazine, Dec. 18, 1919, page 1091.

It was a tired, but satisfied, party that climbed back on the cars, which were hauled into Sudbury to be attached to the evening train for the East. Here the Toronto contingent left the party. When the journey was resumed, hearty appetites did justice to the contents of the C.P.R. diner and groups of friends, some new, some old, could be seen in earnest discussion of features of the trip or matters of mutual interest. Montreal was reached on schedule time, and those who had not left at stations along the way shook hands again, and agreed they would not have missed the trip for anything.

Paper Box Makers met at Quebec

The annual convention of the Canadian Paper Box Manufacturers' Association held at the Chateau Frontenac, Quebec, on June 21st and 22nd, attracted a large number of representative men in the industry in Canada, and at the conclusion of session replete with addresses and discussions on matters pertaining to the box board trade the convention was voted the best yet held. Practically all of the mills were represented and an excellent spirit of co-operation prevailed throughout the gathering. Sixty delegates were welcomed to Quebec by Sir William Price of Price Bros. and Co., Limited.

One of the resolutions passed authorized the President to appoint a committee to take up with the Canadian Railway Association the granting of a commodity freight rate to St. John, N. B. and to obtain the co-operation of the board mills to this end.

Among the addresses and papers which were given and on which discussion took place were the following: "How Montreal is Solving the Cost Problem" by C. N. Moisan; "The Problems of the Metropolitan Paper Box Manufacturers' Associated" by H. E. Roden of New York; "Popularizing the Cardboard Carton," by Charles P. Wellman of the National Packing Machinery Co., of Boston; "Demonstration of Costs of a Men's Shoe Box" by F. W. Fisher, of F. W. Fisher and Co., Ltd.

Mr. D. H. McDermid, of the Somerville Paper Box Co. Limited, addressed the Convention, the subject of his remarks being the utilization of the Association as an instrument to increase the efficiency of the members in conducting their factories.

It was resolved that the Advisory Committee is authorized to appoint a Committee to investigate and report upon efficiency, industrial relations, and cost standardization work, the Advisory Committee also being empowered to much such special assessments on members through the secretary, as they may deen necessary, to defray any outlay, which will be required to carry out this work.

Mr. L. J. Adjutor Amyot of the Quebec Paper Box Co., addressed the Convention, his subject being "Entente Cordiale between Ontario and Quebec."

Mr. J. B. Lawrason of the Lawrason-Doughty Co. of Toronto, gave a demonstration of costs of a folding box, also giving demonstration of how hour costs are arrived at.

The chairman reported the following recommendation of the Nominating Committee, as to officers, for the ensuing year:—

President:—C. T. Reid, Chas. Reid and Co., Hamilton.

Vice-President:—C. N. Moisan, Standard Paper Box Co., Ltd., Montreal.

Secretary-Treasurer:—S. J. Frame, Toronto.

Advisory Committee:—J. B. Lawrason, Lawrason-Doughty Co., Toronto; J. H. Lefebvre, King Paper Box Co., Montreal; B. Sproule, Collett-Sproule Ltd., Toronto; W. P. Bennett, Rudd Paper Box Co., Ltd., Toronto.

Among the resolutions adopted were the following: That the Secretary be instructed to convey to Messrs. Price Brothers and Company, Limited, the hearty thanks of the Association for the royal hospitality extended to it during the Convention by that Corporation, and also for the great courtesy and kindness of Sir William Price, Col. Ray and Mr. F. R. Thorn.

That the Secretary convey to the manager of the Chateau Frontenac, the thanks of the Association for the fine service furnished by the hotel during the Convention.

That a hearty vote of thanks is hereby tendered to the respective speakers who have contributed to the program of the Convention.

That a hearty vote of thanks is hereby tendered to the retiring officers of the Association.

It was decided to hold the next annual convention in Hamilton, Ontario.

THE IDEAS OF THE PAPER BOX MANUFACTURERS.*

By W. P. BENNETT, Toronto.

I count it as one of the privileges of my life to have resided for some two years in the province of Quebec. During that period it was my good fortune to visit this historic city a number of times. It goes without saying that I soon felt at home here, and learned quickly to love and appreciate the simple homely courtesy of the people with whom I became acquainted. I therefore feel quite within my rights this morning in extending a hearty welcome from Old Quebec to those who have the privilege of being here.

The members who attended our Convention last year will doubtless remember the discomfiture of one of our members, who had for many days had been boasting of his big family until he was counted out by our good friend M. whose record puts Bill (not to mention any names) in the shade. I was reminded at the time of the experience of a Montreal friend of mine, who, when the following incident occurred was a man of 45 and had one son 12 years old.

He was travelling one day with a customer and wife who had a family of 13, of whom they were justly proud. Madame X, (we will call her) had been showing my friend a photograph of the family group, and naturally many compliments had been paid on their attractive appearance. Madame turned to my friend and said: "Monsieur, you are married, Yes? How many children have you?" My friend feeling ashamed of the poor showing he would have to make, suddenly bethought himself of a ping pong picture which he had in his wallet and which showed five different positions of his one and only son.

He hesitatingly pulled it out with the remark, "This is my family." "Oui, oui," exclaimed Madame, enthusiastically, "Five boys; an excellent beginning for a man so young! Monsieur, you are to be congratulated." Needless to say my friend did not explain.

Our honored Secretary, S. J. Frame, tells me that his report gives a resume of our year's efforts and accomplishments. Such being the case, far be it from me to attempt to steal his thunder, but I am going to tell you **one** thing which I feel quite sure he will not mention, knowing him as I do.

I have enjoyed the privilege, (and I count it a real privilege) of knowing Mr. Frame for some fifteen years. One of our members who attended school with Mr. Frame tells me that I should have known him when he was a boy. However, I can only judge by my

*Address of the President at the annual meeting of the Canadian Paper Box Manufacturers' Association, Quebec, June 21st, 1920.

own experience and am therefore certain in his report he will say very little about himself, as while he is an indefatigable worker, he is noted at the same time for his retiring disposition.

Our Association is making grand progress. It is built on a good foundation and its lofty ideals place the Canadian Paper Box Manufacturers on a high plane of business integrity, and I know that I voice the sentiment of all those present when I state that we are proud to be members of this organization. Please bear in mind one point, the power behind the throne in the forward movement of our body, is S. J. Frame.

The slogan of our association "Advance," which, by the way, should be adopted as our permanent motto, suggests to my mind a poem of which I am very fond and which with its lofty ideals is well worth repeating here.

"Watch ye, stand fast in the faith, quit ye like men, be strong.

Mr. Bennett has recited a few verses of the well-known hymn,

'Trust in God, and do the right."

Advance in its broader sense means adopting the golden rule in everyday business practice, not in theory.

"For what shall it profit a man,
if he shall gain the whole world
and lose his own soul?"

Advance means treating the houses from whom you purchase your supplies with the same consideration that you would have them accord you. It does not mean the David Harum golden rule,—"Do unto others as they would do to you, but do 'em fust."

Advance means according your employees the same thoughtful consideration that you are expecting of them. How can you expect co-operation and hearty good feeling from you staff unless you give some thought to the welfare of your business family. They are but human like yourself, and respond quickly to a thoughtful guiding hand, backed up, by the way, by a fat pay envelope.

Advance means trying to gain and hold the utmost confidence of your customers. Have you ever found after quoting a price on a lot of boxes you were able to make them cheaper than you anticipated, and have you sent that same customer a credit note? Try it! You will advance in your own estimation and in the estimation of your customer and the result will be that you will be encouraged to do it again if the opportunity occurs, and if, perchance, at some later date the boot is on the other foot, how easy it will be for you to approach that same customer, having gained his confidence.

No doubt you have all received within the past few days a copy of your book; "The Paper Box Factory —Efficiency and Production." I say **your** book advisedly as its pages contain contributions from a number of our members and without the co-operation which the committee received from our members the book would never have been issued. I wish to mention especially that our Secretary devoted a great deal of time to the compiling of this book which will in my estimation aid materially the advancement of our industry.

We are facing another year with many complex problems but we are fortunate in having a solid foundation on which to build. The broad ideals outlined in our new objects which are to be discussed more freely later, the suggestions contained in the new book, the hour rates recommended by your Cost Committee and the trade regulations adopted a year ago should be a wonderful help to us all and serve, in a measure at least, to make our day's work a joy rather than a burden.

While we are on the subject of enjoying our work, let us not overlook the need, particularly during these times of stress, of taking a certain amount of recreation, for there is no truer saying than the threadbare one: "All work and no play makes Jack a dull boy." Now some of you may think that this advice is not necessary for the Canadian Paper Box Manufacturers as they respond well to a suggestion of an outing but I do feel that definite rest and enjoyment should be considered by all of us, as it is an important factor in the development of our industry. A day off occasionally with your family on a picnic or fishing trip will remove the cobwebs, enable you to solve **that** knotty problem and incidentally give your family a chance to get acquainted with you.

I do not wish to be accused of preaching a sermon but I cannot refrain from voicing the thought that there is not enough of the old-fashioned home-like spirit in evidence today either in our home or business. We in North America are devoting too much attention to the pursuit of the "Almighty Dollar," spending our few hours in a hurried luncheon at the club, later in the day, dinner, and theatre with a possible customer, hardly spending enough time at home for our families to know what we look like.

Before closing my remarks, may I be permitted to suggest **caution** in the growth of our industry. Care should be taken in the purchase of new equipment. Be sure that the need exists. Would it not be well, perhaps, to make a careful survey of the equipment in use and on order at the present time and find out how much more we can produce as an industry than we are turning out at present? I am quite sur ethat if we had this information in front of us we would find that there is plenty of capacity in the Canadian Paper Box Factories to take care of the increased demand for some time to come.

Do not misunderstand me, however. The writing on the wall indicates unquestionably a rosy future for this fair country of ours and if we all pull together carefully and steadily along sound lines with the high ideals of our association as a guiding star, we will undoubtedly share in the reward to which we are entitled.

I thank you for the attention you have given me this morning and also wish to take this opportunity of expressing my sincere appreciation for the co-operation I have received from our membership during my term of office. We have undoubtedly advanced every year since our industry has been organized, but there is still work ahead of us so I again say "Advance!—Advance!—Advance!"

ACCOMPLISHMENTS OF THE CANADIAN PAPER BOX MANUFACTURERS' ASSOCIATION.*

By S. J. FRAME, Secretary-Treasurer, Toronto.

The Association year ending May 31st last was a very active one being perhaps the most active year thus far in the life of the Association.

* Report of Secretary-Treasurer at the Annual Meeting of the Association, June 21, 1920.

The President, Vice-President and the various committees have worked very hard for the Association, always giving of their time when required, cheerfully and ungrudgingly.

During the year just ended, the Association has taken up numerous matters affecting the trade, and among its outstanding accomplishments in the year, are,—

The book entitled, "The Paper Box Factory—Efficiency and Production."

The preparation and issuance of a new table of hour rates.

The adoption of new "Objects."

The enrollment of the Quebec Paper Box Co. and Royal Paper Box Co. into membership in the Association, all of the Quebec City manufacturers now being members.

The book is the result of a great deal of work on the part of the contributors, also the members of the Cost and Labor Committee and myself.

Each member, no matter how advanced his methods, if he will take this book and read it carefully, also placing copies of it in the hands of those occupying positions of authority in his plant or aspiring to positions of authority, admonishing them to give it careful attention, will find the book to be most useful through its setting forth in concrete and crystallized form, a high standard of efficiency which, aimed at and earnestly followed, will lead to improved conditions in the Canadian paper box factories.

The new table of hour rates gotten out by the Cost and Labor Committee based on present actual costs, will be very useful to paper box factories who have not their own cost systems; the paper box factories not having their own cost systems who have used the hour rates referred to, having found such to be the case.

The Association is under a deep debt of gratitude to the Cost and Labor Committee for the great amount of work put in by them in the interests of the Association in connection with the "Efficiency" book and the hour rates and other matters.

References to the activities of the Association would be incomplete if the Toronto Carton Club were not mentioned. The Toronto Carton Club has been very active. It has held its luncheons twice each month. Very frequently, these luncheons are attended by outside members, their presence being always welcome.

Also, the Toronto Carton Club has held out-of-town luncheons four times in the year which have been well attended by members from Toronto and by members from outside points.

Considering that the Association as a body meets only once a year, the Toronto Carton Club, through its Toronto luncheons and its out-of-town meetings, and the movements in the interests of the Association which have originated at such luncheons, has continued in a marked manner to exercise a cementing influence on the Association.

The year just ended has been a very satisfactory one for the Canadian paper box industry. The de-



S. J. FRAME,
Secretary-Treasurer, Canadian Paper Box Manufacturers' Association.

mand has been good and a still greater volume could have been turned out were it not for the shortage of board. However, the shortage of raw materials prevails throughout the world and is not confined to the paper box industry. The Association has endeavored —and I believe with some effect—through communication with the board mills and other recommendations to its members as to the use and ordering of board to ameliorate as far as possible the disadvantages accruing from the shortage of board.

My remarks thus far have related to the progress of the Association during the past year. I am now going to ask you to take a survey of the Association from a broad perspective from its commencement to the present time.

The first seeds towards the formation of the Association were sown at a meeting held at Toronto on September 10th, 1914, at which eight paper box manufacturers were represented. At this meeting, a discussion took place respecting cost systems and the paper box business generally. A committee was then appointed to formulate plans for the formation of an Association.

Subsequently, five meetings of committees and others were held, but the Association made no definite progress until the first Annual Convention, which was held at Toronto on January 30th, 1917. This was a success in every respect, there being twenty-eight paper box manufacturers represented from all parts of Canada, including representatives from as far East as St. John and as far West as Winnipeg. Since that time, the course of the Association has been one of uninterrupted success.

While all of the matters taken up by the Association are to a more or less extent, either directly or indirectly of benefit to the industry, yet in an Association of this nature, it is obvious that a great deal of the work accomplished produces benefit of a nature which, while real, is intangible. For that reason, it might be well to set forth the accomplishments, in a general way, of the Association since its inception, they being as follows:

The Canadian paper box manufacturers have become acquainted with each other. Such acquaintance has led to each paper box manufacturer getting to know his competitors and to realize what a fine body of men they are. This acquaintance has also resulted in a spirit of friendship and helpfulness for each other among the Canadian paper box manufacturers, such spirit being of incalculable benefit to them. The good spirit prevailing among the paper box manufacturers is of such an exceptional nature that it has been commented upon by outside parties.

The gatherings of the Association give many members better opportunities of meeting the representatives of the supply houses than what they would have if there were no Association. Th supply houses have, in a number of instances, testified to the benefits of the Association.

As a result of the Association, a number of the paper box manufacturers are using uniform cost systems and have given the Association their cost figures for the purpose of compiling hour rates for the benefit of the members generally. In this connection, there is no doubt but that there is a marked movement on the part of members who have not cost systems, to get cost systems installed. This movement towards uniformity of arriving at costs has a most stabilizing effect on selling prices to the benefit of the industry.

To sum up, instead of the chaotic conditions which were in force previous to the Association, the paper box industry is now well organized in an Association, having in its membership 46 active members and 48 associate members.

The Association is now strong, has proved its permanence, and commands the respect of its members and of all who do business with them. The fact of the paper box industry being organized has raised the prestige and status of the industry.

The Association has continued to bring home to the paper box manufacture a realization of the very necessary function which he performs in the trade of the country by supplying to his customer an article which is a necessity to the customer, and which in fact, apart from its value as a package, helps very materially as an advertising medium to sell the goods of the customer.

The members may well feel proud of the Association, but it cannot rest on its oars. It must continue to steadily pursue its Objects. The progress made by the Association and its unceasing efforts towards further progress are well symbolized in the new Objects adopted by the Association. These new Objects have a place in the program of the present Convention and will be ably dealt with by Mr. C. T. Reid, the Vice-President of the Association.

The Association attained the first "Objects" which it set out for itself. With the spirit prevailing among the members, the Association will keep approaching ever nearer and nearer to the attainment of the new "Objects" which, as you will observe, are printed in the program.

Efficiency is interwoven in the new "Objects," and touching on efficiency, an article written a couple of months ago, says:—

"The clock has struck twelve on industrial and business mismanagement. Clients should realize that all manufacturing concerns will soon have brought forcibly to their attention the absolute necessity of closely studying costs and methods, and of improving the quality of their product. By reason of high labor costs they will be compelled to adopt the most approved and efficient manufacturing practices in order to lower costs of production to a point where an adequate margin of profit can be obtained. A large number of loosely managed concerns will from now on have increasing difficulty in making a profit. Another class of concerns which will bear watching, includes those businesses that have started since 1914. Concerns in this class have yet to encounter and overcome successfully the embarrassments accompanying high production costs adn declining selling prices. They have yet to experience what is called a buyers' market."

While self-interest constrains the members to strive for the attainment of the Association's new "Objects" there are higher incentives, to one of which I will briefly refer.

The British Empire (of which Canada is proud to form an important part) after its mighty effort, emerges from the dust of the world conflict victorious, and notwithstanding its scars, still the most powerful human force in the world, marching as of old in the vanguard of civilization. The war being over, to fin-

(Continued on page 708).

The Experimental Pulp and Paper Laboratory

(Concluded)

Microscopic Examination of Pulp and Paper

The authors cannot too strongly advise the frequent use of the microscopes in pulp and paper investigations. The technique of the use of the microscope, as well as fibre identification, are fully described in Herzberg's "Papier Prufung" and in reports by the Committee on Paper Testing of the Technical Association.* Aside from the Examination of the furnish of unknown papers and pulp, microscopic examination of the stock as pulped, study of the progressive beating of the stock, and other innumerable occasions arise where the microscope is of direct assistance. A balopticon for projecting the appearance of the fibres on to a screen is valuable but not essential.

Considerable chemical work must be done on analysis of cooking liquors, paper and pulp examinations, etc., and space should, therefore, be allotted for this important work.

Bleach Determinations.

Pulp can best be bleached in a beater equipped with a steam pipe and a washer for removing bleach residues. Experimental bleach determinations can be made by the following method:

A quantity of pulp equivalent to 40 grams of dry stock is used for each individual test. For bleaching tests, pulp obtained from the wet machine or directly after shredding for yield determination is placed in sealed Mason jars and a dry-weight determination is made on a separate portion in order to calculate the required amount of wet pulp per determination. The sample is placed in a small mayonnaise beater, or opened in the baby beater with sufficient warm water. The pulp is then transferred to a two quart pyrex glass jar and the total volume brought to 1600 cubic centimeter. For long fibred stocks, such as those obtained from coniferous woods, from 20 to 25 grams of dry stock are weighed out for each determination. For each bleach determination 6 sets of stock are used, the percentage of bleaching being varied in increments of 2 per cent below and above the required estimated amount. A solution of approximately 80 grams per liter (from 50 to 100 is satisfactory) of bleaching powder (35 per cent available chlorine) is a convenient stock solution. The strength of this solution is determined, as described by the committee of the Technical Association on Standard Methods of Testing Materials used in the manufacture of paper, and from the results of the titration the volume of the solution of the bleach liquor to be used in any particular test can be computed. The bleaching equipment consists of two units, each having a water bath large enough to hold three 2-quart glass aquarium pars and a heating element which on "low" will maintain the bath at 100-110° F. Further, by means of a motor, a glass agitator is caused to revolve in each jar, thereby stirring the stock.

Bleach tests are usually started at 4 p.m. and removed next morning at 8 a.m. By means of the starch-iodide solution, each sample is tested to determine whether the chlorine is exhausted. The bleached stock is washed on a fine wire screen with a stream from a hose and made into sheets on a hand mould, the sheets are couched between woollen felts on the press of the paper machine and dried over the dryers. Comparisons are then made with a standard white sheet.

Many laboratories bleach by making an excess of bleach and determine the excess of free chlorine by addition of potassium iodide and titrating back by standard thiosulphate. This method is not considered as satisfactory as the one just outlined, since the excess of bleach used there is danger of loss of an appreciable percentage of free chlorine gas, especially if the bleaching test is conducted at a high temperature. Further, in any chemical test or bleaching operation, there must be used a slight excess of chemical or chlorine in order to complete the re-action, and, according to the second method of testing, all traces of free chlorine are titrated back and deducted from the amount originally added. This method of experimental bleaching tends to give high results if chlorine is mechanically lost and to give low results from the back titration of the slight excess of chlorine which is actually required in the bleaching.

Recording of Color

To record the color or degree of whiteness of pulp and paper numerically is extremely desirable. The method for measuring the relative degree of whiteness of various pulps has been described in the report of the Committee on Sulphite Pulp of the Technical Association of the Pulp and Paper Industry. The Hess-Ives tint photometer, which is one type of colorimeter, is valuable for recording the color of paper in terms of parts red, blue, green, and black, as observed through the standard color screens supplied with the instrument. The instrument, according to the laboratory's experience, has its limitations as it is not so sensitive as the eye for detecting of small color differences. Further, the reading obtained by the instrument is decidedly affected by the glare or finish of the paper, and for pulp sheets by the roughness of the surface under observation. A rapid and accurate means of recording color of either pulp or paper is very desirable, but no such means or apparatus is known to the laboratory. For a more detailed account of the operation of the Hess-Ives tint photometer, the rader is referred to a paper by Otto Kress and G. C. McNaughton, entitled "A Numerical Expression for Color as given by the Ives Tint Photometer"—"Paper," August 2, 1916; also to another article by the same authors entitled, "Further Studies on a Numerical Expression for Color as given by the Ives Tint Photometer."

The study of the coloring of paper, evaluation of strength and quality of dyestuffs, and the apparatus and method of procedure has been recently described by one of the authors of this paper. (See Pulp and Paper Magazine, March 11, 1920, page 253).

Records:—The recording of experimental data is important and the following log sheets used at the laboratory for recording cooking and strength data may be of interest. To the record of the cook is attached, for filing purposes, the recording temperature and pressure gauge charts for that particular cook. The log sheets, can of course, be modified to suit the individual laboratory or mill conditions.

*These reports can be had from the Secretary, Technical Association of the Pulp and Paper Industry, Room 1102, 18 East 41st Street, New York.

U. S. DEPARTMENT OF AGRICULTURE (FOREST SERVICE)

FOREST PRODUCTS LABORATORY (MADISON, WISCONSIN)

Cook No.—— Proj. No.——

Species——— Log of Digester Charger, Soda and Sulphate Pulping. Date———

Wood

Weight of moist chips (lbs.)
Per cent bone dry
Bone dry weight of chips (lbs.)
Weight of water in chips (lbs.)
Volume of water in chips (lbs.)

Wt. of Can Lbs. Total

Na_2S Solution
Lbs. = gal.
Sp. gr. =
l. Thio Acid

NaOH — g.p.l. lbs.
Na_2S = g.p.l. lbs

NaOH Solution
Lbs. = Gal.
Sp. gr.
Acid

NaOH = g.p.l. lbs.

Cooking Liquor
NaOH = lbs. g.p.l. %
Na_2S = lbs. g.p.l. %
Liquor gal. gal./cwt.

Water
Lbs. = gal.

Remarks

Black Liquor
Free Alkali Total Alkali
Sp. Gr. =
Ratio combined to total
= %

Bleach required %

Shipment No. .....
.....

US. FOREST PRODUCTS LABORATORY

WOOD PULP AND YIELD DATA.

Project No. .....
Cook No. .....
Species .....
Date .....

Wood	Container	No.	No.	No.	Total
Wt., moist chips and container (lbs.)		.....	.....	.....	.....
Wt., container (lbs.)		.....	.....	.....	.....
Wt., moist chips (lbs.)		.....	.....	.....	.....
Wt., sample, moist (lbs.)		.....	.....	.....	.....
Wt., sample, bone-dry (lbs.)		.....	.....	.....	.....
Per cent bone dry		.....	.....	.....	.....
Wt., bone dry chips used (lbs.)		.....	.....	.....	.....
Pulp:	Container		No.	No.	Total
Wt., wet pulp and container (lbs.)			.....	.....	.....
Wt., container (lbs.)			.....	.....	.....
Wt., pulp (lbs.)			.....	.....	.....
Wt., sample, wet (lbs.)			.....	.....	.....
Wt., sample, bone dry (lbs.)			.....	.....	.....
Per cent bone dry			.....	.....	.....
Wt., bone dry pulp (lbs.)			.....	.....	.....
Wt., drain catch ,bone dry (lbs.)			.....	.....	.....
Wt., total pulp, bone dry (lbs.)			.....	.....	.....
Yield, bone dry, crude pulp (on basis of weight of bone dry wood) Per cent			.....	.....	.....
Sreenings:	Container		No.	No.	Total
Wt., wet screenings and container (lbs.)			.....	.....	.....
Wt., container (lbs.)			.....	.....	.....
Wt., sample, wet (lbs.)			.....	.....	.....
Wt., sample, bone dry (lbs.)			.....	.....	.....
Per cent bone dry			.....	.....	.....
Wt., bone dry screenings (lbs.)			.....	.....	.....
Yield, bone dry screenings (on basis of bone dry wood) Per cent			.....	.....	.....
Screened Pulp:					
Yield, crude pulp (per cent)		.....			
Yield, screenings (per cent)		.....			
Yield, screened pulp (per cent)		.....			

U.S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE.

Forest Products Laboratory, Madison, Wisc.

Ship't No...... *STRENGTH AND WEIGHT TESTS ON PAPER* *Project No.*.....
.....*No.*..... *OR PULP* .....*No.*.....
Observer ..... *Date* .....*Computed by* ..... *Checked by*.....

Species and description.....
.....
.....
Wet bulb temp.. F, Dry bulb temp,.....F, Per cent relative humidity.....%

Test No.	BURSTING AND TEARING TESTS. W'ght per Ream. Lbs.	Thick-ness. Inches	Burst'g St'gth. Lbs. per sq. in.	Tearing Strength. In M'chine Direction Lbs.	Across M'chine Direction. Lbs.	Thick-ness. Inches.	SCHOPPER TENSILE AND FOLDING TESTS. In Machine Direction. Tensile Strght. Kilo-grams	St'tch. Per cent.	W'ght of Strips. Grams	Fold'g Test. Double folds.	Across Machine Direction. Thick-ness. Inches	T'nsile St'gth. Kilo-grams.	Stretch Per cent	W'ght of Strips. Grams	Fold'g Test. Double folds.
1 to....															
10.....															
Total...															
Average															

Average bursting strength per pound ream.....lbs. per sq. in.
Average bursting strength per 1-10,000″ thickness.....lbs. per sq. in
Average tearing strength per pound, per ream.....lbs.
Average breaking length.....meters
Average stretch..... per cent
Average folding test.....double folds

Tearing strength in machine direction.....lbs.
Breaking length in machine direction.....meters
Folding test in machine direction.....double folds
Tearing across machine direction.....lbs.
Breaking length across machine direction.....meters
Folding test across machine direction.....double folds

Remarks.....
.....
.....
.....

U.S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE.

Forest Products Laboratory, Madison, Wisc.

LOG OF COOK.

Ship't No. .....
Project No. .....
Cook No. .....
Species .....

Date ..... *Observer* .....

Cooking Liquor:
Total SO_2 .....%
Free SO_2 .....%
Comb. SO_2 .....
Gal. Acid .....

Hour	Cook Duration Hours	Digester Therm. Read	Digester Therm. Cor.	Digest Steam Pres. lbs.	Digester Gauge Read	Digester Gauge Cor.	Digest Gas Pres. lbs.	Total Volume in digest	Relief Liquor Gals.	Remarks

(*Space is allowed for 24 observations*)

Liquor raised at (A.M.) (P.M.)
Gas relieved at (A.M.) (P.M.)
Blown at
Bleach required.....%

U.S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE.

Ship't No. ..... *Forest Products Laboratory, Madison, Wisc.* *Project No.* .....
Cook No. ....*No.*.....
.....*No.*..... .....*No.*.....
Data on .....
Observer .....*Date* .....

NOTE—This is the heading of the quadrille ruled (cross section) paper, used for plotting curves. Thin paper is employed to facilitate blue printing. The divisions are in 1/10 inches; the ordinates numbered every ½ index by tens to 150 and the abscissae (running the short way to the 7⅞″ x 8⅜″ sheet), numbered from 0 to 18. The word "Hours" is printed below, and is followed by a line for "Remarks."

British Trade News

(From Our London Correspondent.)

London, 14th June, 1920.

The Canadian Industries Exhibition was opened in London during the week by the Hon. Sir George Perley, K.C.M.G. It is the first exhibition of its kind to be held in England and it is a modest attempt to bring before the British public the quality and measure of Canadian products. All the stands were neatly and attractively laid out and everything looked pleasing to the eye. Stauntons, Ltd., of Toronto, had a very fine display of their wallpapers, 22-inch width, and I much admired their stand for the way it was dressed. Their semi-trimmed papers were shown off to perfection, and they had also some nice ready-cut borders, all produced in Toronto. Lower down the exhibition the Reg. N. Boxer Co., Ltd., also of Toronto, had a stand under the supervision of their British agents, The Tynecastle Co., of Edinburgh and London. They showed all descriptions of wallpapers manufactured by them and chief among them was a very fine collection of tapestry papers. The quality of the papers and designs and colorings were commented upon for their rich and high standard, and reflected much credit on the firm. Large crowds were attracted to the stand of the Canadian National Railways, where the intricacies and wonders of papermaking and pulp grinding were on view. This exhibit was prepared by the Forest Products Laboratories at Montreal.

Canadian's Competitors.

The supplies of groundwood (wet) received from various sources are given as follows for the first five months of 1920, compared with the same period in 1919:—

	1919.	1920.
Sweden	9,228	11,258
Norway	117,116	141,688
Canada	2,400	490
Other places	1,940	1,543
Total tons	130,684	154,979

It will be seen that Norway is one of Canada greatest competitors in this market. Here 141,688 tons are valued at £1,588,605 and Canada's 490 tons are returned at £8,820. Supplies of bleached chemical (dry) were received as follows for the five months ending May:

	1919.	1920.
Sweden	1,038	,1955
Norway	4,571	8,245
Germany	....	490
Canada and other places	607	3,405
Total tons	6,216	14,095

Sweden's Pulp Supplies.

Here we see supplies more than doubled. Canada had a fair share in supplying this raw material. Germany, it will be noticed, has sent 490 tons valued at $22,102. A notable feature in the past five months' trade is Sweden's supplies of unbleached chemical (dry). No less than £3,542,000 worth of this class of raw material has been placed on the British market, and soon found its way into the mills. The total supplies from all quarters ending May last—five months—were as follows:—

	1919.	1920.
Finland	....	15,443
Sweden	54,797	114,731
Norway	21,198	44,024
Germany	....	936
Canada and other places	15,824	13,988
Total tons	91,819	189,122

Finland, it will be seen is sending supplies to England. During May last this country contributed 3,927 tons of unbleached chemical, valued at £141,174. Canada has been sending a fair share of the 13,988 tons from "other places," but the quantity is below pre-war figures. In fact the best part of 13,000 tons came from the Dominion. During the period covering January to April, Sweden exported to all markets 207,500 tons of sulphite and sulphate, as against 128,000 tons during the same period in 1919. While the country's pulp exports have considerably increased the exports of paper from the same source have equally diminished. This is due to domestic demands and the holding of small stocks to see how the markets turn.

Exports to Canada.

During the month of May British mills reported to Canada: 57½ tons of printing paper, worth £826; 7 tons of writing paper, valued at £142; and 55 tons of other paper, worth £1,078.

The total exports of paper to all countries were as follows:

	Printing—May. Tons.		Writing—May. Tons.	
1920	3767 16/20	£286,314	886¾	£101,373
1919	1398	103,875	496 2/20	68,637
1913	8676 9/20	168,537	850 6/20	40,930

Printing paper, that is newsprint, was received from the following countries and I quote the values so that paper mill men arrive roughly at what the cost is like:

	Tons.	
Sweden	1,943 7/20	£88,020
Norway	1,665 1/5	82,933
Germany	8,043	47,576
Belgium	37 17/20	3,574
U. S. A.	271 6/20	14,529
Newfoundland	3,710¾	197,294
Canada and other places	4,780	237,290

Packing and wrapping paper was imported to the extent of 19,891¾ tons valued at £1,152,648. Owing to a reclassification by the Trade Board it is very difficult to find out now what is actually coming into the market, different grades of paper being mixed up with each other so that the technical man cannot unravel the figures.

Notelets.

During May 31,641 tons of strawboards were sent to the British market.

844 tons of coated papers were exported in May from Germany, Belgium, France, U.S.A., and Canada to England at a value of £75,069.

More labor trouble! The workers in England want 12 per cent an hour extra. Mill owners say it is preposterous.

British mills are giving orders out pretty freely for new papermaking machinery.

PULP AND PAPER NEWS

In conjunction with a large tract of freehold timber lands recently acquired in the Sudbury, Ont., district by the Continental Wood Products Co., a subsidiary of the Continental Paper and Bag Mills Co., a second pulpwood preparing plant and sawmill will be erected, and for that purpose a site is now being cleared.

Waste paper will be utilized by the Red River Paper Mills Co. in the manufacture of wrapping at its new plant in Winnipeg, Man. The mill is situated on Linden Ave., Norwood, and has a river frontage of 350 feet, with facilities for shipment of the product. Wrapping papers, manufactured from mere waste paper collected and paid for throughout the city, will be the initial product of the new mill. Other adjuncts will be manufactured after the mill has been operating for a short time.

The Women's Press Club of Toronto, enjoyed a pleasant outing at Niagara-on-the-Lake on Saturday last where they were the guests of Mrs. Edmund Phillips. Picnic supper was enjoyed on the lawn and the party returned to the city on the late boat.

Mr. S. J. B. Rolland, President of the Rolland Paper Company, was in Toronto this week on his way back after attending the annual meeting of the Canadian Manufacturers' Association in Vancouver. The Rolland Paper Co. is at the present time undergoing considerable expansion, work being in progress which will increase the company's output by about twenty per cent. Mr. Rolland was greatly impressed by the business possibilities of the Canadian west but, as he states, his visit was more in the nature of a holiday trip and as such he didn't size up the situation from a paper standpoint. Mr. Rolland spent a few days in Toronto visiting a number of his customers.

Mr. Wright, of Smith, Davidson & Wright, wholesale paper dealers of Vancouver, was in Toronto this week, on his semi-annual buying tour.

Mr. N. E. Wainwright and Mr. F. C. Bagley of the Canada Export Paper Company, Montreal, were in Toronto on business this week.

The Don Valley Paper Company, Limited, Toronto, are putting a new roof on their machine room and extending the size of the room. The improvements will take some weeks to complete.

Mr. John Ball, manager of the operation department of the pulp and paper division of Price Brothers, has resigned his position and is now connected with Mr. U. M. Waite of New York, and his associated companies.

The shareholders of the Spanish River Pulp and Paper Mills, Ltd., at a special general meeting in Toronto on Wednesday of this week unanimously approved of a bylaw passed by the Board of Directors providing for the issue and allotment of preference shares of the company amounting to 42 per cent of the par value of the outstanding preference stock up to June 30th, 1920, and also a further amount to retire the dividend vouchers issued last year with respect to the one year's dividend on the original issue of $3,000,000 of preference stock. The bylaw will accordingly become effective July 1st and the issue of preference stock will be made to the shareholders of record on June 30th, 1920, and to the holders of dividend vouchers to which reference has been made.

Mr. W. H. Sherriff, of the Hodge-Sherriff Paper Co., returned this week from a trip throughout the Canadian west to British Columbia, in the course of which he called upon the firm's customers. Mr. Sherriff noted an optimistic spirit in business circles generally, but states that this spirit is not so noisily expressed as used to be the case when the average westerner was inclined to forget about the vagaries of the elements and their effect on business conditions in the west. There is the same optimism, but it is tempered now through past experiences with fictitious booms and weather that knocked out the crops. Mr. Sherriff found the same conditions existing in the paper trade in the west as exist here, the shortage of kraft being especially noticeable. As a matter of fact, the shortage of this class of paper is so great in the west that they are buying manila as a substitute, when it is possible to secure supplies of that commodity.

The Paper Specialty Company has begun business at 411 Spadina Avenue, Toronto, as successors to the O. P. McGregor Paper Company, which some months ago went out of business.

Mr. E. H. Macklin, President and General Manager of the Manitoba Free Press, was in Toronto this week, on his way back to Winnipeg, after spending a few days in Hamilton.

Mr. P. S. Church of the paper sales department of the George H. Mead Company, of Dayton, Ohio, was in Toronto this week. Mr. Mead, the President of the company, who was in the city attending the meeting of the Spanish River Pulp and Paper Mills, was a caller at the company's Toronto Office.

Mr. Robert Flynn, who has been with the Buntin Reid Company, Toronto, for twenty years, most of which time has been spent in charge of the warehouse department, has been appointed manager of the company in succession to the late Mr. Crichton. Mr. Flynn is one of the best known and best-liked paper men in Toronto, and his promotion in the firm caused deep satisfaction amongst his many friends. Mr. Robert Downie, who went on the road some months ago, has been brought in from his territory and has been appointed assistant manager. No outside man has yet been appointed to take Mr. Downie's place.

The Kaministiqua Pulp and Paper Company, Limited, has been granted incorporation by the Ontario Provincial Secretary's Department, and will operate in the Port Arthur district. The company is capitalized at $1,000,000 and is authorized to construct, operate and maintain mechanical and groundwood pulp, paper, cardboard and other manufacturies. Among the incorporators are: Arthur E. Murdock and John E. Regan, financial agents, of Toronto. The prospectus of the company has not yet been issued.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, June 26.—Evidence accumulates that conditions are improving in at least one branch of the paper industry. The proprietor of a western Ontario country weekly on opening his mail one day this week discovered a letter from one of the distributors with whom he had placed an order for newsprint which read as follows:—"Dear Sir, We are in recept of your esteemed order of the 12th inst. and in reply would state that we are filling your order at once and are sending it forward by first freight. Thanking you for this business and hoping to be favored with your further esteemed orders, we are, etc." The publisher rubbed his eyes and after re-reading the letter to make sure that his sight was not playing him tricks, he heaved a sigh of relief at this evidence of the termination of his troubles. To be thanked for his order and to realize that even now his shipment was on the way, proved a severe shock to his system, but it is stated that he will survive. The manager of the Canadian Weekly Newspaper Association is authority for the further astounding statement that one of the weekly publishers on his list had reported that his cellar was full of paper. Are these facts portentious signs of a changed order of things in the newsprint world or do they indicate that the publishers have been more scared than hurt by what they feared was going to be a real famine? In any even it would appear that publishers are less "jumpy" now and that for the most part they are being fairly well served.

In other lines of paper, conditions and prices remain unchanged and while new pulp and paper enterprises are being launched, paper securities going up and the industry generally undergoing great expansion, the shortage of both raw stock and finished product is pronounced. Prices are high, and are likely to go higher, and there is talk in the trade of a further increase of from 15 to 25 per cent in July on most lines of cheaper grade of book, bonds and ledgers and from 10 to 15 per cent on the higher grades, although these have not been officially announced. This will mean that on some lines, when 30c for crates and 25c a hundred pounds for freight are considered, the cost laid down in the jobber's warehouse will be as high as $17.50. If the advance goes into effect the consumer will have to pay a still more fancy price for his paper.

Newsprint.

Practically all the daily and weekly publishers have now renewed their contracts for new supplies for the next three months at 5½ cents for roll and 6c for sheet news from two tons up. Supplies are coming through fairly freely and most of the publishers are being well looked after. Those who have not succeeded in getting their contracts signed up, however, are experiencing considerable difficulty in getting supplies, and the few small lots that can be picked up in the open market are liable to cost over ten cents a pound, and some newsprint is known to have sold as high as 14c a pound for spot lots. On the whole, the newsprint situation, as far as supplies to the publishers are concerned, may be said to be in a fairly satisfactory condition considering the difficulties the mills are under in meeting the big demands that are being made.

Book Papers.

The shortage in book papers throughout the country is indicated by the fact that hardly a sheet is to be had in Toronto. None of the jobbers have any stocks on hand to speak of, and as in the case of all other lines, orders are only being taken at the price prevailing at the time of shipment. High prices continue to rule, and what would appear to be the peak was reached this week, when 16½ cents was paid for a line of No. 3 book by one of the Toronto printing firms. The fact remains, however, that this grade of paper can be had for several cents lower than that price, there having been no jump in price during the past few days, except in cases where mills were prevailed upon to make special efforts to supply spot lots which the customer was ready to pay almost any price for. A canvas of a number of the paper warehouses in Toronto revealed the fact that book papers were not included in the small stocks of paper on hand and a bundle of the commodity was sought for in vain.

Wrapping and Tissues.

The week saw an advance in the price of sulphite wrapping of 2c a pound. Colored sulphite drug is now up to 16c, which is two cents higher than the prevailing price for the past couple of weeks. Paper towels have also advanced twenty per cent, but there is no change in the price of tissues. The mills, however, are taking no orders for tissues that they can avoid, and while there is a price list it is little use to the customer who buys on the understanding that he will pay the price prevailing at the time the goods are shipped. Mills are several months behind in their orders, and there is no immediate prospect of an improvement in the generally chaotic conditions that are existing in the tissue paper trade. In the specialty lines, such as white and colored tissues, there has been an advance in price, the lines mentioned now selling at $100 a thousand f.o.b. mill, which represents an increase of $20. The Interlake Tissue Mills, Limited, at Merriton, which supplies the greater part of these tissue lines, are making good progress with their new mill addition and an initial shipment of parts for their new paper making machine has now arrived.

Ledgers and Bonds.

While prices remain unchanged in these lines, the shortage continues, although in some grades small stocks are available. There is a great demand for these classes of paper, and most of it is picked up as soon as it reaches the warehouses, although some lines are coming through freer than some of the other standard lines of papers.

NEW YORK MARKETS

New York, June 26.—Some of the snap to spot demand for paper has been eliminated by the slowing up of activity in other lines of merchandise, and yet there is a steady tone to the market and prices evince a firm trend. As far as is visible, no one is lowering prices to obtain business—neither manufacturers nor



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jobbers. The fact of the matter is that sellers of paper have all the business in hand they can accommodate, being booked far ahead with orders, and instead of seeking fresh business, the majority of concerns are obliged to turn down proffers of business in frequent cases.

Mills with few, if any, exceptions continue to operate at as full capacity as prevailing labor and raw material conditions will allow. There are some paper plants, notably in the New England district, which are hampered by lack of raw material resulting from the recent railroad tie-up, and these mills are running somewhat below full production, but it can safely be said that most paper mills in the States are operating at close to 100 per cent capacity. The sole idea possessed by the paper manufacturer today is to make headway in catching up with deliveries, and no stone is being left unturned in an effort to produce as much paper as possible.

As stated above, demand has eased off to an extent in some parts of the trade. Only certain kinds of paper are affected, and the reduced operations of buyers have had little influence on the market for the reason that manufacturers are booked up in such fashion that a falling off in inquiry is of light consequence to them for the present. Should demand continue to recede, it might eventually be a different story, but opinion among paper men is that before mills are anywhere near caught up with deliveries demand for paper will have sprung up anew, it being generally believed that those buyers now refraining from absorbing suplies will of necessity be in the market for larger amounts of paper in the near future.

One of the strongest factors having to do with the situation is that there is a tremendous potential demand remaining unfilled, which leads producers to feel that should activity in any one part of the industry slow up that increased buying in other directions would more than offset the quieter condition in some corners of the trade. For instance, it is well recognized that daily newspaper publishers are omitting columns upon columns of advertising from nearly every issue because of their inability to get all the newsprint required. This is the one division of the trade that has witnessed the most pronounced slowing up in demand, and this condition is believed due to no other reason than that publishers are purposely keeping out of the spot market in the hope that they may effect a lowering of prices. It goes without saying that could newspaper publishers secure larger supplies of paper they would eagerly purchase them so as to carry the advertising they are now obliged to refuse. Advertising revenue is the source of income which keeps daily newspapers going and it is a certainty that publishers are not omitting advertising of their own free will.

Spot prices on newsprint continue to range from 12 cents upwards per pound at mills, and sellers experience no trouble in finding buyers for such lots as they have to dispose of. The book paper market is firm to an extreme. Mills are sold far ahead and in most instances are refusing to accept additional business excepting from regular customers, who ar eobliged to place orders to be filled when mills are in a position to do so and at prices prevailing at time deliveries are made. Tissues and wrappings are in little less demand, which seems due to buyers holding off in covering forward requirements rather than to any recession in consumption. While one hears a lot about depression in the clothing and various retail merchandising lines, department stores in New York are doing a large business, which would indicate that stores in other parts of the country are doing likewise, in view of which it is unlikely that the consumption of wrapping and tissue paper has decreased. Prices are maintained and mills in common are busily engaged in filling back orders as well as the new commitments they are entering into.

Fine papers rule firm in price and are being absorbed in steady volume. The market seems bare of surplus stocks and as soon as bond or ledger paper of any quality is offered it is quickly snapped up by buyers. In fact, dealers or mills are not called on to do much offering out of stock these days; buyers come direct to them and takeing all the supply to be had. There is a large demand for fine papers for export and everything points to a good part of it going unfilled. Local exporting firms are frank to say that they could put through by far more business with foreign customers if they could get the necessary paper to sell. Here is another factor which has an important bearing on the market, one which would likely come into much prominence should domestic demand undergo any material decline.

The board market is firm ad there is but little spot supply of any grade of board to be had. Mills are quoting around $115 dollars per ton for plain chip board and from $125 up for news board and say they are having no difficulty in securing these prices.

GROUNDWOOD.—The market for ground wood rules firm and the outstanding feature is still the tight supply situation. Very little mechanical pulp is available for spot delivery or for shipment sometime hence, and sellers fortunate to have some surplus stock to sell in the open market are getting all manner of prices for it. Quotation on spruce pulp of prime quality range from $110 upward a ton at grinding mills. There have been actual sales at $130, in some instances, and as much as $140 has been rumoured paid, but about $120 is generally recognized as a fair market level at the moment. Frequent reports are being received concerning the difficulty grinders are experiencing in obtaining ample supplies of pulp timber, and this condition obviously hampering manufacturing operations.

CHEMICAL PULP.—Prices on chemical woodpulp are firmly maintained and there is a continuance of brisk demand for all grades. Consumers are sorely in need of supplies in most cases and prices play a secondary role to that of delivery today, which means that buyers are meeting almost any figure asked so long as they are assured of getting pulp promptly. No quotable change in prices has occurred this week, but under existing circumstances prices are mainly nominal and it is difficult to ascertain what actual market values are. Newsprint sulphite has sold up to 8 cents a pound at pulp mills, while reports have been heard of sales of domestic bleached sulphite at substantially better than 12 cents. No. 1 kraft pulp of domestic origin commands 7 cents per pound, and foreign kraft has sold at as high as 8 cents ex dock.

RAGS.—An easier condition has developed in the papermaking rag market. The movement into consuming channels is lighter and prices in a majority of cases have fallen slightly. The reason for this apparently is that paper manufacturers, having covered their immediate requirements are now holding off in buying, as is usually their wont at this season of the year. Certainly there are no weakening factors visi-

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ble in the rag situation; on the contrary everything would seem to point to even higher prices in the fall if consumers come into the market to buy in customary volume at that time. France has placed an export embargo on all kinds of rags, and importers say they are having increasing trouble locating sizable amounts of stock in other European countries, while it is an established fact that domestic collections this spring have not begun to approximate those of previous years. Roofing rags have scored the largest decline in price and business has been reported at well under 3 cents a pound at shipping points for No. 1 packing, sales down to 2.75 cents having been rumored. Old whites are in less demand and are selling at from 14 cents upward for No. 1 repacked whites, while old thirds and blues are freely available at around 4.75 cents a pound f.o.b. shipping points. New cuttings of most kinds hold fairly steady in price, dealers as a rule being unwilling to sell at reduced figures while contending they are getting but a few fresh lots from cutting establishments.

PAPER STOCK.—Waste papers are in fairly good demand and, with the exception of one or two grades, prices are well maintained. Flat stock continues to ease off owing to the relatively narrow outlet among mills for this grade, and a little easier tendency is evident in folded newspapers, but mixed paper is firm at a quotable basis of around 1.90 cents a pound New York for No. 1 packing, and kraft, manila and other specialty papers are in constant call, as are shavings No. 1 hard white shavings are selliing at 7.50 to 8 cents per pound at shipping points and soft white shavings of No. 1 quality at 6.75 to 7 cents, while No. 1 old kraft has sold this week at close to 5.50 cents New York, establishing a new high value for this kind of paper. Collections are fair although dealers say they are not receiving the tonnage of fine grades of shavings that they ordinarily do.

OLD ROPE AND BAGGING.—Old rope is moving toward mills in a fairly steady way and at unchanged prices, dealers reporting sales of No. 1 manila rope at around 7.50 cents a pound. There is little activity of an important scope in old bagging, which is freely available at a basis of 3.25 cents f.o.b. shipping points for No. 1 scrap bagging. Strings are in good call and quotably steady, while gunny is moving in moderate quantities on contract.

"The modern A. B. C. for the whole community stands for Always Be Careful," says the Safety League.

PAPER BOX MAKERS MET AT QUEBEC.

(Continued from page 698).

ish up ,the British Empire will re-establish and maintain its commercial and financial supremacy, its hold upon which, during the war, it temporarily relaxed.

As the drops help to form the ocean, each one can do his little bit, in this respect, and live up to the glorious tradition embodied in the Latin saying "Civis Britannicus sum."

THE OBJECTS OF THE PAPER BOX MAKERS' ASSOCIATION.

Address by C. T. REID, Vice-President, at the Annual Meeting.

When I went up to Chicago, five years ago, and told some of the good fellows in the Western Association of Paper Box Manufacture what a bunch of crabs the men in our trade at home were, they asked me how I knew, and I said I judged entirely from what I had heard. And their advice was to get them organized and get to know them well and my judgment would change and it did. Up to that time I had never been in a competitor's plant and no competitor had ever been in ours. Since that time I have been a welcome visitor in all of them, have borrowed stock, or used their equipment in emergencies and they have done the same with us. The Association has accomplished much for the entire trade in Hamilton. We are optimists now about our own industry as being a growing asset of the community, and we do not damn the business, because of the rottenness of our competitors as we used to do. Of course we damn the board mills and the paper mills, but as they are all pretty well supplied with dams of their own, ours do not phase them much. The way the association has kept us in touch with the trend of the times, as far as our own business is concerned, has helped to make us optimists. Of course, there are all kinds of optimists, and in the past the paper box business has had too few of any kind. As good a definition as I have heard of an optimist is that he is a man who can see a light in the dark, where there isn't any, and the pessimist is the man who comes along and blows it out.

Coming to changes in the by-laws you will note that we will endeavor in future, by mutual co-operation among the members, to:—

"Uphold the standing of the paper box business, by educating the general public to a realization of the usefulness and increasing necessity of the paper

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box, and the extent and size of the paper box industry.

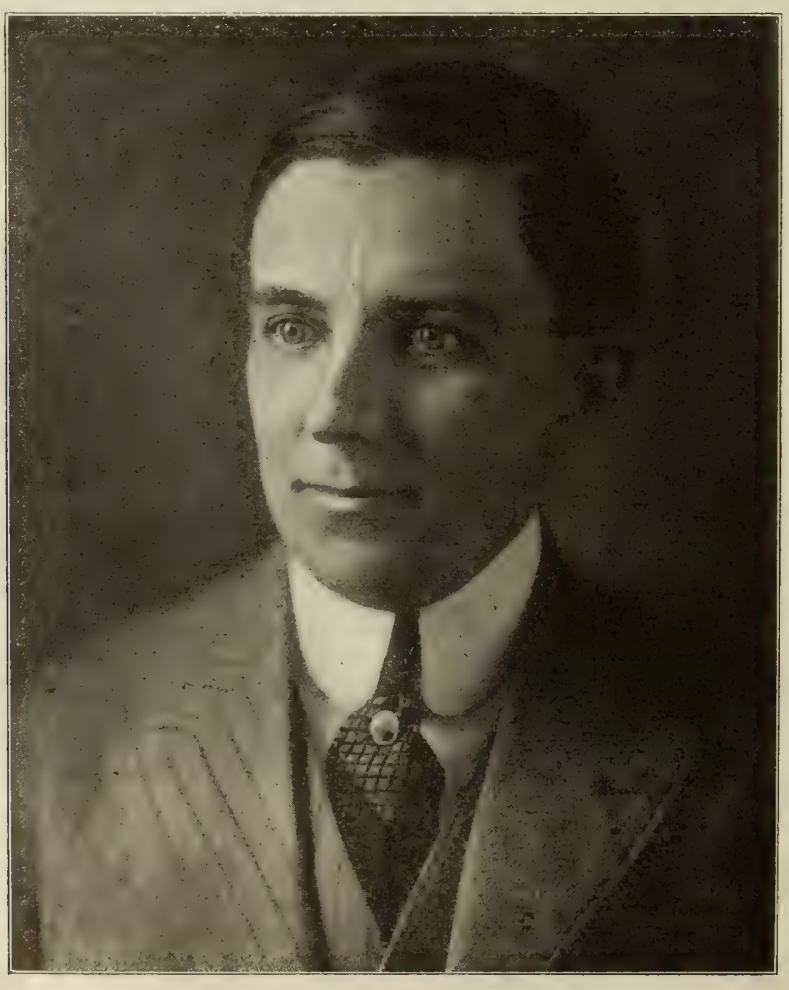
"Raise the general standard of efficiency of those in the business, whereby the capital involved shall have a proper return thereon, the management shall be adequately rewarded, the wages paid and factory conditions shall be such as to attract a good class of labor, and to improve the quality of the product turned out.

"Exchange information as to costs and other matters of general interest relating to the paper box business.

"To maintain and continue, by social intercourse, the good feeling at present existing among the trade, and those supplying it."

The paper box business has been no mean factor among the many that have contributed to the modern conditions of living. As it is true that no man lives to himself, so it is true of business. Can you conceive of the chaos that would exist if there was at this hour a total stoppage of the supply of paper boxes on this continent? You have often heard of the rock of supply upon which the great oil trusts were founded. That oil was absolutely necessary to the manufacturers of everything in the way of tools or machinery that man-kind uses either to provide clothing, or food or shelter or transportation. On the immense scale of modern business, how could hundreds of thousands of articles necessary to human comfort be marketed in acceptable condition, without the paper box? The general use of the paper box has revolutionized the packing and shipping methods of two thirds of the manufacturing business of the world, and the paper box can take credit for much of the speed with which the finished article in hundreds of lines of manufacturing, is packed and stored or shipped. After being considered for half a century a low down competitor of the wooden box, the paper box now takes the lead, and in the field of shipping cases, the paper container is rapidly superseding that of wood. Stick your chest out, Mr. Paper Box Manufacturer, and you will help the public to realize your importance in the world. Vie with other business men in your own community in public spirit. Make yourselves count in everything that is for the betterment of your home town. Belong to at least one organization that will give you a broader community vision than you can possibly get by devoting all your waking moments to your own business. Be proud of your business.

Put pep into all your dealings with your factory, and do not believe that conditions are anything but ideal now, nor that they cannot be made a lot better. Carry this pep into your relations with your competitors. Be glad of every chance to exchange information as to costs, or deliveries, or shop methods. It has been often and truly said that the paper box business is only in its infancy, that only the fringe of the possible uses of paper and card-board for contained purposes, has been touched.



W. P. BENNETT,
Retiring President, Canadian Paper Box Manufacturers' Association.

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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-:- EDITORIAL -:-

ON THE ROAD TO HARMONY.

Summer skies look brighter to the publishers of western Canada and newsprint manufacturers are breathing more easily than for some time past. A conference was in session at Ottawa to devise a better way of assuring the newspapers of a supply of paper than by enacting legislation which would be like the down of a dandelion—no one could predict where it would land. Relations between publishers and paper makers had been more than strained for many months, though both sides individually have been hoping for a peaceful understanding. Important matters, which should have been arranged by personal intercourse were delegated to committees and lawyers. A committee cannot speak from intimate knowledge for each person he represents, and a lawyer may, and often does, argue all around the point that should be made. When a deal is on that means the establishing of business—friendly business—relations, the individuals should come into personal contact.

The Pulp and Paper Industry has been proud of John R. Booth for many years, and now, in his 94th year, he is to be thanked for solving the problem that threatened seriously to embarass the industry. With much public sympathy for the western publishers aroused by editorials and news items, the Federal Government seemed on the point of passing a most unfortunate piece of proposed legislation. With a production of 800,000 tons of newsprint from Canadian mills, a larger proportion, some say 25 per cent., of Canada's newspapers said they could not get paper. All they needed was about 2,750 tons. Mr. Booth saw the solution and offered to underwrite the supply of half the amount required if other mills would guarantee the other half. This was readily agreed to and the air was cleared. Details may take a little time to work out, but the great point arrived at is the realization that the manufacturers meant what they said last December by the statement that Canadian publishers would be taken care of. Confidence has been restored, good-will will come.

The trouble seems to have been largely due to two causes, lack of personal contact, as mentioned, and reliance by the western publishers on a single mill for supply, assuming that the Government would see them through. It is reasonably certain that if these publishers had got into direct contact with other possible sources of supply last fall, or even this spring, a lot of worry and hard feeling would have been avoided. Now that the two parties are getting into direct contact and the publishers are visiting the mills and making personal arrangements, they find the paper men are really fine fellows—and the publishers are, too. A better feeling is already becoming evident. The paper maker would be a fool to throw down his home market and neglect the needs of his fellow-countryman. He wants to see the publishing business in a flourishing condition. The Pulp and Paper Magazine has consistently emphasized this point and it is now very gratifying indeed to see that the publishers are beginning to realize it also and that friendly relations are growing.

SQUARE CORNERED MOLECULES.

One of the strangest true stories that we have heard in some time was told at the summer meeting of the Technical Section. It seems that an oil salesman visited a pulp mill and in praising the quality of his oil to the superintendent remarked that the oils which were being used were decidedly inferior because in one of them the molecules were of cubical shape (and he drew a picture to show the form), while the other was not quite so bad as the molecules were pyramids, (and he drew another sketch), but that the oil which he was selling was far superior to any other on the market because the molecules were **round**. In fact the salesman, by misrepresenting something with which the superintendent was not at all familiar, convinced him that he was selling a ball bearing oil and consequently the best possible kind of lubricant. The curious part of this story is that we repeated it last week at the smoker of the American Society of Chemical Engineers and one of the gentlemen present was the chief chemist at the mill where the incident occurred and had overheard the conversation between the oil salesman and the superintendent. Another chemist from the same mill was also present and vouched for the truth of the story, else we would be strongly inclined to doubt it.

The superintendent in this case was not acquainted with even the rudiments of every day science and the salesman knew it. If the chemist had not been present, the wonderful new conception of the molecular state of lubricants would have been lost to the world, and this particular mill might have been induced to purchase a really inferior grade of oil, because a con-

cern that permits its salesmen so grossly to misrepresent either his own product or that of others is not likely to be depended upon for a first class article. It is not necessary for a man to have a college education or to be an expert chemist or engineer to have a clear conception of such elementary science as would enable him to detect such misrepresentations and to perceive the principal qualifications of the materials required in his department. The man on the job must be depended upon for considerable advice in the purchase of materials unless the concern has a large technical staff which can carry out performance tests for the benefit of the purchasing and cost departments.

Correct and accurate observation of conditions and results and the making of accurate records of quality and performance are of the greatest value in the economical operation of a pulp and paper mill. A foreman or superintendent cannot be expected to do this work properly unless he has a pretty fair knowledge of elementary science and mathematics.

The editor of this magazine happens also to be the editor of the text book which the Pulp and Paper Associations are preparing. In the examination of these elementary subjects, mathematics, physics, mechanics, electricity and chemistry it has been difficult to decide where to draw the line on the inclusion of a number of subjects. Incidents of the kind just mentioned, although fortunately not of the same character, have been convincing of the need of providing the man in the mill who has not had a high school education with information that will prevent him from making foolish and costly blunders, and enable him to co-operate intelligently with the management of a mill which desires to conduct its business along modern scientific lines. The man who does not know something which he has obtained more by study than by hearsay of these elementary subjects cannot ordinarily appreciate what is meant by accuracy in observation, adjustment or record. The successful mill of today and more particularly the successful mill of tomorrow must be operated on accurate knowledge. It is a waste of money to install a cost system when the quality of materials going into an order is not known more closely than the number of boxes of thirds and blues and hard shavings, and laps of pulp. The cost of these items cannot be ascertained unless a record is kept from accurate measurements of the quantities used and lost in course of treatment.

Most paper mills are careful of their buying and most managements are on the lookout for new materials which will do the work as well or better and cost less than those employed. In many cases it is not possible to tell how well a new article will work until it is tried out under working conditions. There are, however, many materials which can be inspected in the laboratory or simply examined carefully and intelligently and sized up as to their desirability in the mill. Such an examination must be based on scientific knowledge and this can be obtained only by study. Such knowledge is neither cheap nor easy of attainment but it is distinctly worth while as a possession.

NOT THE SAME CONCERN.

Considerable dust, we might say saw-dust, has been raised in Ontario on account of the investigation into the records of the cut of timber from Crown lands. One of the principal offenders according to reports is a lumber company called Spanish River Lumber Company. Another company of a similar name has been largely before the public lately because of the extent of its developments and the excellent reputation its stock is acquiring. This is the Spanish River Pulp and Paper Mills Limited, which operates pulp and paper mills at Sault Ste. Marie, Espanola and Sturgeon Falls, Ontario. This company as well as the one which is before the courts has leases of large tracts of Crown land timber. On investigation we have been assured that there is absolutely no connection between the managements of these two concerns whose names are unfortunately so similar. We take occasion to mention this matter as there is likely to creep into the public mind a suspicion of the integrity of one of the largest companies of our industry and one which is most careful to do what is right. Our industry has already had enough undeserved criticism without adding to it.

COBWEBS.

We have lost a good friend and the pulp and paper industry has lost a strong, enthusiastic and high-minded supporter in the death of George C. Sherman, of Watertown, N.Y.

The misleading colloquialism, calling pulpwood "pulp" is unfortunately too commonly used by people who really know better, and, finding its way into the papers often creates a wrong impression.

The recent visits of American editors and chemical engineers to Canada included trips of inspection to pulp and paper mills. There is close connection in both cases with our industry.

In the program of the visit of the American Institute of Chemical Engineers to the E. B. Eddy and Co. plant, we note that the visitors saw the process of "decorticating" the wood. Luckily we have a dictionary.

Canadians will be affected by the proposed scheme of taxing profits on business done in England in paper and pulp from countries outside the Empire. The proposition is a general one, applying to all foreign business and is being vigorously protested as will be seen in the account on another page of the British Wood Pulp Association.

Sulphite Waste Liquor Utilization*

RALPH H. McKEE, Ph.D., Columbia University,
New York City.

Two cords of wood require as cooking liquor about 2,200 gallons of the solution of calcium bisulphite and sulphurous acid, and give one ton pulp. On the completion of the cook the waste liquor is ordinarily drawn off, and is run into the adjacent river, to the injury of the river life. In other words, half of the wood goes to make paper pulp and half is dissolved by the cooking liquor and discarded into the river. The total solids of the waste sulphite liquor average about 10 per cent, the principal portion being a calcium ligno-sulphonate produced by the solvent action of the cooking liquor on the lignin materials which bind together the cellulose fibres of the wood. This waste liquor also carries a small percentage of sugar. The amount of this sugar, apparently dextrose and fructose, varies from 1.5 to 3 per cent, depending on the temperature at which the wood chips have been cooked.

The utilization of this liquor in the United States is being hastened by legislation forbidding sulphite waste liquor being dumped into the water courses. The States of Pennsylvania and Wisconsin have already passed such laws and there is similar legislation before Congress at Washington. So far as I know, none of the Federal or Provincial governments in Canada have as yet taken action, but one cannot tell how long they will continue to hold off.

For over half a century attempts have been made to utilize this sugar for the commercial production of alcohol. It is only in the last ten years that methods have been worked out which successfully accomplish this.

One method is to heat the sulphite waste liquor with slime sludge or lime, filter off or decant from the precipitated calcium sulphate and calcium sulphite, and ferment the resulting filtrate, after the addition of yeast and yeast foods. The alcohol obtained on distillation of the fermented liquor carries a small percentage of wood alcohol (up to 3 per cent) and minor percentages of other materials which, though small in amount, are sufficient to prevent the sale of the alcohol as alcohol of the highest grade, unless exceptional care is taken in the distillation. In 1918 this process, known as the lime or Ekstrom process, was used in Norway and Sweden by fifteen plants; in Germany and Austria by twelve plants; and in the United States, by one plant. The yields of alcohol by this process are generally lower than would correspond to the sugar content of the sulphite waste liquor. The explanation commonly given of the low yield is that it is due to the effect, in the neutralization step, of a local excess of lime on the sugar, it being well known that hexose sugars are readily destroyed by alkalies. The total production of alcohol from sulphite waste liquor in the above mentioned countries in 1918 was approximately 6,000,000 gallons, most of it being used as automobile fuel. In the United States the process just described has not proven to be especially profitable, partly because of the low yields and partly because of the high installation cost and the extreme care and skill required in its operation.

The second process arose about two years ago, due to certain experimental work, carried out in the chemical engineering laboratories at Columbia University, which showed that the common belief that sulphur dioxide and sulphites are poisonous to the yeast organism is incorrect. That these do prevent the growth of the yeast organism in many liquors is true; but our evidence is that this is due to the fact that they are reducing agents and use up the dissolved oxygen of the liquor rather than that they have any direct action on the yeast organism. If this explanation is true, then by bubbling oxygen or air through the liquor the effect of the sulphur dioxide and sulphites, when present in but moderate amounts, should be balanced; and actually this was found to be true. Sulphite waste liquor, from which a portion of the free sulphur dioxide has been removed, ferments readily and rapidly in the presence of yeast and a current of air. If the sulphite liquor is used without the removal of a portion of sulphur dioxide, fermentation will ordinarily take place, but the speed will be slow. It is better to remove the excess of sulphur dioxide by steaming the liquor for a time. The process has been carried out, not only in the laboratory using a few liters, but, through the courtesy of the Hammermill Paper Co., Erie, Pa., on small commercial units. Our first fermentations at the Hammermill plant were on 300 gallon charges, and later we used 13,000 gallon charges. We installed a commercial size still capable of handling 200 gallons of 95 per cent alcohol a day, and proved that there were no complications in the distillation of the alcohol formed in the sulphite liquor by the new process.

As carried out by the new process, the liquor after removal of the alcohol, is essentially free from sugars and sulphurous acid, and accordingly is a product of a less obnoxious character if run into the water course. Later it will be shown it can be evaporated and used as fuel with advantage. As by-products of the alcohol process there are obtained, some sulphur dioxide in a form ready to be used in the pulp mill acid system, considerable hot distilled water for use as boiler feed (30,000 lbs. at 212 deg. per hour for a 100 ton pulp plant), and much warm water for use in washing pulp, instead of using cold water. In calculating costs of alcohol manufacture (see tables) no credit is given for any of these by-products.

In the method of carrying out the new alcohol process most efficiently, the sulphite waste liquor is in one step evaporated to approximately half its volume. If this liquor, after distilling off its alcohol content, is concentrated to 30 deg. Be, i.e., a liquor of 50 per cent solids content, it can then be burned in a properly designed boiler plant, by means of the ordinary form of oil burner, in which oil is sprayed into the furnace. This will give us for a 100 ton pulp mill, about 1,000 H.P. per 24 hours as power; besides approximately one and a half times the amount of low

* Paper presented at the summer meeting of the Technical Section of the Canadian Pulp & Paper Association, Sault Ste. Marie, June 23, 1920.

pressure steam required for the evaporation, in triple effect evaporators of the waste liquor left after the alcohol distillation, to the 50 per cent solids content liquor ready to be burned under the boilers.

The amount of waste sulphite liquor commercially available, using the ordinary type of blow pit and washing by displacement has been shown by tests conducted at the plant of the Hammermill Paper Co., Erie, Pa., to be, on an average, 1930 U.S. gallons per ton of pulp. In other words, actual tests have shown the previously used figures of 1,200 to 1,600 U.S. gallons per ton of pulp to be too low an estimate.

Method of Operation.

The detailed method of operation is as follows: The hot waste sulphite liquor draining off from the wood pulp in the digester blow pit is run into a desulphurizing column about 16 feet high, where it meets a counter current of steam and has the larger part of its sulphur dioxide removed. The sulphur dioxide recovered in this way is taken to the absorption towers to be used in the manufacture of fresh cooking acid.

The hot desulphurized liquor is next evaporated to approximately half its volume in a thermo-compressor type of evaporator. The choice of this type of evaporator is determined by the fact that the sulphite waste liquor is essentially a colloid and accordingly boils at approximately 212° F., even when partially concentrated. This makes evaporation of such a material very cheap and requires but a small installation expense. The liquor as it comes from the desulphurizing tower may be fermented without evaporation, but to do so means doubling the capacity of the fermentation tanks and the building containing them, and is not wise from a financial point of view.

The hot liquor is next cooled counter currently with water. The warm water thus produced has decided advantages over cold water in the pulp mill in the washing of pulp. The sulphite waste liquor at about 29° C. is run into the fermentation tank and hydrolyzed yeast, ammonium sulphate and calcium acid phosphate added as yeast foods along with the yeast. A slow current of air is introduced through pipes leading to the bottom of the tank. The air current serves the double purpose of furnishing the required oxygen needed by the yeast, and of keeping the yeast mixed with all portions of the fermenting liquor. With fermenting liquors carrying large amounts of sugar, such as molasses, the carbon dioxide evolution is sufficient to keep the mass of the liquor stirred, but with fermenting liquor carrying only a small percentage of sugar, such as waste sulphite liquor, the carbon dioxide evolution is scarcely sufficient to keep the yeast in thorough suspension.

After 60 to 72 hours fermentation the alcohol is distilled, best in a continuous still, to give a crude alcohol, and this crude alcohol is then re-distilled in a discontinuous or batch still. On one of the upper plates of the rectifying column of the batch still, there is run a dilute solution of soda ash to neutralize the free sulphur dioxide which accompanies the alcohol during distillation.

I have carried out fermentations using samples of sulphite liquor from some fifteen mills. The yields of 95 per cent alcohol vary between 0.55 per cent and 1.35 per cent, with an average of about 1.00 per cent calculated from the volume of sulphite waste liquor.

Using the data obtained at the plant of the Hammermill Paper Co., Erie, Pa., in our fermentation and distillation of charges of 13,000 gallons of sulphite waste liquor, I give in Table No. 1, the costs of producing alcohol for a hundred ton sulphite pulp mill. The percentage of alcohol given is 1 per cent, though the percentage obtained in the experimental work, using the 13,000 gallon charges mentioned before, was 1.07 per cent. The costs, moreover, have been increased to what I believe to be average Canadian costs.

TABLE I.—Cost of 95% Alcohol.

Basis of 100 tons sulphite mill, 300-day year, 1,930 U.S. gallons of waste sulphite liquor, per ton of pulp made:

A.—POWER:		
Evaporation, desulphurization,	416 BHP at $100	$41,600
Distillation	85 BHP at 100	8,500
Pumping	22 BHP at 70	1,540
Air Compressor	20 BHP at 70	1,400
		$53,040
B.—LABOR:		
Superintendent, at $3,000		$ 3,000
2 Stillmen	65c per hour	4,680
2 Desulphurizing men	65c "	4,680
2 Fermenting room men	65c "	4,680
2 Laborers	57½c "	4,140
		$21,180
C.—PLANT:		
Buildings		$145,000
Wood fermenting & storage tanks 11-23′, diam. x 20′		25,000
Stills, evaporators, desulphurizers, yeast-growing equipment, alcohol storage		177,000
Piping		20,000
Motors and pumps		8,000
		$375,000
D.—COST OF MANUFACTURING:		
Horse power		$53,040
Labor		21,180
Yeast food		15,000
Soda ash		5,000
		$94,220
E.—CHARGES:		
Interest on Investment, 8%		$30,000
Depreciation, buildings, 5%; Mach'y, 10%		28,500
Repairs		11,580
		$70,080
F.—RECAPITULATION:		
Percent. of 95% alcohol on original liquor		1%
Gallons (U.S.) 95% alcohol per year		$579,000
Cost per gal. (Item D)		16.27c
Cost per gallon (Item E.)		12,13c
Total cost per U.S. Gallon (not including royalty)		28.40c

The lime process has a number of disadvantages, the principal ones of which are:

1. The high lime requirement, amounting in the case of a hundred ton plant to four tons a day, or a yearly cost of $18,000.

2. The extra labor required to handle the incoming lime, to slake the lime and to handle the outgoing sludge.

3. The loss of sugars due to the action of the lime amounts to approximately 10%, and accordingly means

an increase of 3c a gallon in the cost of alcohol production, and a decrease in income from sales, if alcohol is sold at 60c a gallon, of $36,000, a year.

4. Sulphite waste liquor neutralized with lime carries a cloud of suspended solids, even after settling and decantation.

5. The residual slop from the alcohol still is not in good condition to be evaporated for use as fuel.

6. Scale formation, in the case of the lime process, is very rapid in the still. I have seen gypsum scale over half an inch thick on parts of a still working under the lime process.

Fuel Value of Residue.

At the April meeting of the Technical Association of the American Pulp & Paper Industry in New York, there was presented a paper on Fuel from Sulphite Liquor (published in Convention number of paper). Making use of the great advances of the last few years in boiler design and boiler practice and the burning of powdered coal and of oil and using the data regarding concentrated waste sulphite liquor in the paper referred to, we have as the simple and desirable way to utilize the waste liquor after the distillation of the alcohol, its utilization as fuel.

When this residual sulphite liquor is evaporated we have the residual showing on a dry basis for a typical liquor at heat value of 7,950 B.T.U. per pound, ash 13.9 per cent. The sulphur content of the residue is 5.4 per cent and of the resulting ash 1.9 per cent. For each ton of pulp there is obtained, after having had the alcohol removed, about 1,100 gals.—9,900 lbs. containing 14 per cent solids—1,386 lbs. To concentrate to 50 per cent solids will require the removal of 7,128 lbs. water, with formation of a mobile pitch of 50 per cent solids weighing 2,772 lbs.

B.T.U. developed by burning 1,386 lbs. of fuel of 7,950 B.T.U.	11,018,700
B.T.U. required to drive off 1,386 lbs. of water: 127,512 and 1,344,420 B.T.U. (raising temperature and vaporizing)	1,471,932
Theoretically available B.T.U.	9,546,768

This is equivalent to 682 lbs. coal, 14,000 B.T.U., per ton of pulp made, or 34.1 short tons per day for a 100 ton pulp mill.

If this sulphite pitch is burned under a boiler to give steam of 150 lbs. gauge pressure, there will be obtained a boiler efficiency varying between 60 and 80 per cent, according to the design of the boiler and its firebox. If 60 per cent, then per ton of pulp there will be obtained from water at 120° F.:

$$\frac{60 \times 9{,}546{,}768}{1{,}107} = 5174 \text{ lbs. steam at 150 lbs. pressure.}$$

If 80 per cent, then—

$$\frac{80 \times 9{,}546{,}768}{1{,}107} = 6899 \text{ lbs. steam at 150 lbs. pressure.}$$

We may use the steam generated for the development of power in non-condensing steam engines. The exhaust steam of such engines could be used to evaporate the liquor in multiple effect evaporators. On the basis of this system we have the following:

A simple non-condensing Corliss engine, using steam of 150 lbs. pressure, has a steam consumption of about 25 lbs. per indicated horse power. Therefore from our steam we get,

At 60% boiler efficiency $\frac{5174}{24 \times 25} = 8.6$ I.H.P. per day of 24 hours per ton pulp.

At 80% boiler efficiency we have $\frac{6899}{24 \times 25} = 11.5$ I.H.P. per day of 24 hours per ton pulp.

The steam exhaust from this type of engine is at a pressure of 3 to 5 lbs. per square inch, and is about 88 per cent dry. Assuming that owing to pipe condensation and other heat losses it delivers but 75 per cent of the theory to the evaporators.

At 60 per cent boiler efficiency we have $5174 \times .88 \times .75 = 3414$ lbs. steam per ton pulp.

At 80 per cent efficiency we have, $6899 \times .88 \times .75 = 4553$ lbs. steam per ton pulp.

To evaporate the 1,100 gallons to 50 per cent solids, as calculated, will require the evaporation of 7128 lbs. of water. A triple effect evaporator of ordinary type will evaporate this amount of water if furnished 2651 lbs steam (or a quadruple effect with 1967 lbs. steam).

If boiler has 60 per cent efficiency then we have per ton of pulp an excess of steam above the requirements of the triple effect evaporator of $3413 - 2651 = 763$ lbs.

If boiler has 80 per cent. efficiency $4553 - 2651 = 1902$ lbs. Or, in other words, for a 100 ton pulp plant, the fuel available will give, in addition to the energy required for the evaporation of the slop from the alcohol still to a concentration adapted to be burned from a nozzle, such as is used for burning fuel oil, the following:

If the boiler has a fuel efficiency of 60 per cent, 860 H.P. per 24 hour day and 76,300 lbs. low pressure steam.

If the boiler has a fuel efficiency of 80 per cent, 1150 H.P. per 24 hour day and 190,200 lbs. low pressure steam.

Investment required to carry through this fuel economy:—

Triple effect evaporator to evaporate 30,000 lbs. water an hour installed	$75,000
Boiler 1,000 H.P. installed	40,000
	$115,000
15 per cent depreciation and repairs per year	17,250
Labor, 2 × 24 × .65c × 300 days	9,360
Yearly cost of operation.	$26,610

With H.P. year $100 and coal $8 ton the income is as follows:

If boiler has 60% efficiency—	
860 H.P. has a year value of	$86,000
76,300 lbs. steam at 3 lb., coal at $8.	5,232
	$91,232
Cost of operation	26,610
Yearly credit value	$64,622

At 80% boiler efficiency—	
1150 H.P. at $100 H.P. year	$115,000
190200 lbs. steam at 3 lb., coal at $8 ton	13,040
	$128,040
	26,610
Yearly credit value	$101,430

If these credit values be credited against the alcohol cost, we have credits of 11.1c per gallon of alcohol if a boiler efficiency of 60 per cent is obtained, or 17.3c per gallon of alcohol if a boiler efficiency of 80 per cent is obtained. This leaves net alcohol costs per gallon of 95 per cent alcohol of 17.3c, or 11.1c in the two cases.

Note:—The discussion of this paper will appear as soon as available.

ANNUAL FOREST GROWTH MISREPRESENTED.

In the following letter to the Pulp & Paper Magazine, Mr. Barnjum takes exception to certain statements of Col. Haskell of the International Paper Co:

I notice that the rate of annual growth in our forests must be increasing quite rapidly, as in the issue of the Pulp and Paper Magazine of May 13th, the Vice-President of the International Paper Co. claimed a 4 per cent growth, while in the issue of May 27th he claims it to be 11 3-7 per cent, and that there may be no misunderstanding in connection with these figures, I will quote his statement verbatim:

"As to the 'four per cent increment,' I desire to quote from the Ninth Annual Report of the Commission of Conservation of Ottawa and from Professor C. D. Howe of the Faculty of Forestry, University of Toronto, in his monograph entitled 'Forest Regeneration on Certain Cutover Pulpwood Lands in Quebec.' In this brochure on page ten he states as his conclusion from exhaustive studies made in the St. Maurice Valley, it would take 70 years for a spruce tree, 4 inches in diameter, to attain a diameter of 12 inches.

"Let us see exactly what this means in growth percentage. A block of spruce one foot long and 4 inches in diameter contains 150.8 cubic inches. A block of spruce one foot long and 12 inches in diameter contains 1,357.2 cubic inches. Therefore in 70 years a foot section of a 4 inch spruce tree would gain 1,206.4 cubic inches in attaining a diameter of 12 inches.

"This is an increase in the 70 years of 800 per cent, or an annual average increase of 11 3-7 per cent per annum. And in considering this astoundingly large percentage of annual growth, it must be remembered that this is simply circumferential growth, and takes no account whatsoever of altitudinous increment."

The International Paper Company must be very short of wood when it becomes necessary to grow trees at such a rapid rate.

It is much to be regretted that pulp cannot be manufactured from fine theories. If it could be, there would certainly be no shortage of paper today, but we are faced with a condition and not a theory. The figures quoted by this official of the International Paper Company are the very best evidence that there is possibly no net annual growth in our much abused forests as they exist today, for if there were an 11 per cent growth, a 4 per cent or even a 1 per cent net growth, there would be more standing wood on the Quebec leased lands today than there ever was, as the annual cut on these lands is only 2,000,000 cords, or less than 1 per cent of the stand of 224,000,000 cords, as quoted by this official.

I am not vouching for any of the above figures except the annual cut, which is correct. I am merely using his own figures to show that his contention that there is a net annual growth is ridiculous. When the cut only amounts to less than one per cent of the stand of timber and still our supply is diminishing, so very much more than this amount every year, how can there be any net growth?

The fallacy of the contention that there is any such amount of growth lies in a fact that should be perfectly plain to any school boy. We might just as well contend that each child that is born lives to the age of three score years and ten, in which case the world would be as densely populated with human beings as the vice-president of the International Paper Company would have it covered with trees.

If anyone questions the rapidity with which our supply of timber is diminishing, I would ask why it is that some of the larger operators are now cutting in such remote sections that it takes two years to drive their logs to the mills, and why it is that limits have advanced in price from, say, $100 per square mile to $3,500 per square mile? Why pulpwood has advanced from $3.00 per cord to $30 and more, f.o.b.? Why fee land has advanced from $1.00 per acre to $10, $15 or $30 and over? Also why the size of logs has dropped from six or seven down to sixty or seventy to the thousand feet, and why they are shipping wood out of the country by rail that runs in size from four or five inches down to 1½ inches in diameter, mere poles that have only just begun to grow? Also why are all the larger paper companies in Canada planting seedlings in a large way as fast as they possibly can?

With the above cold facts staring us in the face it must of course, be perfectly apparent to any man of ordinary intelligence that any claim made as to a net annual growth is simply a "delusion," and the greatest satisfaction we have in this connection is in the knowledge that all of the people cannot be fooled all of the time.

FRANK J. D. BARNJUM.

Annapolis Royal, N.S.,
June 25th, 1920.

B. K. SANDWELL TO LECTURE AT McGILL.

McGill University has appointed B. K. Sandwell, editor of "The Canadian Bookman" and "The Journal of Commerce," which are also published by the Educational and Industrial Press, and well-known as a public speaker in Montreal and other cities, to an assistant professorship in the Department of Economics and Political Science. Mr. Sandwell has, for some years, delivered lectures in both extension and regular student courses in the University. He is known to the public through both publications of which he is editor and also through the lectures ranging in theme from literature and writers to points of economic interest and importance, which he has given on many occasions not only in Montreal, but in other Canadian cities, and at the Alexander Hamilton Institute in New York.

Paper enters largely into the construction of every Korean house. The interior is lined with paper. It has a paper roof, paper floor cloth and paper walls.

Roofing Problem for Paper Mills Solved by Gypsum Slab*

By H. S. TAYLOR,
Chief Engineer, Management Engineering and Development Co.

Of the many problems that confront the designing engineer in the pulp and paper industry, that of roofing for the different buildings included in the modern paper mill is an important one. This problem is of special importance in machine rooms, pulp mills, beater rooms, recovery plants, or in any other department where excessive evaporation is a part of the processes carried on as the roof slab, of whatever material it may be, is subjected on the under side to the action of a volume of air laden with moisture to the point of saturation, requiring but the slightest lowering of temperature to reach its dew point, and deposit condensation on all parts of the roof structure with the resultant drip that is so commonly found in paper mills.

From the above we can readily see perhaps the most important reason why the engineer is confronted with the problem of roofing, namely, condensation of water from the vapors within the room. As condensation on any surface is caused by a differential of temperature between the surface and the vapor in contact with it, the colder the climate in which the mill is situated, the more important the problem of covering becomes; in fact, for mills in our southern states we might say that almost any structure that offers protection from the elements will do, but for the northern states and Canada, protection is but a minor factor.

Having named condensation as the most important cause of the problem of roofing, let us state the two causes of annoyance and expense to the operator:—First, the deposit on the surface of the roof structure, and second, drip therefrom to the floors and machinery below. The first has a corrosive or rotting effect on the structure itself, and the second is of great inconvenience to the operator.

It is therefore the aim of the engineer to remove all water from the building in the form of saturated vapors and thus eliminate condensation. This removal is a problem of ventilation and not roofing, but it is mentioned lest any conclusion be drawn that an economical roof structure could be designed that would have sufficient insulation effect to prevent condensation on its under surface without the mechanical removal of the surrounding vapors and replecement with dry air. The problem is to prevent condensation by the removal of vapors before reaching the dew point, and the replacement under roof with dry air of a temperature that will prevent condensation. Each heat unit that passes through the roof slab must be replaced and as each unit of replacement represents a unit of cost to the operator, a material of low conductivity for roof slab will show a direct saving in fuel in proportion to the degree of conductivity.

Even with the most efficient system of ventilation condensation, to a certain degree, will take place at certain temperatures, and the roof structure become laden with a deposit of water. If this structure is made up of a material that will become saturated, corrosion, rotting or other deterioration will take place and the life of the structure is dependent on its rate of corrosion or decay. A material must therefore be selected that will either not become saturated or will show no injurious effect should such saturation take place.

We now have the two main characteristics required for roof slab. First: long life, which we will call durability, and second, conductivity. Minor characteristics such as weight, cost of placing, cost of handling, etc., must be taken into consideration, but the material selected must first answer to the durability and conductivity test.

There is one other enemy of durability, but as it attacks but one of the standard roofing materials, namely steel, we will make but brief mention of it. This enemy is corrosive gases, either from sulphite mills or bleach plants. Steel encased in concrete is not protected, gases attacking the encased steel members, and for roof slab where such gases come in contact with it, material must resist the action of gases as well as condensation.

In the Spring of 1919, Col. C. H. L. Jones, manager of the Spanish River Pulp & Paper Mills, Ltd., instructed the Management Engineering and Development Company to recommend a roof slab to replace that then on the machine room of their Lake Superior Mill. This roof was put on in 1912, of 3 inch yellow pine supported on 10 x 12 inch yellow pine purlins in turn supported on steel trusses. We considered the problem on the basis of durability and low conductivity, but also had to take into consideration the 18 feet spacing of roof trusses designed for a load of not over 70 lbs. per foot. The wooden sections of this structure were decayed to a point of failure seven years after placing.

It will be seen that many of the standard roofing materials must be rejected on this basis. Wood, the most common, is not durable, concrete, steel, tile, etc., have a very high conductivity, besides being of a weight that requires additional supporting members. Concrete with cork insulation on the upper surface fulfilled the first two requirements, but the cost of the structure was prohibitive, due to the high price of cork and additional supporting structure to carry the increased weight.

Wood treated with a preservative such as creosote oil of tar, etc., is being specified to some extent for roofing where condensation is extreme, and such treatment doubles or even trebles the life of the structure, but a thorough treatment is very costly, as such plank and timber must be dried out, otherwise bleeding will take place and the drip of the preservative is certain to cause loss in production besides being exceedingly disagreeable. One of the chief objections to such a structure is the fire risk, for the treated wood is

*Address at the summer meeting of the Technical Section of the Canadian Pulp and Paper Association, Sault Ste. Marie, Ont., June 23.

much more inflammable, and a protest from the insurance companies against this roof material is sure to arise.

Wood roofs with air spaces or insulation layers of felt or cork have been tried out, but their life is limited, as the wood sooner or later becomes saturated with moisture giving life to the numerous species of fungi that destroy the fibre and life of the structure.

The result of a thorough investigation was the selection of gypsum for roof slab material combined with wood shavings and built up in the so-called metropolitan system of slab construction.

This monolithic gypsum composition slab has long been used for fireproof floors and roof construction in the eastern United States and Canada under the trade name "Metropolitan." Some of the oldest of the large buildings of downtown New York City are being built of this construction 60 Wall Street, 42 Broadway, Beaver Bldg., Singer Bldg., etc., as well as hundreds of heavy manufacturing and loft buildings, apartments, hotels, residences and the like throughout the metropolitan district and in other communities. The first installation was made in 1892, and it came into extended use in 1894. During this year a gypsum roof was placed on the St. Nicholas Skating Rink. I have for your examination a piece of gypsum knocked from the underside of the floor slab of this building just above the refrigerating machinery. The steel stable reinforcement was found to be in excellent condition when exposed after 22 years. I also have for your inspection a piece of cable 23 years old, taken from the Horticultural Hall, Philadelphia.

This Metropolitan type of construction was placed on the Woronoco Mill of the Strathmore Paper Company in 1912; the Wayagamack Pulp and Paper Company at Three Rivers made an installation in 1915; Price Brothers have this type of construction over one of their machine rooms, the roof having been laid in 1915, and the Great Northern Paper Company, of Millinocket, Me. ,have a gypsum slab roof which was placed in 1913. For mills of the Escanaba Paper Company at Escanaba, Michigan, designed by the Management Engineering and Development Company, gypsum roofs are on machine room, boiler house and grinder rooms and the owners are well satisfied.

The slab is designed on the catenary principle; cold drawn, twisted steel wire cables being figured to carry all the loads in suspension between beam supports. These cables are anchored to the end beams and brought into uniform deflection and tension by steel rods midway of each span.

Gypsum, more commonly called plaster of Paris, is mined as a moderately soft mineral, composed, in varying degree of purity, of hydrated calcium sulphate, $CaSO_4 2H_2O$. When gypsum is calcined at a temperature of 100° to 120° c., ¾ of the water of crystallization is driven off and the product obtained is the ordinary plaster of Paris. If calcined at temperatures between 250° and 500° C. but not sufficiently long to remove all of the water, a nearly anhydrous product is obtained which also forms a cement.

The product formed, as the result of the setting in either of the above cases, is practicaly identical with the original gypsum. This material is appreciably soluble in water. One part of the hydrated calcium sulphate at 0° C. dissolves in 488 parts of water; at 35° in 393 parts of water; at 100° in 460 parts of water. Its maximum solubility occurs at 35° C.

The gypsum composition consisting of about 85 per cent pure calcined gypsum mixed with wood fibre to act as a binder and to toughen the finished slab, is mixed with water to a medium working consistency and poured into the forms. The set takes place within ten or fifteen minutes, and the forms are removed the same day if desired leaving a full live load capacity slab. The duty of the gypsum is to fireproof the steel, form a flat slab, and transfer the load from the surface to the sables in direct compression. Its work is analogous to that of the stiffening truss of a suspension bridge floor, for which duty it has proved itself amply strong in various authoritative tests as well as in actual service.

The chief advantages of the construction are:—

1. *Light Weight*: Composition weighs 48 lb. cu. ft., or 16 lbs. sq. ft. for a 4-inch slab, this weight being one-third that of concrete—less than the dead load of any other permanent, fire-proof construction, and no more than the ordinary wood sheathing. This light weight means a ten to twenty per cent saving in steel framing supports, as well as reducing loads on foundations.

2. *Quick Setting of Slab*: As gypsum will set ten minutes after pouring, whereas four to ten days are necessary, depending on weather conditions, for concrete, this means a saving in interest and overhead charges by earlier completion. A full live load can be placed on the roof slab two hours after pouring, and forms are generally removed in from four to six hours. Of great interest and value in Canada, this quality permits progress in cold weather, as the slab may be placed without injury in zero temperature and below, the quick set taking place before the water can freeze.

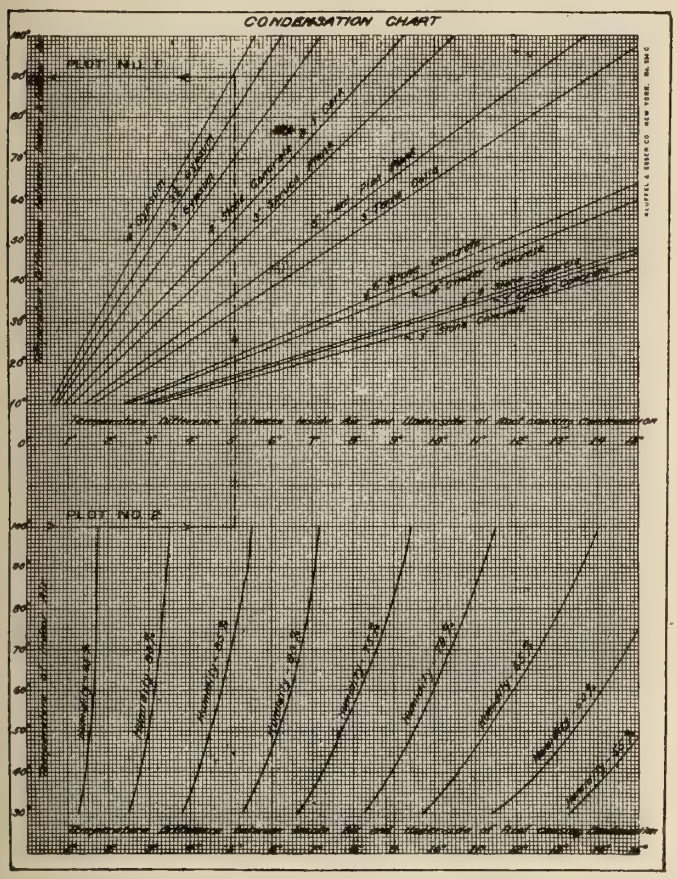
3. *Heat Insulation*: Among the literature furnished you are copies of the report of Prof. C. L. Norton of Massachusetts Institute of Technology. This report gives the B.T.U. transmission through various constructions used for roofs, together with a chart showing the possibilities of condensation under varying conditions. You will note that with the highly insulating gypsum roof slab condensation will not occur under a very wide difference of indoor and outdoor temperatures, where the humidity is kept below 80 per cent by means of ventilation. The dollar value of an insulating roof slab like gypsum as compared with wood of two or three times the conductivity, and concrete of five times the conductivity, may be readily determined from Prof. Norton's report. One heating engineer has established a 7½ to 10 per cent reduction in heating equipment, and a 25 per cent annual fuel saving as compared with concrete. (These tables showed mostly relative conductivities.)

4. *Resistance to Corrosion*: Gypsum is calcium sulphate and, being a salt of sulphuric acid, is not affected by any acids of this group. Beaker tests show corrosion by nitric and hydrochloric acids, but concentrations of these acids in a building are very rarely sufficient to affect a roof slab of gypsum. The same may be said of the strong alkalies, soda ash and caustic soda. In floors twenty years old, the steel has been found perfectly preserved by the embedding gypsum.

5. The fire resistive qualities of gypsum have been proved by many authoritative tests and fire experiences. In 1911 a fire occurred in the Knickerbocker Storage Warehouse, Newark, N. J.—an eight-story building with monolithic gypsum floors and roofs erected about 1900. The five floors were packed to

the ceilings with furniture, and the fire raged over a period of eleven hours. The records of insurance and other inspections show the building was repaired and the floors restored, with the exception of two panels, by being plastered underneath with gypsum, the building then being used as a storage warehouse. The low cost of salvage is very apparent.

Fire, load and water tests have been conducted under the auspices of different cities and institutions, viz.: New York City, Boston, Montreal, Toronto, Philadelphia and Boston Underwriters' Laboratories.



In New York, the test was conducted under the supervision of Stevensen Constable, Superintendent of Buildings, in 1897, before the establishment of standard specifications for the floor tests by the American Society for Testing Materials and the National Board of Fire Underwriters. The duration of fire in the test was five hours at an average of 1900° F., the slab carrying the live load capacity 150 lbs. per sq. ft. After applying a 60 lb. fire hose stream for ten minutes, the load was increased to 600 lbs. per sq. ft. without failure. Since 1897 the construction has been approved as standard, first class fireproofing in New York City, other cities following this lead after submission of records of this severe test.

Gypsum slab was placed over the Lake Superior Paper Company's Sault Ste. Marie mill in the summer of 1919. Since then a new machine room at Espanola and a machine room at Sturgeon Falls have been covered. A second machine room at Sturgeon Falls is now being constructed and will be covered with gypsum roofing. The roof has a pleasing appearance and is guaranteed for a period of ten years. This guarantee appears to be perfectly safe when considering the time this type of roof has remained in perfect condition on buildings constructed many years ago.

Other types of gypsum roofs will be found on many paper mill structures, the gypsum channel type and also pre-cast type. The channel type is made up in 8 ft. lengths, laid on steel supporting members and joints cemented. It has a pleasing appearance, but as reinforcement is not continuous there is a tendency to deflect under extreme heat. No doubt this deflection is aided by moisture. The pre-cast type we have not had experience with. The Thorold Mill of the Ontario Pulp & Paper Company is covered with this type of construction, but for mills that we have been interested in, the cost of pre-cast was greater than the monolithic slab, due to handling charges. I believe this Metropolitan type of roof construction ideal for machine rooms, grinder rooms, recovery plants, sulphite mills or for almost any paper mill building, as at the present time it is very little more expensive than wood, and from all indications will outlast wood many times over.

For a new mill the labor of placing a gypsum roof is very little more than that of placing a standard wooden roof, but for mills in operation a replacement entails great precautions. If properly planned and carried out, however, operation may be caried on without interruption. As an example of this statement we can take the Lake Superior Paper Company's machine room, a building 180 ft. x 270 ft., where the removal of their wooden roof and the placing of the new gypsum slab was carried on without an hour's shutdown of four paper machines running beneath.

For roofs over machine rooms, grinder rooms or other buildings, wherein moisture is excessive, all steel members directly embedded in the roof slab should be insulated by gypsum covering throughout their entire surface, as, due to their high conductivity, low temperatures will be conducted to sections on the under side of the roof and on these sections condensation will form, with the resultant drip.

I have a number of slides showing methods of placing and field details of this gypsum construction that may be of interest to you. They were furnished by the Lathrop Hoge Company.

(Note: The Management Engineering and Development Co. has designed and perfected the proper truss for this type of roof.—Ed.)

1—Spanish River P. & P. Co., machine room, Soo, Ontario. Rotting of 3 in. spruce planks after seven years. Replaced with gypsum, 1919.

2—Forms in place, cable installed, and being brought into defection between the purlins. American Radiator Co., Buffalo, with Packard Motor Co., in distance.

3—Soo Mill replacement 1919. Buying cables and smoothing gypsum.

4—Cables in place and slab being poured. Note mixing and handling is all done at the spot to be poured on account of quick setting. Note also, defection of cables.

5—Pouring slab on saw tooth. Gypsum is immediately trowelled into place. Jones and Lamson plant, Springfield, Vt., machine shops, 10 foot spans.

6—Soo Mill replacement, 1919. Mixing gypsum.

7—Soo Mill replacement, 1919. Pouring slab.

8—Soo Mill replacement, 1919. Under side of finished roof and top of false roof.

9—Soo Mill replacement, 1919. Under side of finished roof.

10—11—Soo Mill Replacement, 1919. Partly completed.

12—Curb of monitor monolithic with the slab.

13—Soo Mill replacement, 1919. Finished roof and monitor.

14—Sawtooth showing completed slab and vertical ends of gypsum blocks. The heating engineers reduced the equipment bid by $10,000, and estimated a fuel saving of $200 per month, when gypsum was adopted instead of concrete by the Scovill Mfg. Co., Waterbury, Conn., owners.

15—General view of one building of Scovill plant 300 ft. x 900 ft. roofed with gypsum.

16—Power house, Amsterdam, N.Y. Gypsum slab replacing corrugated iron. Waterproofing being installed.

17—Floors, forms and cables in place ready for pouring. Note electrical conduits. Note also forms for next floor are hung. No shores are necessary owing to light weight.

18—Floors, works completed, showing slab, beams and grinders, Fine Arts Bldg., Rochester, N.Y.

19—Silk Mill, Philadelphia, Pa. 4-in. slab on 9-ft. spans between trusses. Here humidity is introduced and maintained, so elimination of condensation is of vital importance.

20—Farrel Foundry and Machinery Co., Ansonia, Conn. Machine shop built in 1915.

21—Bristol Brass Co., Bristol, Conn., 1915. Three feet of snow in valleys.

22—Blue Bonnets Jockey Club Grandstand, Montreal. Gypsum roof—1915.

23—Dominion Power & Transmission Co., East End steam plant. Hamilton, Ont. Elimination of condensation of vital importance. Gypsum roof used instead of concrete, and yielding same insulation of cork, but eliminating its cost.

24—Wayagamack Pulp & Paper Co., Three Rivers, P.Q. Sulphate recovery building—1916.

25—Strathmore Paper Co., Woronoco, Mass., completed machine room—1912.

CHEMICAL SHOW WILL INTEREST PAPER MEN

Returning to New York City after an absence of a year—last year's exposition was held in Chicago—the Sixth National Chemical Exposition of Chemical Industries will open in Grand Central Palace, Sept. 20, and continue until Sept. 25, inclusive. The expansion in the industry, as shown by the increased number of exhibitors, necessitates the use of four floors in the Palace. Total applications for space up to June 30, were 358, which is a new record. In Chicago last year there were 351 exhibitors, while at the previous New York show in 1918, the number was 334. In Chicago last year the records showed that more than 111,000 had seen the exposition.

Two new sections will feature the exposition this year. These are the Fuel Economy Section and the Materials Handling Section. Both are considered very important. Fuel Economy section will embrace exhibits of machinery and apparatus, furnaces, producers, stokers and all devices for the economic utilization, or more efficient combustion of fuel. The constantly mounting cost of fuel as well as its increasing scarcity makes enlightenment on these vital subjects necessary.

In the Material Handling Section will be series of exhibits showing machinery and equipment for the handling of material such as: conveying, transporting, elevating, and included will be weighing, measuring and power transmission equipment. Practically every industry in some phase of its operations must convey its products in some manner. There is a shortage of man power, and when available man power demands a high wage. In the meantime the manufacturer must handle his raw material, material in process of manufacture, and the finished product. It is expected that the Materials Handling Section will impress with its features showing that machinery not only means economy, but also increased efficiency.

The business side of the exposition will have many interesting phases. These include sessions on subjects which will be developed in the two new sections of the exposition, and sessions on chemical engineering for which elaborate programs have been planned. Motion pictures which will have keen interest for technical men will be part of the program, and there will also be addresses for the education of the public.

WHAT IS DRY ROT?

You're welcome.

The Pulp and Paper Magazine will have a booth.

The term "dry rot," the U.S. Forest Products Laboratory finds, is applied by many persons to any decay which is found in wood in a comparatively dry situation. Thus loosely used, the term actually includes all decay in wood, since wood kept sufficiently wet can not decay.

In the more limited sense in which pathologists use the term, "dry rot" applies only to the work of a certain house fungus called *Merulius lachrymans*. This fungus gains its distinction from the fact that it is frequently found growing in timbers without any apparent moisture supply; in reality it does not grow without moisture, and is as powerless as any other fungus to infect thoroughly dry wood. Given moist wood in which to germinate, it is able to make its way a surprisingly long distance in dry timbers, drawing the water it needs from the moist wood through a conduit systems of slender, minutely-porous strands.

Wood in the typical advanced stage of dry rot is shrunken, yellow to brown in color, and filled with radial and longitudinal shrinkage cracks, roughly forming cubes. In many instances these cracks are filled with a white felty mass, the interwoven strands of the fungus. The decayed wood is so brittle and friable that it can easily be crushed into powder.

The dry rot fungus is active in nearly every region of this country, in Canada, and in Europe. It is very destructive to factory and house timbers and to logs in storage. Coniferous or soft woods are more commonly infected by it than hardwoods.

BRITISH VIEW OF NEWS PRINT PRICES.

A few American publishers have of late bought in the principal mills of Canada in some cases to such an extent that they have practically secured control of these mills, says the World's Paper Trade Review. It is not only the rise in wages which accounts for the increase in prices. There has been another factor.

The newspapers of the United States and Canada have had fifteen months—since the armistice, in fact—of the most wonderful development in advertising that has ever taken place in the whole history of the two countries. The demand for publicity has in fact been insatiable.

The papers, in consequence, have increased in size until the bulk of them was only limited by mechanical capacity. The result has been a consumption of paper from 15, 20 and up to 30 per cent, over the highest ever recorded.

BRITISH WOOD PULP ASSOCIATION.

Seventeenth General Meeting Convened.—A Post-War Dinner.—Riordon Company's Sources of Spruce and Pine.—Prices Discussed.

(From Our London Correspondent.)

London, 17 June, 1920.—This week the members of the British Wood Pulp Association held their seventeenth general meeting and at night the first post-war dinner was held. Unfortunately many old and familiar faces were absent from the two functions, but there was a sprinkling of new blood to be seen round the tables and the business element, apart from the humorous side, proved most interesting, questions of great importance being handled with remarkable ability and lucidness.

The British Wood Pulp Association can now boast of a shrewd, business-like and clever President. He is Mr. L. P. Andrews, of Andrews & Co., Ltd., London, pulp agents. Those Canadians who have had the pleasure of meeting Mr. Andrews know his kindly and gentlemanly disposition, and in business matters he is just as precise and discretionary as he is in social life. Therefore, it was a pleasure to see the honor conferred upon him this week of being elected to preside over the deliberations and give a guiding hand in the near future to the pulp men, who are faced with a serious crisis in regard to taxation of foreign manufactures.

On taking the President's chair, vacated by Mr. Nicol, Mr. Andrews met with a great reception. In a few words he referred to the services rendered in the past to pulp men by Capt. Parthington, Mr. Frank Lloyd, and Mr. Albert E. Reed. As one of the founders of the Association and its first Secretary, Mr. Andraws naturally emphasized the fact that he had the objects and interests of the Association at heart and was prepared to take the "oath of allegiance."

Business was then proceeded with and the first item was to raise the subscription to the Association. It was increased from £2.25 to £3.35 from January 1st, 1920.

Taxing the Foreigners' Products.

A very debatable and serious question for British wood pulp men was raised by the President under the Finance Act. It referred to taxation of products of foreign manufacturers through agents in England and the Wood Pulp Association would have to tackle the subject. Mr. Andrews explained that under the Act a return would have to be made of all profits made in the United Kingdom by a foreign company through an agency, failing which there was a severe penalty. He was called upon to make this return, and, of course, he could not do it. It cost him a considerable sum in legal expenses until the London Chamber of Commerce stepped in and for the time being the matter was allowed to be quiescent. Mr. Andrews remarked that he could not understand the British Government promoting this idea. If they wanted to tax the foreigner they should come into the open and put on an import duty. The foreigner did it that way to Britishers. It was a roundabout way of getting at the foreigner, but the foreigner would retaliate and the moment the law was passed in England a similar law would be passed in Scandinavia. The matter was also serious for exporters and there was only one way out of it and that was, protest from all directions.

From the foregoing special of Mr. Andrews it will be realised that British pulp agents for mills in Scandinavia, U. S. A., Finland and Germany are up against a big proposition thrust upon them by a Government that must find money at all costs to pay for the war expenses. Canadians would do well to watch this new law, if it should ever become one. It comes under the Finance Act and relates to Corporation Tax. Within two months English agents of foreign mills must make a return of all foreign company profits. As a matter of fact it is a factor in promoting trading "within the Empire."

Mr. Nicol explained to the meeting that Norwegians are very perturbed about the Government's proposals and were anxious to protect themselves. They had obtained Counsel's opinion and it agreed with what Mr. Andrews had told them at that meeting. This new Act provided that statistics would have to be shown giving the profits made by their foreign friends and their shipments to this country and it would be impossible to produce such statistics.

Mr. Douch mentioned that probably they might get out of the difficulty by becoming merchants.

The President remarked that they would have to pay £500 fine for trying to avoid payment if they became merchants.

It was eventually agreed to work in conjunction with the London Chamber of Commerce to fight the Act and any new information would be circulated among members of the Association.

The Annual Dinner.

In the evening the members of the Association and a large number of paper mill men sat down to dinner at Prince's Restaurant. The attendance included Scandinavians, Mr. T. J. Stevenson, of the Riordon Sales Company, Limited, Montreal and the Agent General for Quebec. Mr. L. P. Andrews presided at the dinner. It is six years since the last Wood Pulp Dinner was held, prior to which the social function was the most successful and most pronounced event in British commercial circles.

After the loyal toasts had been honored, the President submitted "the Paper Trade" and referred to services pulp and paper men had rendered in the war and on the battlefields. "The Canadian pulp and paper mills," he added, "were also largely represented on the battlefields and I desire to include all those who served in the toast."

Mr. Joseph Dixon, Oughtbridge Paper Mill,—with which he has been conected since 1871—replied to the toast and remarked that he was father of the newsprint trade, being the oldest member in the room that night who made it. He recollected receiving in 1871 his first order for 2,000 reams of newsprint at 9 cents a pound and recalled the periods of prosperity during the wars of different countries since 1870. Amid loud laughter, Mr. Dixon announced that he felt he was in the lion's den that night and he knew all about the efforts the wood pulp men were making to keep prices down. They had made a good show and he hoped they would press those endeavors.

Mr. W. C. Powers, on behalf of British papermen overseas also responded and said the paper men's troubles were not over yet, at least in the newsprint section, but they would face them with courage and overcome them.

"The Guests" was proposed by Mr. S. Nicol and he extended a cordial greeting to the Canadian, Amer-

ican and Scandinavian pulp and paper men who were present. To the Scandinavians he would say: continue your wood pulp supplies and continue to give aid. To their Trans-Atlantic friends they extended a very warm welcome, because, they saw from their horizon a way of hope, perhaps indicative of the panacea for some of the difficulties now besetting the paper trade. To Trans-Atlantic countries they were looking for raw materials knowing that increased production and decreased cost would make an appeal to every thinking man.

"The Guests."

Lord Riddell ("News of the World", London) replying for "The Guests" said he did not deny that the newspaper trade was prosperous, but it was obvious that to pay present prices for paper it would be a practical impossibility for a newspaper to continue under existing conditions. He did not think present prices were going to last. Papermakers had been passing through a period of unexampled prosperity and he hoped they would continue. He had no doubt the wood pulp trade would attract a great deal more capital and a great deal more wood pulp be manufactured and new and improved methods discovered. He could imagine, therefore, prices of pulp falling, while, at the same time, their profits would not fall in the same proportion. Certainly it was not the profits from wood pulp that consumers objected to, but the price,; as they had yet to discover how much of the price was represented by profit and how much by raw material.

Consul-General Eckell, Norway, also responded.

Mr. T. J. Stevenson, Riordon Sales Co., Ltd., Montreal, also expressed thanks for the way the toast of "The Guests" had been received and said Canada was a country of great promise to the Empire in the matter of paper and pulp. During the war it had been his pleasure to assist in some measure in supplying raw materials and he hoped he would be able to do so still more in the future, because his company now owned the largest timber resources of any pulp and paper company in the world, and it had recently added to its resources 10,000 square miles of spruce and fine land in the Dominion of Canada which would be at the disposal of the world's paper industry in the future. Since his visit to England he had derived much pleasure and he was delighted to be present at the British Wood Pulp Association dinner and meet so many pulp and paper men. He wished them all success.

"The President."

Mr. Nils Leander submitted the health of "The President" and said Mr. Andrews always played the game. He was the senior pulp man in that country and he was held in the highest esteem in pulp and paper circles.

The company rose and sang "He's a jolly good fellow."

Mr. Andrews suitably acknowledged the toast and thanked the dinner committee for their excellent arrangements.

During the evning an excellent musical program was enjoyed.

Little jams of freight-cars,
Little strikes at docks,
Swerve the nation's business
Swiftly toward the rocks.
—Boston Herald

KAMINISTIQUIA PULP AND PAPER BUILDING.

On Wednesday, June 30, the Parks Board of Port Arthur, Ontario, completed the details of a lease of a part of the shore portion of the park to the Kaministiquia Pulp and Paper Co., with head offices at Toronto, for the purpose of locating a thirty ton dry ground wood pulp mill. The lease was forwarded to Toronto for ratification by the company and that for- paper industry turning out 250 tons per day.

Under the terms of the lease the company secures sixteen acres of land and water, and will at once proceed with the erection of the first unit of the mill. Ultimately the industry will develop into a pulp and Paper industry turning out 250 tons per day.

The company has secured extensive pulpwood limits, but will purchase wood in the open market, thus becoming a second local industry to which farmers and settlers may dispose of the wood they cut in clearing land.

Machinery for the first unit has been purchased and will be on the ground by the time the buildings are ready to receive it. The initial expenditure will be upwards of $500,000. Orders will be placed for the building of paper machines, but, owing to the crowded condition of the mills, it is not likely that the machinery can be laid down under eighteen months and possibly two years.

The firm of C. D. Howe and Co. has been retained as consulting engineers and Mr. Howe expresses the opinion that the mill will be producing pulp before the first of December of this year.

Included in the directorate of the company are some of the leading pulp and paper men of Canada and the United States, but the financing is being carried out in Toronto.

The coming of this mill to Port Arthur is the outcome of negotiations put under way by Mr. J. F. Hewitson, of that city, who succeeded in interesting Eastern people in his project.

Under the terms of the lease the company secures sixteen acres of land and water, in return for which the Parks Board will receive an annual rental of $1.-000. The company secures no concessions in the way of exemptions or special concessions. It pays all taxes and other rates, and becomes purchaser of a minimum of 2,000 horse power of electric energy, which will ultimately reach proportions of 12,500 horse power when the full development of the industry takes place.

This arrangement secures the city very considerable addition to its tax paying industries and brings before others seeking sites for pulp or paper mills the facilities offered by the Head of the Lakes.

CANADIANS AT LONDON CONFERENCE.

A number of Canadian foresters are now in London, attending the Imperial Forestry Conference. Among those representing the Dominion are Clyde Leavitt, chief forester for the Commission or Conservation; Ellwood Wilson, chief forester for the Laurentide Company and member of the executive committees of Quebec Forest Protective Associations; Avila Bedard of the Quebec Forest Service; M. A. Grainger, chief forester of the British Columbia Forest Branch; E. H. Finlayson, of the Dominion Forestry Branch; Dr. C. B. Smith of the New Brunswick Forest Service; Robson Black, secretary of the Canadian Forestry Association and editor of the Canadian Forestry Journal; and Gen. J. B. White, chairman of the Woodlands Section of the Canadian Pulp and Paper Association.

The Situation in Belgium

(By Special Correspondence).

Belgium, June 7th 1920.

Nearly twenty months ago, after the armistice prospects were very bad for the Belgium paper industry. Except a few mills that had been working under control of the "Papier L' entrale," practically all the paper mills were in a most piteous state. Raw materials, brass and copper parts, sundry machinery, rubber rolls of paper machines, even paper machines, nothing had escaped the rapacity of the "Beschlagnahmestellen" and had been sent by lots to Germany.

The "Papeteries Anversoises," for instance, lost in this manner two modern paper machines, one of them of a width of 158 ins. At the De Noeyer Pulp and Paper Mill, not less than a 110 in. paper machine, 80 tons of brass and copper and 250 tons of lead were taken away.

On the other hand it caused some uneasiness that the big profits which the Scandinavian mills had been making during the war, had served for important portions to consolidate their financial situation, and to improve and expand their plants. The possibility was feared that they might have been in a privileged position to export at relatively low prices.

If, furthermore we consider that even yet, it takes here still several months to get delivery of the most elementary articles as brass and copper parts, felts, belts and the like, it is not to be wondered that under these circumstances, in most of the mills operations were only started in February -March 1919.

Many machines started on news, using as raw material printed matter, pamphlets and railway tickets left behind by the Germans in their numerous offices.

Pulp was imported from Norway, Sweden and Holland in gradually increasing quantities. Small lots of paper followed. The imports and exports for the first four months of the years 1919 and 1920 are compared in the following tables.

Before the war the average production of the Belgian Paper Mills was 110,000 tons per year. The exports per year amounted to 55-60,00 tons, including, however, a certain quantity of imported special papers as photographic papers and art papers.

About the middle of the year 1919, the average price of sulphite pulp was 1 fr. per kg. f.o.b. Antwerp. Supplies were far below the demand and contrary to what had been expected prices kept on rising, owing largely to the high freight and the unfavorable rate of exchange.

At present operations for Antwerp are as follows:

Mechanical	2.10—2.40 fr. per kg.
Sulphite, strong unbleached	2.50—2.70 „ „ „
Sulphite, easy bleaching	3.00—3.25 „ „ „
Sulphite, bleached	4.00—4.80 „ „ „
Kraft	2.25

There is but one pulp mill in Belgium. Operations were resumed early in 1919, but owing to shortage of pulpwood and lack of machinery its present output amounts only to about 50 per cent of its normal output, which before the war was around 80 tons, sulphite and sulphate, per day, so that its production helps our paper industry but to a small amount.

The continued high cost of living obliged our paper mills also, to meet conditions by important increase in wages, with the result that today in Belgian paper mills, wages are 400 per cent higher than they were before the war.

The prices of paper kept advancing accordingly and have reached today an extraordinary level.

	fr. per kg.
News is selling at present at	3.50
Imitation parchment, bleached	6.00—6.50
Imitation parchment, unbleached	4.50—5.00
Grease proof	6.00—7.00

These very high prices are compensating in a certain way for the reduced output, and some mills lately paid dividends of 20 per cent and more.

The situation, however, seems to have reached its

Four First Months of the Years 1919 and 1920

Articles — Origin (Imports) / Destination (Exports)	Quantities in Kg. 1919	Quantities in Kg. 1920	Quantities in Kg. 1919	Quantities in Kg. 1920
Wood Pulp—				
Germany	301,052	.....	.....	200,386
Canada	.....	269,806	.....	.....
United States	.....	214,797	.....	.....
Hamburg	.....	48,482	.....	.....
France	.....	.....	.....	5,107,836
Spain	.....	.....	.....	50,537
Norway	3,372,429	21,883,743	.....	.....
Holland	3,759,837	248,841	.....	.....
Sweden	2,164,422	10,469,882	.....	.....
Other Countries	.....	488,927	.....	.....
Total	9,597,740	33,624,478	.....	5,358,759
Total for the whole year	54,979,061	.....	1,437,313	.....
News print Paper—				
Germany	19,364	6,100	.....	.....
England	939,072	.....	.....	.....
Holland	1,750,475	1,756,940	.....	.....
Other Countries	408,725	197,087	5,134	1,000
Total	3,117,636	1,960,127	5,134	1,150
Total for the whole year	8,155,775	.....	99,801	.....

Non-Denominated Paper—				
Belgian Congo	.....	.....	2,430	24,971
Germany	49,773	2,128,899	.....	69,668
Argentine	.....	6	.....	20,885
Australia	.....	.....	.....	7,191
Brazil	.....	.....	.....	2,118
Canada	.....	15,411	.....	55,195
China	.....	.....	.....	341
Denmark	.....	2,688	.....	15,149
Egypt	.....	.....	.....	60,898
Spain	505	.....	.....	4,951
United States	921	158,100	.....	63,498
France	179,792	692,432	3,500	1,931,738
England	442,037	1,722,281	57,518	1,301,385
Greece	.....	.....	.....	22,738
Hamburg	.....	4,777	.....	.....
British India	.....	.....	.....	46,869
Dutch India	.....	.....	.....	389
Ireland	.....	.....	.....	90,138
Japan	.....	1,534	.....	59,675
Norway	182,467	755,274	.....	25,374
Holland	681,163	1,081,814	9,243	368,507
Russia	.....	.....	.....	359
Sweden	128,856	448,714	.....	18,811
Switzerland	1,021	22,883	10,217	66,664
Tunis	.....	.....	.....	2,110
Turkey	.....	.....	.....	22,024
South Africa	.....	.....	.....	1,17[illegible]
Uraguay	.....	.....	.....	754
Other Countries	183	103,545	38,573	86,648
Total	1,666,724	6,338,358	121,481	4,369,858
Total of the whole year	10,307,017	.....	3,471,557	.....
Boards—				
Germany	.....	246,911	.....	.....
France	1,596	47,696	.....	20,005
England	153,269	116,736	.....	62,996
Hamburg	.....	16,000	.....	.....
Norway	50,000	32,563	.....	.....
Holland	393,800	543,622	.....	3,731
Sweden	5,044	54,901	.....	.....
Other Countries	.....	310,611	.....	6,520
Total	558,709	1,349,040	.....	93,252
Total of the whole year	4,514,823	.....	52,075	.....

climax. The general improvements of the cost of living is announced from all countries has had its counter part here. A certain uneasiness is reigning in all trades. Orders are retained and in some instances cancelled and the immediate future might hold some unexpected surprises.—Belgique.

MORE ABOUT THE PAPER YARN MACHINE.

Toronto, June 22nd, 1920.

To the Editor of Plup and Paper Magazine.

The article in your journal of May 13, signed by The Textile Engineering Co. Ltd., in reference to our patents and the operation of our twine machines must have caused considerable amusement to your readers. There is no question that this article was decidedly garbled and twisted and caused amusement to myself and associates. If, however, your contributor is interested we should be pleased to show him the machine in actual operation. They may be the holders, as they state, of valuable patents for the manufacture of twine from paper; if so, they could not have been used in the manufacture of any product that, so far, has come into our hands as the twines that have come to our attention have the appearance of crudity, decidedly inferior to what we intend marketing. We hold the basic patent for the manufacture of twine from paper, in one operation, in multiple, and waterproofed, and if we can place any reliance on the information we have been able to procure, we present a radical change in the manufacture of twine from paper.

I would have written you sooner but your article was but recently drawn to my attention, having been on an extended trip.

Yours truly,

International Paper Products, Ltd.

P. R. HOAD,

President.

NEWSPRINT PAPER REVIEW FOR MAY.

The following is a condensed review of the reports received by the Federal Trade Commission from domestic manufacturers of newsprint paper, from jobbers buying and selling newsprint paper and from leading publishers using newsprint paper. Import and export statistics of the Department of Commerce are also included in the review. Whenever possible the figures for 1920 are compared with those for the corresponding period of 1919.

The average or normal production of total print and standard news based upon the total combined production for the years 1917, 1918, and 1919 amounted to 108,400 tons of total print and 97,500 tons of standard news for a period corresponding to May. The actual production amounted to 129,230 tons of total print of more than 19 per cent over the average for the three-year period and an increase in the case of standard news of more than 22 per cent over the average.

The increase in the production of newsprint in May 1920 over May 1919 amounted to more than 22 per cent for total print or more than 24 per cent for standard news. The production of newsprint in May 1919 was affected to a marked degree by the labor situation.

Mill stocks of both total print and standard news increased during May, 1920.

Reports from 92 mills operating 197 machines running full or partial time on newsprint paper showed the loss of time during the month of May, 1920, to have been 822 hours for lack of labor, 667 hours for lack of power, 470 hours for repairs, and 44 hours for other reasons.

The total time the machines were idle decreased 3,157 hours over that shown in April. No lost time due to lack of orders or lack of coal was reported by newsprint mills.

Imports and Exports.

The imports and exports of printing paper not dutiable (practically all newsprint) and of wood pulp for the month of April 1920 compared with the month of April 1919 were as follows:—

	April 1920. Net tons	April 1919. Net tons
Imports of newsprint (total)	60,098	44,427
From Canada	57,305	44,427
From Sweden	1,412	0
From Norway	1,265	0
Exports of newsprint (total)	3,068	8,294
To Argentina	1,061	1,136
To China	521	0
To Cuba	338	861
To France	59	2,258
To other countries	1,089	4,039
Imports of ground wood pulp (total)	9,416	9,714
Imports of chemical wood pulp (total)	36,033	15,029
Unbleached sulphite	16,614	6,942
Bleached sulphite	10,028	556
Unbleached sulphate	8,151	7,310
Bleached sulphate	1,240	221
Exports of domestic wood pulp	2,776	3,592

The imports of newsprint for April 1920 were 15,672 tons more than for April 1919. The exports for April 1920 were 5,226 tons less than for April 1919.

The tonnage to "Other countries" under the "Exports of Newsprint" for April 1920 includes 286 tons to Uraguay, 120 tons to Brazil, 122 tons to Canada, and 188 tons to the Philippine Islands.

The imports of mechanically ground wood pulp for April 1920 were 298 tons less than for April, 1919. The exports of domestic wood pulp were 816 tons less than for April 1919.

The imports of Chemical Wood Pulp (total) for April 1920 were 21,004 greater than for April 1919.

Jobbers' and Publishers' Tonnage.

Stocks of rolls in the hands of jobbers at the end of May were 6 tons more than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 127 tons less at the end of May than at the beginning of the month. The net decrease in the total stocks of newsprint in the hands of jobbers at the end of May amounted to 121 tons.

Commitments to sell roll news were 3,893 tons greater than commitments to buy. Commitments to sell sheet news were 1,174 tons less than commitments to buy. Total commitments to sell both rolls and sheets were 2,719 tons greater than commitments to buy.

Publishers' stocks increased 5,578 tons during the month. The average daily tonnage used during May was slightly less than the average used in April.

Publishers' stocks and transit tonnage on May 31, represented slightly more than 35 days' supply at the rate of consumption.

Sixty-nine publishing concerns held about 59 per cent of the tonnage on hand at the end of the month.

The domestic consumption of standard news by metropolitan dailies being between one-half and three-fourths of a million tons annually increased almost 3 per cent for May, 1920, over May 1919, and more than 14 per cent for May 1920, over May, 1918.

Average Prices Paid by Publishers.

The weighted average price of contract deliveries from domestic mills to publishers during May, 1920, f.o.b. mill in carload lots for standard news in rolls, was $4,673 per 100 pounds. This weighted average is based upon May deliveries of approximately 51,000 tons on contracts involving a total tonnage of more than one-half million tons of undelivered paper manufactured in the United States.

The weighted average contract price based on deliveries from Canadian mills of more than 25,000 tons of standard roll news in carload lots, f.o.b. mill in May, 1920, was $4,457 per 100 pounds. This weighted average is based upon the May deliveries on contracts involving more than 300,000 tons of undelivered Canadian paper. The greater number of these are short-term contracts covering the year 1920.

The weighted average market price for May of standard roll news in carload lots f.o.b. mill based upon domestic purchases totaling more than 7,000 tons was $9,905 per 100 pounds.

Deliveries of newsprint tonnage from both United States and Canadian mills on contracts at $4.50 per 100 pounds and less f.o.b. mill were heavier than usual in May. The contract tonnage delivered through jobbers was less.

Two small chaps were boasting about their relatives.

"My father," said one, "has a wooden leg."

"Huh," scoffed the other, "that's nothing at all. My sister has a cedar chest."

Technical Section

REVIEW OF RECENT LITERATURE.

A13. French colonial plants suitable for papermaking...Prof. Heim, A. Crolard, and L. Matrod. Papeterie, 42, 247-60, (Mar. 25, 1920). A detailed outline of the scope of the researches which should be carried out to determine the suitability of the French colonial plants for papermaking, including economic factors, laboratory tests, and semi-commercial tests. (Part of this art, was published in Chimie & Industrie, **2,** 1247-51, (1919). See Pulp and Paper, **18,** 355, (1920); Paper, **26,** 154, (1920).—A.P.-C.

A-3. Palmetto leaves for paper pulp. London Board of Trade J., Jan. 1, 1920; Paper, **26,** 58, (1920). Palmetto leaves yield fiber, paper pulp, tannin, gallic acid, alcohol, fecula, fuel, and cattle fodder. The pulp is more easily produced than esparto and requires only ½ the quantity of NaOH, but the yield is only 28 per cent against 40 per cent for esparto. Palmetto pulp is easily bleached, supple, and fibrous; it felts well and can be made into very thin sheets, giving a good quality of paper, equal, if not superior to esparto paper.—A.P.-C.

A-12. Alum testing. P. W. Codwise. Paper, **26,** 187-9, (1920). The following rapid determination of Al_2O_3 is proposed as being suitable for technical purposes:—In a 100 cc. beaker, dissolve a sample equivalent to about 40 cc. of 0.1 N NaOH in exactly 25 cc. of distilled water, heat to a boil, and add 1 drop of a 1 per cent alcoholic soln. of phenolphthalein. Place the beaker on a piece of white paper, add 10 cc. 0.1 N NaOH from a burette, heat to a boil and boil with stirring for exactly 1 min., add 10 more cc. NaOH and repeat the boiling as before, do this again a third time, add NaOH until a slight pink tinge is produced, boil for 60 sec., and add NaOH cautiously until a distinct pink permanent on boiling for 1 min. is produced. The end point is taken 2 drops beyond the first permanent pink tint. Free acidity should be tested for in the sample, and if found determined quantitatively and its equivalent deducted from the first titration. The various factors influencing the accuracy of the results are discussed and it is shown that with proper precautions the method is quite accurate and can be very quickly carried out.—A.P.-C.

A-15 General exposition of cellulose. C. F. Cross, Paper, **26,** 191-2, (1920). Summary of the Cantor Lectures before the Royal Soc. of Arts, Feb. and March, 1920.—A.P.-C.

A-16. Acid-resisting metals. C. Matignon, Professeur au Collège de France. Chimie & Industrie, **2,** 1283-302, (Nov.-Dec. 1919). A study of non-malleable acid-resisting metals, which are ferro-silicons contg. about 13-7 per cent Si, varying proportions of Mn, C, P, S, and at times small amts. of Ni or Al, and which are known under the trades names of ironac, duriron, tantiron, etc. The relation bet. compn. and physical properties of a pure alloy of Fa and Si is first discussed and then com. products are considered. Fe and Si form 2 stable compds., Fe_2Si and FeSi. The existence of Fe_3Si, Fe_3Si_2, $FeSi_2$, and $FeSi_3$ has not been definitely established. As the proportion of Si in the alloy increases, 2 eutectoids are formed—Fe_2Si, FeSi (22 per cent Si), m.p. 1233°C, and FeSi, Si (60.7 per cent Si), m.p. 1245°C. The density and electrical cond. decrease as the Si content increases; and the hardness has a max. value at about 7.5 per cent Si, but for high percentages of Si the hardness is greatly affected by the conditions of cooling. The magnetic properties decrease with decrease in the Fe content, and the curve exhibits 2 very sudden drops in the neighborhood of Si = 20 per cent and Si = 33 per cent; i.e., for compds. corresponding to Fe_2Si and FeSi. At room temp. 10 per cent HCl, HNO_2 and H_2SO_4 readily attack the alloy for percentages of Si up to 12. From 12-3 per cent the action falls off very rapidly, becomes a min. at about 16-8 per cent, and tends to increase slightly at about 19 per cent. The 3 acids all act in about the same manner. For industrial purposes only alloys containing about 15-20 per cent Si need be considered owing to mechanical difficulties arising from the use of a greater proportion of Si. Com. products always contain varying amts. of C. Mn, P, and S, and the above results are not strictly applicable to them. Detailed results of expts. on the resistance of com. products to the action of various acids are given for—"métillure" (French), "élianite I", "élianite II" (Italian), "ironac" and "tantiron" (English), "duriron" (American). The processes of manuf. of articles from ferro-silicon have been kept secret so that definite details are not easily obtainable. Generally speaking, a ferro-silicon containing either about 25 per cent or 70-5 per cent Si is added to molten cast iron, either in a cupola or in an electric furnace, in such amt. as to obtain the desired Si content in the finished product. Many precautions must be taken owing to the peculiar properties of the alloy, and the best results are obtained by as complete elimination as possible of impurities, especially S and P, leaving small amts. of C and Mn. This may entail the use of reducing metals during fusion and pouring. The properties, advantages, and uses of articles made of ferro-silicon are discussed.—A.P.-C.

A-18. Chemicals used in papermaking. J. N. Stephenson. J. of Commerce; Paper, **26,** 148, (1920). A very brief outline of the various chemicals used in the pulp and paper industries.—A.P.-C.

F-4. Theory of the preparation and recovery of soda liquors. Cellulophile. Papeterie, **42,** 107-12, (Feb. 10), 151-6, (Feb. 25), 208-11, (Mar. 10, 1920.) A description of the methods commercially employed for the preparation and recovery of soda and sulfate liquors and of the chemical reactions involved.—A.P.-C.

H-5. Technical discussions of paper subjects;—bleaching...Paper, **26,** 47-52, (1920).. An account of the discussions on Cl bleaching by the Holyoke Section of the T.A.P.P.I. during the winter sessions. J. A. Kienle reviewed the pioneer work done by the Electro-Bleaching-Gas Co. in evolving a process for the utilization of liquid Cl in bleaching in the textile and pulp and paper industries, and stated that the co. was only too willing to meet the pulp and paper men

halfway to fulfill their requirements. M. S. Tiernan spoke of the app. devised by Wallace and Tiernan Co. Inc., for feeding and measuring liquid Cl. Dr. John C. Baker explained the theory of bleaching by liquid Cl as compared with chloride of lime bleaching, and outlined the means that had been taken to overcome the various difficulties that had cropped up from time to time.—A.P.-C .

K-6. Treatment of esparto. (Dubrot process). H. F. Papeterie, **42**, 203-7, (Mar. 10, 1920). The treatment of esparto for isolating the fibers consists in hydrolysing the non-cellulose materials so as to obtain the cellulose in as pure a state as possible. This may be accomplished either chemically or bacteriologically. **Bacillus amylobacter** and **granulobacter pectinovorum** under favorable conditions readily attack the incrusting and agglutinating matters and attack the cellulose only after practically all of the other materials have been destroyed. The cryptogam **macrophoma macrochloe** also acts very energetically, especially in fresh water, its action being retarded in salt water. The Dubrot process is a mixed electrochemical and bacteriological process possessing the great advantage that it can be carried out in very hard, or even in sea water. By suitable variations in the treatment it can be made to yield either finished pulp or an unfinished pulp which will keep indefinitely in a dry state.—A.P.-C.

K-2. Theory and practice of the recovery of papermaking materials in the waste water of paper mills. R.B. Papeterie, **42**, 50-60, (January 25, 1920)., 98-107 (February 10, 1920), 146-51 (February 25, 1920,), 194-203, (March 10, 1920). The amount of materials lost in the back water s very variable; it may reach as high as 16 per cent of fibers and 35 per cent of loading materials, calculated on the weight of the finished paper. Many factors influence the amount of loss; e.g., the nature and thickness of the paper, the speed of the machine, the treatment of the stock in the beaters, the nature of the loading materials and their preparation before incorporation with the stuff, the mesh of the wire, the degree of suction, etc. There are 2 systems of recovery—(1) complete separation of the solids suspended in the water (2) concentration of "thickening" of the water. To the first class belong the machines based on the same principle as the wet machine or cylinder machine, the usual wire being replaced by a much finer one (100-120 mesh) or by a felt, and all machines which actually filter out the suspended materials. Their drawbacks are high initial and operating costs, care required for their operation, breakdowns to which they are subject. Their main advantage is the possibility of filtering the white water" from "brown" groundwood. To the second class belong all the machines based on the principles of sedimentation and decantation. The main differences between the various types of this class lies in the direction of water during sedimentation—vertical from bottom to top (the V. Antoine decanting app.); horizontal (the Schmidt and the Schneider apps. vertical from top to bottom (the Donoel system). Others have been devised but are of little or no use, and have not found commercial application. The ideal apparatus must offer as great a surface as possible to the water so as to bring it as nearly to rest as is practically possible in continuous operation. It is also universally admitted that sedimentation occurs best under a certain hydrostatic head. The movement of the water at this point should be horizontal or from top to bottom so as not to hinder the settling; and should be free from eddies. Moreover the apparatus should be simple in design so as to be easily cleaned, relatively small, cheaply installed, and should be operated automatically and practically without cost. The theory of the sedimentation of particles in water is discussed in detail from the point of view of mechanics and hydraulics; the method of calculating the proportions of the apparatus for the "thickening" of a given volume of water is described; and it is shown how the Denoel system fulfills the above requirements.—A.P.-C.

K-6, 7. The use of waste paper in the manufacture of paper. J.J. Papeterie, **42**, 217-21, (Mar. 10, 1920 A list of 39 furnishes used in England for the principal kinds of paper, together with the classification of waste paper established by the British government.—A.P.-C.

K-8. Color study by German expert...Farbenatlas; Oil, Paint & Drug Reporter, Feb. 23, 1920; Paper, **26**, 189-90, (1920). Account of a lecture by Wilhelm Ostwald at the Technical High School, Dresden.—A.P.-C.

K-10. Starch and starch sizing in papermaking. John Traquair, Feculose Co. of America, Ayer, Mass. Paper, 26, 93-6 (1920). An account of the processes of preparing starches and their use in the paper industry, with special emphasis on the advantages of feculose, an acetic acid ester of starch which contains about 3 per cent acetic acid.—A.P.-C.

K-9. Loading materials in paper. Carl G. Schwalbe. Wochenblatt F. papierfab.; Paper, **26**, 55, (1920). Loading substances may and do serve other purposes than to cheapen paper and lower its quality. They diminish the transparency, fill up the pores, and raise the printing qualities. By means of loading the paper pulp can be manufactured into a much lighter, better, and more uniformly thick sheet in all its parts. The elasticity and power to absorb printer's ink do not suffer through carefully measured additions of loading materials. It is advantageous for newsprint and writing, but should not be used for wrapping as it diminishes the toughness. According to Rohland, the fitness of a loading substance can be measured by its absorption power for organic dyestuffs. The size of the particles and the nature of the beating have a great influence on the degree of retention.—A.P.-C.

NEW PATENTS.

K-18. Light-weight millboards from tree barks. O. Zimmerman, Berlin-Lichterfelde. Ger. Pat. 305,697, 16.8.17. Tree bark is ground in a kind of bone mill, beaten in a hollander, and delivered to a strainer, from which the beaten stuff, diluted with water, passes to a millboard section, on which it is worked up as the middle layer of the finished board. The bark pulp has a certain coloring power for boards made of waste papers, and yields a board of low specific gravity. —J.S.

L-5. Wood cellulose as a substitute for cotton in chemical industries. W. Schacht, Weissenfels. Ger. Pat. 306,366, 14.3.18. Wood cellulose prepared by any of the alkaline process is further digested by boiling with a sulphite solution. The gelatinous substances (hemicelluloses) which are present in soda-wood pulps are removed by the sulphite treatment, and a highly-purified cellulose is obtained, suitable for use as a substitute for cotton in the chemical and paper-making industries.—J.S.

WOOD PULP REVIEW FOR MAY.

The Federal Trade Commission has issued some interesting figures on the wood pulp situation in the United States for May. It will be noted that production of all kinds of wood pulp but Mitscherlich has increased. Stocks on hand have also increased about 11 per cent., due largely to transportation troubles.

The following is a tabulation of the production, and stocks of finished pulp, in tons of 2,000 pounds on an air-dry basis, for May, 1920, compared with May 1919 for the operating mills. The average production is based upon the reports covering the years 1917, 1918, 1919 and the average stocks are based upon the stocks carried for the 18 months' period ended May 31, 1920:

	Number of mills	Production for month	On hand end of month
Ground wood pulp:			
May 1920	168	172,341	152,973
May 1919	162	144,146	192,351
Average	....	144,025	143,899
Sulphite, News Grade:			
May 1920	64	71,422	15,553
May 1919	62	52,740	26,433
Average	...	60,075	21,510
Sulphite, Bleached:			
May 1920	32	50,010	4,296
May 1919	31	39,994	16,452
Average	...	40,650	9,928
Sulphite, Easy Bleaching:			
May 1920	7	6,896	858
May 1919	8	6,421	2,919
Average	...	6,300	1,800
Sulphite, Mitscherlich:			
May 1920	7	5,338	1,805
May 1919	7	6,363	2,278
Average	...	6,325	1,730
Sulphate Pulp:			
May 1920	21	18,799	4,136
May 1919	22	12,848	8,487
Average	...	11,875	6,248
Soda Pulp:			
May 1920	27	38,243	4,146
May 1919	28	30,539	9,033
Average	...	30,400	6,054
Other than Wood Pulp:			
May 1920	5	766	109
May 1919	7	1,016	98
Average	...	950	175
Total for all Grades:			
May 1920	...	363,815	183,876
May 1920	...	294,067	258,051
Average	...	270,600	191,335

Total stocks of all grades of pulp in the mills on May 31 amounted to 183,876 tons. Mill stocks of ground wood pulp, easy bleaching sulphite, Mitscherlich sulphite and soda pulp increased during the month.

The wood pulp industry lost 38,858 digester or grinder hours for 406 machines in May 1920, compared with 228,857 hours for 1,106 machines in May 1919. Grinders lost 5,201 hours due to water conditions, and newsprint sulphite digesters lost 780 hours due to lack of coal. "Repairs" figures as the principal cause of lost time. Two mills that were not in operation in May are not included.

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the reports covering the years 1917, 1918, and 1919, the figures show that:

ground wood mill stocks equal slightly less than 7 days' average output.

News grade sulphite mill stocks equal slightly less than 7 days' average output.

Bleached sulphite mill stocks equal slightly less than 3 days' average output.

Easy bleaching sulphite mill stocks equal slightly more than 3 days' average output.

Mitscherlich sulphite mill stocks equal slightly more than 7 days' average output.

Sulphate mill stocks equal slightly less than 9 days' average output.

Soda pulp mill stocks equal slightly more than 3 days' average output.

Mill stocks of "other than wood pulp" equal about 3 days' average output.

Total mill stocks of all grades equal slightly less than 15 days' average output.

NEWS ITEMS.

Due to the keenness and initiative of J. R. Booth, the deadlock between the western publishers and their paper supply has been broken. Mr. Booth offered to under write half of the amount required by making 1,375 tons available for distribution to papers in dire need. The other half was quickly provided for by the recent conference in Ottawa and further government interference was forestalled.

One hundred and thirty members of the National Editorial Association reached Toronto on Saturday last, thus ending the fourth week of their tour. The members first struck Canada at Yarmouth, N. S. and have since visited the principal cities in the east and will now cover Western Ontario. The party were entertained by the Toronto civic authorities and were shown the big improvements that are in progress in Toronto harbor. A visit was made to Windsor this week.

It is announced that the new general board of the Presbyterian Church have decided to issue a weekly church paper and have purchased the Presbyterian and Westminster, which will be issued after July 1st by the Board of Publications under a joint committee of direction from the two boards. Rev. Dr. Robert Haddon, who has edited the Presbyterian and Westminster for the past twenty years, will serve as acting editor of the new paper, which will be issued from the office on Church Street, Toronto. A permanent editor will be appointed in the autumn.

Mr. George Erskine, Toronto representative of the George H. Mead Company Ltd., and his assistant Mr. Harvey, spent several days this week conferring with the principals of the company in Dayton, Ohio.

MILLIONS FOR TIMBER LAND.

A deal involving 17,500 acres of timber land, with 650,000,000 feet of standing timber, concluded recently by the Crown-Williamette Paper Company, assures the latter a supply of spruce and hemlock sufficient to meet the normal capacity of its paper mills at Camas Wash., and Oregon City for the next twenty years. The tract acquired was the property of the Hammond Lumber Company and represented the latter's entire Clatsop County holdings. The purchase price is believed to have been between $1,500,000 and $2,000,000.

UNITED STATES NOTES

Having succeeded in arranging for the delivery of necessary machinery, the Union Paper Products Company, recently organized in Louisiana, will begin within a few weeks the erection of a big plant at New Orleans for the manufacture of corrugated paper boxes, both for export and domestic use. A whole city block has been acquired for the factory's site. The new company is capitalized at $300,000,000. Sam Ohnstein, owner of the Smile Company, Inc., and secretary-treasurer of the Crescent City Cork Works, is its president. Other officers and members of the board of directors are: J. Levy, vice-president; Sidney L. Rosenbaum, secretary and treasurer; Jacob E. Hirschberg, superintendent; John Meyer, George W. Davidson, Harry Goodman and Joseph Chalona.

The Michigan division of the American Pulp and Paper Mill Superintendents' Association, at its annual meeting held during the last week in June at Kalamazoo, re-elected Edward T. A. Coughlin president, and George H. Fountain, general superintendent of the Monarch Paper Company, secretary-treasurer. N. M. Brisbois, superintendent of the Sutherland Paper Company, was elected vice-president to succeed J. H. O'Connell. The latter, in reviewing the first year of the organization's existence and reporting on the recent annual convention of the national body at Buffalo, N.Y., said: "There are 3,000 superintendents in the United States and Canada eligible for membership in this association, and we expect to have 100 per cent presentation. During the first fiscal year this association has demonstrated its worth. We have been able to gain much valuable knowledge through contact with the other fellows and friendships have been made that will last." Among papers read at this meeting that of Mr. O. F. Swanson, general sales manager of the Pulp and Paper Trading Company, of New York city, created much discussion. Mr. Swanson declared that the company he represents has taken over the exclusive sales rights for "Buckeye" pulp, a product of the Proctor & Gamble Distributing Company. This is a pulp converted from linters and cotton hull fibre, heretofore considered as waste by the cotton oil mills of the South. This product, Mr. Swanson stated, has been tested and found perfectly suited for the manufacture of book papers, coated papers and low grades of writing papers. He concluded by saying that mills have been established at Augusta, Ga., and Memphis, Tenn., that 100 tons of dry pulp made of this refuse matter is being produced daily, and he predicted that the new cotton pulp would come to be considered one of the greatest innovations in the paper industry in years.

The Union Iron Works of Bangor, Me., has received an order for two wood pulp grinders (four pockets) for grinding twenty-four inch lengths of wood for the Alaska Pulp and Paper Company, together with two wet machines. This order marks Alaska's beginning in the paper manufacturing industry, as the mill of this concern will be the first to be built in that territory. The water wheels for the plant will be furnished by the Pelton Water Wheel Company of San Francisco, and will operate under a 920-foot head.

About 14,000 tons of pulp have been imported into the United States from Finland so far this year, and it is expected that a much greater amount will be received during the remainder of the year. The Finnish Cellulose Association, a combination of all the sulphite, sulphate and kraft pulp mills in Finland, the yearly capacity of which is 300,000 tons, is now marketing the greater part of its output in England and America. This includes wrapping, writing and newsprint products. With this trade increasing rapidly from month to month, Finland bids fair to become an important source of wood pulp supply for the United States. The first post-war cargo of Finnish pulp was received in the United States in May, 1919, through the Lagerloef Trading Company of New York. The shipments are made from the ports of Helsingfors, Hango and Kotka. The latest cargo of 1,900 tons came on the steamship Panola, June 7, and was unloaded at Philadelphia. Another large shipment is on the way from Finland and a third vessel is loading on the other side.

Franklin Moon, who has been Professor of Forest Engineering at the New York State College of Forestry, Syracuse, since a few months after the founding of the institution in 1912, was recently elected dean of the college by the Board of Trustees.

George C. Sherman, president of the Taggarts Paper Company and Hall, Ward & Walker, Inc., news of whose death recently came as quite a shock to his relatives and many friends, was one of the best known paper manufacturers in the United States. Mr. Sherman was rated as one of the wealthiest men in Watertown, N.Y., where his home and principal business interests were located. Born in Watertown, July 26, 1862, he entered the paper manufacturing business about 25 years ago when, with D. M. Anderson, he organized the St. Regis and Taggarts paper companies. Mr. Sherman is survived by his wife, Alice Taggart Sherman, and by two sisters.

The Northern Paper Mills at Green Bay, Wis., will start early this month the construction of a wood-grinding plant to cost $100,000. Machinery, consisting of two 15-ton magazine grinders, driven by a 2,000 horse-power motor. is now being manufactured by the Baker Manufacturing Company at Saratoga Springs, N.Y. Delivery on this equipment has been promised by late September, and it is expected that the plant will be in operation toward the end of October or early in November.

A tour of inspection as guest of the big paper manufacturers of Watertown, N.Y., was made last week by Eloi Badet, a French paper maker, who arrived recently from Europe to purchase a paper trimming machine for his firm, the Papetiere de la Seine which he serves in the capacity of assistant to the general manager. Mr. Badet plans to visit paper manufacturing plants in other American cities before he returns to France.

PULP AND PAPER NEWS

In June, last year, a big paper mill in Quebec had 18 lost time accidents, due to the inexperience of new men. For half of June this year the number is only four, although the pay roll has increased from 990 to 1,100. In a bulletin to employees, the following appears: "Let us make an effort to keep the June figure down to a minimum. All our old men should make it a point and a duty to tell the new comers about the safety work accomplished at the mill, about the reduction achieved through co-operation and careful thinking, and once the pace is set by the old timers, strong believers in the welfare policy of the management, the others will follow and help achieve what was done in other mills where safety and happiness are considered to be one."

Dr. T. J .Foley has been engaged as Plant Doctor (not botanist), by the Belgo Canadian Pulp & Paper Co. Dr. Foley worked in an American factory before taking up the study of medicine at the University of Alberta. He served on a camp hospital staff during the war and then took additional studies at McGill University and did hospital work. He graduated last month with honors. Dr. Foley will have good support from the Safety Committees.

Edward Beck, in charge of publicity for the Canadian Pulp and Paper Association, is enjoying a much needed rest at Muskoka.

A recent accident report from a Canadian mill shows time lost from scalding by hot groundwood pulp, strained back, fingers pinched in calenders, leg hurt by cake of ice (accident not reported till one week after happening), and cutting finger on knife barker.

Announcement has been made by the Royal Trust Co. regarding the six per cent first mortgage Thirty-year Debentures of The E. B. Eddy Company, Limited, that debentures, numbered as follows: 11, 12, 34, 95, 102, 144, 150, 153, 194, 195, 236, 255, 261, 280, 292, 422, 430, 431, 433, 444, 484, 496, have been drawn for redemption on account of the Sinking Fund, and will be paid for on 14th September, 1920, at the office of The Royal Trust Company, 105 St. James Street, Montreal, on presentation thereof with all unmatured coupons attached, at the rate of one hundred and two and a half per cent (102½%) and accrued interest. The debentures so drawn will cease to bear interest on and after the 14th September, 1920.

Marcus Greer, of Grand Mere, set up a new record for the Beaconsfield links, when he went over the course in a rainstorm in 68. In the recent ladies tournament, Mrs. George Chahoon, Jr., also of Grand Mere, tied for sixth place in a large field after a fine contest.

The Spanish River Pulp and Paper Company has recently started a First Aid Course under the direction of Mr. Wyatt. The plan is to have at least one man from each shift in every department enroll. As soon as a large enough number enrolls, the services of one of the city doctors will be secured to give the course. The men working on shifts during the lessons will be given the necessary time off to take the lesson, with their regular pay.

Capt. J. E. Ardron, formerly secretary-treasurer of the Canadian Export Paper Co., Limited, has been appointed treasurer of the Acadia Sugar Refining Co. The head office of this company will shortly be removed from Halifax to Montreal.

The St. Regis Paper Co. has sent ten mechanics from the Deferiet plant to Montreal. They will proceed to Oscalana, Que., where the company is now installing a pulp wood preparing plant.

The company now owns a tract of 20,000 acres adjacent to the point where the mill is being erected, and a large cut of pulp wood logs is already in the river ready to be handled. Jack works, saw mill, barkers and a conveyor system are to be established at Oscalana.

The logs will be drawn from the river and rossed and cut into pulp wood lengths and loaded on cars for shipment to the local mills of the company.. The men just send there from the big plant at Deferiet will assist in hastening preparations to early completion so that the wood supply may be promptly delivered here.

Figures for May show that Belgo's four machines made 5596.26 tons of newsprint paper, with an average daily production of 207.27 tons, production per inch trim 726 lbs., loss in broke 5.11 per cent, and average machine efficiency of 90.87 per cent.

Allocation certificates providing for the importation of German dyes in amounts sufficient to supply immediate requirements of individual consumers in the United States for six months are to be granted by the War Trade Board. An announcement to this effect issued last week by the board, stated that consumers desiring to get allocation certificates providing for the issuance of import licenses, must file an official form provided for that purpose. Licenses to import will be issued only when the dyes applied for are not obtainable from domestic sources on reasonable terms as to price, quality and delivery.

POPLAR FOR PENNSYLVANIA.

North Carolina poplar trees will be planted in Pennsylvania state forests, if it is found they thrive there, to provide future relief from the newsprint famine. Gifford Pinchot, chief of Pennsylvania State forests, believes that the North Carolina poplar can be grown in the Keystone state if the right methods are applied. Two previous experiments, attempted on a commercial scale, did not prove successful. If the present experiment succeeds, a large quantity of wood for the manufacture of newsprint paper can be supplied in Pennsylvania within the next ten or twelve years. The North Carolina poplar is one of the fastest growing trees, even in the northern climate, and its texture is admirably adapted to the manufacture of pulp wood for newspaper.

WATER POWER COMMISSION APPOINTED.

Newton D. Baker, Secretary of War, was designated by President Wilson as chairman of the Federal Power Commission created by the recently enacted water power law. Other members of the commission named in the act are the Secretaries of the Interior and Agriculture. Mr. Baker said that half a dozen or more applications for the beginning of water power projects are awaiting action. It is said that $1,000,000,000 is now seeking investment in water power projects.

FRANCE PROHIBITS IMPORTS OF NEWS PRINT AND PULP.

Washington, June 25—(By Wire)—A cablegram from Commercial Attache Huntington at Paris, dated June 21, 1920, states that a French decree of June 16, 1920, published June 19, prohibits from the date of publication the importation into France and Algeria of all news print paper and wood pulp for the manufacture of news print, except under special license from the Minister of Finance. Goods en route to France or Algeria or declared at warehouses before the publication of the decree are not subject to prohibition.

TO EXPERIMENT WITH HARDWOOD.

Mr. L. A. Nix, of the Laurentide Forestry Department, has just commenced an exploration trip over some company-owned territory on which there is a large quantity of hardwoods, and his report of the trip is now being prepared. It is planned, using Mr. Nix's report as a basis, to use about 1,000 cords of the hardwood for experimental purposes in the mill next winter, in the groundwood department. If the experiment results successfully and the wood can be transported to the mill without difficulty, cutting will likely begin in subsequent winters on the large hardwood holdings of the company, on which there is estimated to be about 1,000,000 cords of available timber.

WAYAGAMACK'S MACHINES DELAYED.

The Wayagamack Pulp and Paper Company is producing about 170 tons of sulphate or kraft pulp daily. Of this, about 70 tons is consumed by the company in the manufacture of kraft paper of which it produces some 60 to 65 tons daily, and the balance of 100 tons of sulphate pulp is exported to England, South Africa, New Zealand and Australia, etc., some even going to South America. The company is receiving from $130 to $140 a ton for the pulp and the price for the kraft paper has gone up to about 10 cents a pound or $200 a ton, in both cases large increases over the prevailing price of one year ago. With the recent purchases of timber limits the company has now 2,000 square miles of very desirable properties.

Plans were made a year or so ago for purchase of four machines that would manufacture kraft paper with a capacity of about 12 tons each daily, adding about 50 tons to the present production, bringing it up to 110 or 115 tons a day. As a result of the moulders' strike in England the delivery of these machines has been greatly delayed and it may be late this fall before the first one is installed. Ordinarily this might mean a drop in the company's profits, but not so in this case, because it is understood that with the very high prices for pulp the company is able to make almost as much as if this pulp had been made up into paper.

CANADIAN PRICE SUITS U. S. PUBLISHERS.

"We are solving the print paper situation for the smaller newspapers of the country by direct action. Over one hundred newspapers have signified their desire to become members of the Publishers' Buying Corporation," said Jason Rogers, publisher of the New York Globe and chairman of the executive committee of the new buying corporation.

"We are offered millions of cords of pulp wood, scores of saw mills, and many paper mills. We will seek to buy supply of print paper for our members from mills and jobbers at fair prices," continued Mr. Rogers.

"We believe that we can buy collectively more advantageously than the detached small purchaser, and will seek to stabilize the price of paper to the average paid for all tonnage under all contracts with members.

"If those at present manufacturing and selling print paper are unwilling to do business with us at fair prices, they will have no one else to blame but themselves for forcing individual publishers into the manufacturing business.

"We are inviting all manufacturers and jobbers to quote us prices for tonnage and figure that when fully organized we will be the largest single purchaser of newsprint in the United States, with financial backing entitling us to the very lowest prices.

"There are signs that some of the larger newspapers are becoming interested in our efforts, but our policy, so far as I can influence it, will be primarily directed toward papers without contracts or assurance of supply.

"Judging from information coming to me during the past week, I am sure that we are going to buy paper for our members at better prices than the present spot market, and after January 1, 1921, at substantially the Canadian Export price.

"We will buy from reputable mills of profit, but will avoid those who are seeking to plunder the innocents. Our newspapers must seek to hold down consumption to the lowest point and have confidence in our ability to buy just as cheaply, on a pinch, as the speculators through whom they have bought in the past.

"My time is fully occupied with the work of the new organization, which I am confident is going to produce effects unattainable through any other process than co-operation, with all hands working for the good and benefit of all others."

LAURENTIDE LEADS THE LEAGUE.

By defeating St. Maurice Paper Company team at Grand'Mere on July 4th, the Laurentide A.A. baseball team assumed the lead in the St. Maurice League race. Laurentide won by 3 to 1. Sims, for the winners, pitched in good form, allowing only three hits, while Reynolds allowed four hits. Score by innings.

		R.	H.	E.
Laurentide	000 200 10x	3	4	2
St. Maurice	000 000 001	1	3	3

Batteries—Sims and White; Reynolds and Keefe.

Standing of Clubs.

Laurentide	3	2	.600
St. Maurice	2	2	.300
Three Rivers	1	2	.333

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, July 3.—According to pulpwood contractors in Toronto, the production of poplar wood recently has been abnormal, due largely to the scarcity of spruce. The head of one of the firm states that hardly a day passes that does not see from five to ten thousand cords offered by producers. Heretofore the demand for poplar has been quite normal but the production of spruce has fallen off very considerably and the producers are turning their attention to poplar, large supplies of which are now available at the shipping points. The fact that the wood is easy to peel and easy to get at also contributes to the big output. There is practically no market for spruce and balsam owing to the scarcity and it is largely a question now of when and how deliveries can be made. Peeled spruce is quoted at $18.00 a cord and a little less, according to grade and quality and poplar is selling at about $13.00. Hemlock is very little used and is quoted at $12.00. The contractors state that the biggest problem now being faced is that of transportation. It is very difficult to get the wood out owing to the great shortage of cars, the situation not having improved materially in that respect within the past month or two. In the Gatineau Valley, a Toronto contractor states, there is a pile of 14,000 cords of poplar that has been lying there for weeks owing to lack of cars to get it out. It is the general opinion that peeled pulpwood will reach higher price levels than at present, although it is anticipated that the situation will be governed to a considerable extent by the labor supply. If, as is anticipated in some quarters, labor is diverted from other channels by a slump in other fields of work, many laborers will find their way to the woods and thus increase the output and help to moderate the prices for wood.

All lines of pulp continue scarce and mills are having the greatest difficulty in securing sufficient to keep their machines running. Ground wood pulp is selling for as high as $150 in United States funds and is hard to get at the money. Contracts for news sulphite are being made at from $150 to $175 and bleached sulphite is quoted at $150 and $175. The prevailing opinion in paper circles is that pulp is destined to go still higher in price. There are no signs that production is catching up with the inordinate demands that are being made on the resources of the pulp manufacturers and while the big under-production exists any skyward figure is liable to be touched in the market.

While the shortage of newsprint continues, it is reported that there has been a slight falling off in the prices in the open market and no very spectacular sales have been recorded. While no one has any surplus, the needs of the Canadian publishers are being fairly well met and while some publishers are a bit anxious as to the future, there are no evidences of a famine at the present time.

Conditions in the paper trade generally are unchanged, although the week saw an advance of 10 per cent. on all toilet papers, effective June 26th. For eight ounce roll toilet paper the discount off list price now is 15 per cent instead of 25 per cent and the same percentage of discount applies to the other grades and weights from four to sixteen ounces. On the same date a new tissue list went into effect, all lines, including specialty lines, now being subject to a fifteen per cent reduction in place of the twenty-five per cent previously prevailing. The demand for these lines keeps up and the mills are working at full capacity with no prospect of getting caught up with arrearages of orders.

Jobbers are still experiencing the greatest difficulty in getting supplies of book paper and near-famine conditions prevail in this branch of paper making. The warehouses are virtually bare of all lines of book and many urgent orders have to remain unfilled. No changes in prices were noted during the week.

Two of the largest Canadian mills, namely the Howard Smith Paper Co. and the Rolland Paper Co., sent up their price list on Wednesday of this week and only guarantee July shipments at the new figures. The increase represents an advance of 3 and 4 cents a pound on all lines, such as bonds, books and ledgers. For instance, the cost to the jobber now of No. I S. C. book will be 19½c, plus freight and packing. The jobbers' price to the trade on the cheapest sulphite bond, as supplied by the two mills mentioned, will be 31c. The jobbers' price for sulphite linen bond in ream lots is 70c and Belfast Bond, one of the leading brands, will be 56c a pound, jobber to consumer. These prices, fixed by two of the mills only, are not universal and book papers, bonds and ledgers of other mill makes can be had for several cents cheaper, although it is expected that the advance will become fairly general within the next few days.

NEW YORK MARKETS

New York July 3.—This is the time of the year when paper mills close down for semi-annual repairs and inventories and as a result activity in the industry is slowing up somewhat, yet there is no weakening of demand to amount to anything and business in consuming centres continues at a lively pace. It is true that buyers of some kinds of paper have let up in their operations to an extent, but on the whole demand is ample to satisfy manufacturers and jobbers and to keep them busily engaged.

From present prospects, the market for paper is likely to remain strong throughout the summer, and doubtless for the balance of the year. That manufacturers expect this is intimated by their actions in endeavoring to cover raw material requirements ahead for some time; in fact, further away than is the usual policy of papermakers. This procedure would seem to indicate belief on the part of manufacturers not only in a continuance of voluminous demand for paper, but also a maintenance of high prices on raw material. It is definitely known, for example, that mills situated in various parts of the country are leaving no stone unturned to cover at least a portion of their potential requirements in wood pulp over the balance of the year, and some are buying even into



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INQUIRIES SOLICITED.

1921. Contracts also are being placed for rags, rope, bagging and other raw stock of which paper is composed for delivery many months hence.

The newsprint market presents one of the most novel situations probably ever witnessed by the paper trade. There is a tremendous potential demand for newspaper going unfilled, and publishers are doing everything in their power to secure every ton of paper to be had on contract, and yet offerings in the spot market are frequently remaining unaccepted and are steadily increasing in number and volume. Publishers in the large cities are leaving out hundreds of columns of advertising every day, and printing notices blaming this condition on the dire shortage of newsprint, while paper in the open market—at spot market prices—is being largely neglected. The truth of this matter is that publishers simply are unwilling to pay the prices asked for spot lots of newsprint. All the paper they can get at the contract basis mills are quoting is greedily taken in, and there is a loud clamor for additional supplies at the same prices, but when it comes to meeting prevailing open market quotations, publishers no longer desire to buy. This does not mean that there are no sales of spot newsprint. On the contrary, business of good volume is passing in the open market, but offerings are increasing and everything tends to show that buyers are keeping out of the spot market just as much as their pressing needs will permit.

Beginning with the first of this month, most of the newsprint manufacturers revised their contract basis. The International Paper Company is now receiving 5.75 cents a pound from contract customers for newsprint in standard rolls, and quotations of other mills range around the same level, some being slightly in excess of this figure and one or two quoting a shade under it. Spot prices on newsprint hover about 12 cents per pound. Instances have come to light where sales have been made at a bit below this level, but the great bulk of business being done is at this figure or above it.

Book papers rule very strong in price and there is no easing of demand in any quarter. Unlike newspaper publishers, magazine publishers are eagerly absorbing all the supply of book papers to be had and they pay but scant heed to the prices asked so long as the paper is forthcoming. This would seem to indicate that periodical publishers find it is more profitable to pay the high prices asked for paper and carry all, or nearly all, of the advertising offered them than to turn down the advertising because of the prices they must grant for paper. Machine finished book papers are selling at 15 to 16 cents per pound, supercalendered book at from 16 cents upward and coated and enameled book papers at 18 cents upward.

Wrappings and tissues are in fairly good demand, although activity in this end of the market is not as brisk as it has been, this being attributed to the slowing up of business in retail establishments, with a consequent lighter consumption of wrapping and tissue papers. Prices nevertheless are firm and buyers find it necessary to meet the quotations named to secure supplies. Fine papers rule quotably steady, and are moving into consuming channels in consistent fashion. Mills in general have all the business booked they can accommodate and are working with one idea in view, that of making some headway in catching up with deliveries, which under prevailing railroad conditions is truly a problem.

The board market is firm. Mills are running full and are still far from being up with orders on hand, despite the holding off of boxmakers in making new commitments for board. News board is practically unobtainable at less than $125 per ton at mills and plain chip board is selling at $110 to $115.

GROUND WOOD.—Ground wood prices are mounting day by day. Demand is of a pressing character, and those producers or dealers having supplies to dispose of are securing almost any prices they may ask, so anxious are consumers to get pulp. Sales at $150 per ton at producing mills have been definitely recorded and even at this unheard of price there is very little supply to be had, while rumors have been heard concerning transactions at $160. Bids of $130 and $140 are given little attention by manufacturers for the reason that they are well aware higher prices can be obtained in other directions. Offerings are extremely slim, about the only amounts coming into the open market being occasional single carloads which sellers find they have over and above their contract commitments.

CHEMICAL PULP.—Sulphite of every grade is in keen demand and quotations are gradually moving to higher levels. The market is almost quite as bare of available stocks as is the ground wood market, and under a situation where there is such a broad space in between supply and demand, buyers are freely paying any prices within reason when finding pulp for sale. Newsprint sulphite has sold at 8.50 cents a pound at pulp mills, domestic bleached sulphite at 12.50 cents, foreign No. 1 unbleached sulphite at 10.50 cents and easy bleaching sulphite at 11 cents. These prices represent record values for wood pulp, and yet there is nothing in the market at present indicating

Scandinavian American Trading Co.

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We buy all kinds of Canadian WOOD PULP AT TOP PRICES. Write us and be Convinced.

that prices have touched the top. Kraft pulp is available in larger quantity than sulphite, but prices are firm. Business has been reported done in domestic kraft at 7.50 cents and in Scandinavian kraft at 8 cents.

RAGS.—An easier tone characterizes the papermaking rag market. This is the season when mills invariably retrench in buying while preparing to take inventory and make repairs, and also because of expectations of lower prices during the summer months and the slowing up of business creates but little surprise. Business is reported in practically every grade of rags at prices under those previously prevailing. The sharpest decline this week has been in roofing rags, which have sold at as low as 2.75 cents a pound at shipping points for No. 1 packing, denoting a drop of almost a full cent per pound within the past three or four weeks. Old whites have eased off about a cent, with sales noted of No. 1 repacked whites at 15 cents, while thirds and blues are available at 4.75 cents and in some instances at lower levels. New cuttings are the one firm item, this being due principally to the small amounts coming forward from clothing houses and the resultant unwillingness of packers to part with stocks now on hand at cheaper figures. New white shirt cuttings of No. 1 quality are quoted at around 21 cents and up to 22 cents, No. 1 washables at 11 cents, unbleached muslin clippings at 17.50 cents and fancy shirt cuttings at 13 cents.

PAPER STOCK—Old papers are in steady demand and although the aggregate movement into consuming channels does not appear to be anything out of the ordinary, dealers are using a shortage of stock as a reason to repeatedly advance quotations. Prices on most grades are higher today than a week ago, and there is still a strong uptrend to values. Hard white shavings of No. 1 quality have sold at 8 cents per pound f.o.b. New York and No. 1 soft white shavings at 7 cents. Old folded newspapers are freely bringing 2 to 2.10 cents at shipping points and No. 1 mixed papers around 1.90 cents, while manila papers and ledger stock are selling at firm levels. A feature of the market this week has been the sharp rise in prices on white blank news cuttings. Sales of this grade have been noted at 5.25 cents f.o.b. shipping points, and it need only be remarked that this price is more than double what newsprint in standard rolls sold for before the war to show the stiff prices this kind of old paper is fetching. Kraft paper is firm at a basis of about 5.25 cents a pound for old No. 1 kraft while books and magazines—the one easy spot in the market—are quoted at 3.25 cents at shipping points.

OLD ROPE AND BAGGING. — Old rope and strings are in good demand and are holding steady in price, No. 1 manila rope being quoted at an average of 7.50 cents per pound and mixed strings at around 3.15 cents. Scrap bagging is in light request, and No. 1 packing is available at 3.25 cents and less at shipping points.

The Pulp and Paper Trading Company

21 East 40th Street, NEW YORK

Dealers in domestic pulp—chemical and mechanical —and paper.

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DEALERS IN

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Proctor and Gamble Distributing Co.
Cincinnati, Ohio

Bleached Cotton Hull Fibre Pulp
Mills at Augusta, Ga.

EASTERN AGENTS FOR

Port Huron Mitscherlich Sulphite
Made by the PORT HURON SULPHITE and PAPER CO.
Port Huron, Mich.

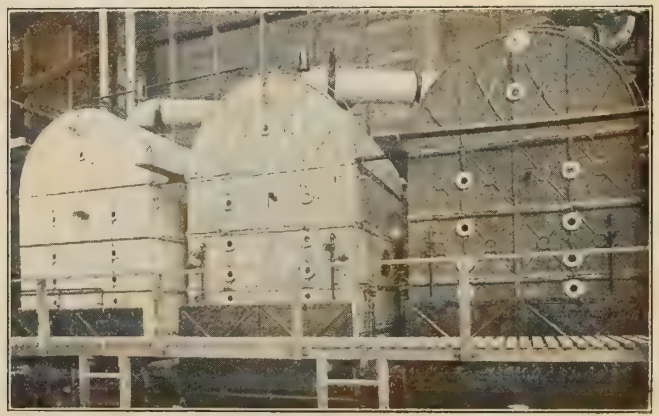
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MARCH EXPORTS OF PULP AND PAPER.

Dominion trade returns for the fiscal year ending March 31st give the total value of the pulp and paper exports for the year as $104,636,901. This is the first time they have reached the hundred million mark. In 1919 they were valued at $82,568,771 and in 1918, $63,344,143. They were made up as follows:

Paper and mfgs. of	$63,253,419
Chemical pulp	33,000.063
Mechanical pulp	8,383,419
Total	$104,636,419

The year's paper exports included 14,272,513 cwts. (approximately 713,625 tons) of newsprint valued at $53,203,792, constituting more than 50 per cent of the total.

The unmanufactured pulpwood exported during the year amounted to 838,732 cords, valued at $8,454,803, compared with 1,597,042 cords valued at $15,386,600 in 1919, and 1,002,127 cords valued at $8,339,278 in 1918.

Pulp and paper exports for March, the final month of the year, were valued at $11,668,796, a gain of $3,668,236 over the corresponding month of 1919, as follows:—

Paper and mfgs. of	$5,732,122	$ 7,231,207
Chemical pulp	2,041,884	3,875,281
Mechanical pulp	226,554	562,308
Totals	$8,000,560	$11,668,796

Exports of newsprint for the month were 1,426,149 cwts. (71,307 tons) valued at $6,185,305.

Unmanufactured pulpwood exported during the month amounted to 47,904 cords valued at $497,984, a drop of over 100,000 cords in quantity and of $910,159 in value, compared with the corresponding month of 1919.—Issued by Canadian Pulp and Paper Association.

NEW MACHINE FOR MAKING BOARDS.

Improvements in multi-cycle mould machines for the manufacture of paper boards have recently been patented by Mr. G. H. Hedley, of Loudwater, and Messrs. J. White and F. W. Gray, of Leith Walk Foundry, Edinburgh.

The usual upper felt is dispensed with, and an endless wire substituted. The production of boards smooth on one side or face is effected. Boards so produced require less calendering, and, of a given bulk, can be produced from less material than if made in the usual way.

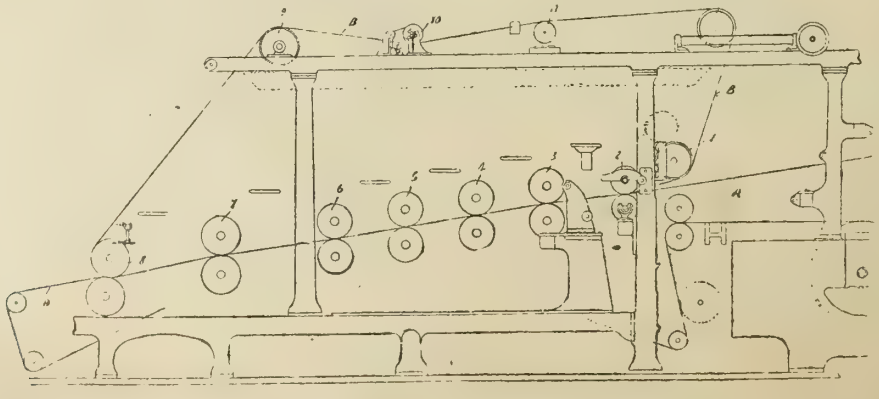
The sheets coming from the cylinder moulds and lying on the upper surface of the under felt encounter the endless wire just before entering the nip of the first pair of primary press rolls, the under felt and the wire with the interposed board being subsequently led through succeeding pairs of primary press rolls, which impress the mesh of the wire on the upper face of the board and a surface characteristic of the felt on the under face of the board; the entire volume of water expressed passing through the under felt, there being no accumulation of water on the upper side, such as is experienced when an upper felt is employed.

As will be understood, the surface impressed by the wire is relatively smooth, i.e., much smoother than the surface characteristic of the felt; the minute proturbances and depressions caused by the wire serving to key the coating, if any, which may be subsequently applied to the board.

In the accompanying drawing A denotes the under felt, and B the endless wire co-operating therewith. 2, 3, 4, 5, 6, 7 and 8 represents sets of primary press rolls in which the boards, sandwiched between the wire B and the under felt A, are subjected to the desired pressure. 1 denotes a vertically adjustable lead roll located in front of the first pair of press rolls, the adjustment of which guide roll determines the bight presented to the entering sheets. After leaving the upper roll of the last pair of press rolls 8 the wire passes around a carrying guide roll 9, a wash roll 10, a guide roll 11, and a stenting roll 12, whence it returns by way of the guide roll 1 to the press rolls.

PLANTING 10,000,000 TREES IN MASSACHUSETTS

Forestry experts of New York and Massachusetts give vigorous indorsements to state and community forestry experiments. According to these forestry economists, state and community tree planting is one of the most decisive means of averting a tree famine. They urge that other states follow the example of Massachusetts which has come to be considered the most advanced commonwealth in state forestry. In that state a programme is in force which calls for planting some 10,000,000 white and Scotch pines per year, part of them on state grounds and some to be turned over eventually to private owners. New York State foresters, encouraged by the results in Massachusetts, are urging that greater reforestation programs be undertaken in New York. Although there has been considerable tree-planting by communities in New York, forestry experts are calling for aid by the State in reforestation projects. A New York State forestry college survey calls attention to the fact that 7,000,000 acres of land in the state ought to be reforested through some public means.



Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que., July, 15, 1920. No. 29

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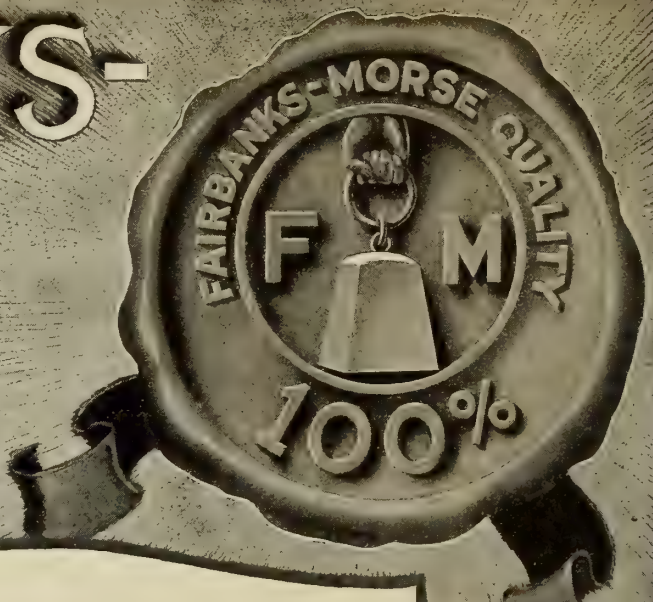
J. NEWELL STEPHENSON, M.S., Editor.

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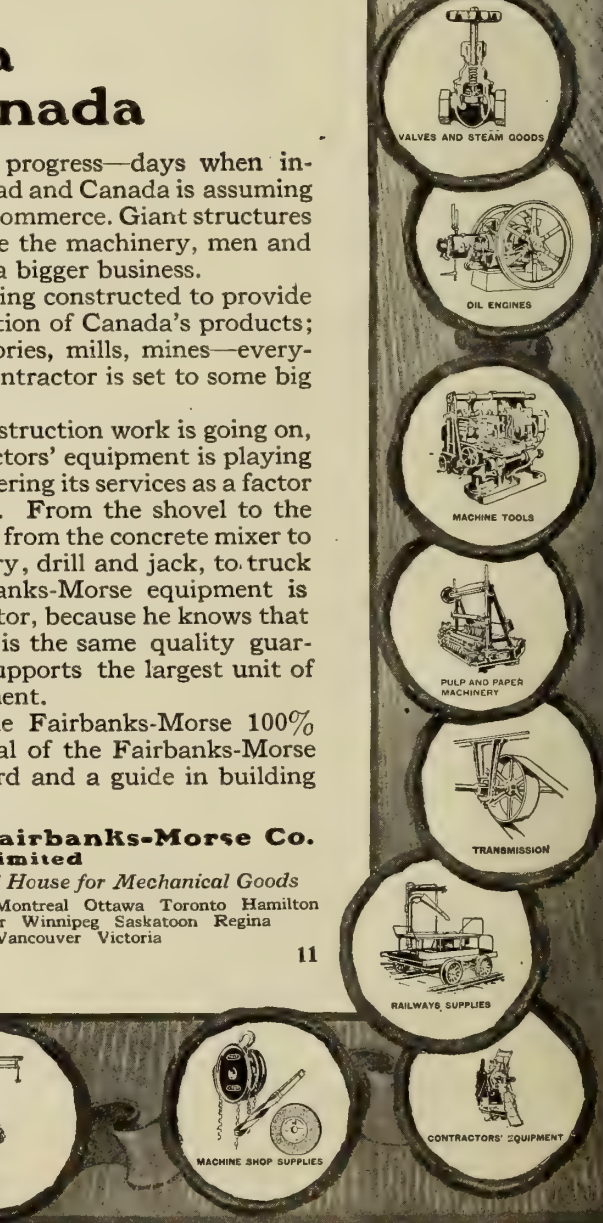
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-:- EDITORIAL -:-

AN ACTIVE TRADE COMMISSIONER.

When the invitation came last week to meet Mr. A. E. Bryan, Canadian Trade Commissioner of Japan, and to hear him speak on Canada's opportunities in that country, we rather expected to see a more or less superannuated politician who had been given a comparatively easy job. Great was our surprise and delight in meeting a young, live-wire Canadian whose remarks showed that he has been actively on a job which has been big enough to keep a real man constantly busy. The essentials of Mr. Bryan's talk to a special meeting of as many members of the Pulp and Paper Association as could be reached at short notice, but who nevertheless crowded the large board room of the association, are found on another page. In addition to these remarks Mr. Bryan showed a number of excellent pictures of Japanese paper mills, including even illustrations of logging operations. His keenness in perceiving the principal features in the Japanese industry was evident in his remarks, and in the lessons deduced for the Canadian industry to observe.

A careful study of Mr. Bryan's address will show that for certain kinds of pulp and varieties of paper Japan offers an attractive market which should be carefully, courteously and immediately cultivated. Recommendations are made which would do credit to an investigation by an experienced paper maker, and Canada is certainly fortunate in having a man occupy this important post who is so capable of advising Canadian industries. Mr. Bryan's investigations and recommendations are by no means confined to pulp and paper. He has carefully looked into other lines, and he is quite as frank in stating where an industry has no chance as he is in urging activity.

An interesting point that was brought out was the manner in which Canadian courtesy has returned a benefit. A little while ago a prominent member of the Japanese paper industry visited Canada, and was shown through such plants as he wished to visit. Canadian paper makers were glad to have him visit their plants because of their pride in them and because they always take pleasure in entertaining the stranger within their gates. It was a particular delight to be honored with a visit from the kindly and courteous gentleman from Japan, and it was thought that his visit ended except for the friendships that resulted from it. Such was not entirely the case, because it was in large measure the memories of this gentleman's visit to Canada which enabled Mr. Bryan to find a welcome as a Canadian at the plants of the Japanese paper makers. Mr. Hall Caine was quite frank in expressing his astonishment at the generosity of Canadian paper makers in opening their mills to visitors. It seems that the good work which Canada has been doing in promoting this openness has begun an international movement for less secrecy and for more cordial co-operation among pulp and paper manufacturers.

We are glad that Mr. A. E. Bryan represents Canada in the land of cherry blossoms and it is to be hoped that the pulp and paper industry will show its appreciation to Mr. Bryan by co-operating with him in every possible way, in his endeavor to make Canadian goods known and by his suggestions have Canadian goods made, sold and shipped in such a manner as will always give satisfaction.

POLITICAL CHANGES IN CANADA.

The premiership of the Dominion, as well as that of the Province of Quebec has undergone a recent change. Sir Robert Borden, who carried on the duties of the highest office which the Dominion could confer during one of the most difficult periods in Canada's history, has found it necessary, because of failing health, to resign. The reins of Government, insofar as they may be held by the leader of the party in power, pass to Hon. Arthur Meighen, who has been associated with Sir Robert as Minister of the Interior. The new premier is a Westerner who has come to appreciate through contact with those of the East the needs as well as the opportunities of the whole Dominion. In his former capacity as Minister of the Interior, Mr. Meighen had jurisdiction over the Forestry Branch and, consequently, is the member of the Government most familiar with the pulp and paper industry. It is to be hoped that under Mr. Meighen's guidance the Dominion Government will show that appreciation of the value of the pulp and paper industry which has been one of the strong features of the Provincial Government of Quebec for many years. There has been a tendency to enact legislation which would hinder and restrict the development of the industry. Besides this legislation of what might be said to have an inactive effect, there is also an active effect of legislation and policy which might be inaugurated for the benefit of all wood-using industries. Two important and diverse instances might be cited in the need for better fire protection and the en-

couragement of better utilization. For the former there is need of more careful supervision of settlers as to the lands they occupy and the manner in which they clear them and also in bringing all the railways to a more strict accountability with regard to fires along their right of way. With regard to the utilization of the forest, we believe the principal point will be the encouragement and support of the Forest Products Laboratories.

The new Premier's political duties will be particularly arduous, and he probably will not have much opportunity for constructive thought on these matters, but he will be responsible for putting capable men in charge. We believe that Mr. Meighen appreciates the importance of Canada's forest resources, and that he will exert himself on behalf of those depending upon them.

SIR LOMER GOUIN.

During the many years of his public life and particularly that spent as Premier of the Province of Quebec, Sir Lomer Gouin has been, in the best sense of the word, a public servant. He has shown an intimate knowledge of the various industries which are established in this Province, and has always been on the lookout for means whereby the prosperity of the people of Quebec particularly, and Canada in general, can be promoted and protected. One of the most important features of Sir Lomer's administration was the inauguration, in 1910, of provincial legislation which has so modified the lease of Crown timber lands that only after at least one step in manufacture may wood cut from these lands be exported. It has been recognized and appreciated by the people of the province that this measure was a foresighted step, not only in the conservation of Quebec's natural resources, but also as an insurance policy for the continued employment of Canada's industries depending upon a protected forest.

Sir Lomer's continued interest in the pulp and paper industry is assured by the announcement that he has been elected a director of the Laurentide Company. The ex-Premier has come to know this company quite intimately through his interest in its farsighted forest policy and well known efforts that have been made in the promotion of reforestation. The conservation of the forest has been one of Sir Lomer Gouin's principal interests since he entered the service of the public at Quebec. Few men in Canada appreciate more clearly the need for careful procedure with respect to the forest. His interest has been not merely the cultivation of the principal source of revenue for the province, but rather as one of the principal sources of raw material for support of industries which provide employment for thousands of the people. It frequently happens that the influence and advice of a great man in private life has greater effect and carries more weight than if he held a government office. Such is not unlikely to be the case in the present instance. The attitude toward the government of the Laurentide Co., with which Sir Lomer is now identified, has been always a generous one. The company naturally and properly desires to make a good profit. A large proportion of these profits have for some years been expended in experiments and demonstrations which are sure to be of great benefit to the province. In fact this has been one of the objects in mind.

By his association with the Laurentide Company Sir Lomer becomes definitely identified with Canada's great pulp and paper industry in a direct and personal way. Both may be truly congratulated. The industry needs men of vision and with the growing closeness of the contact there is increasing need for co-operation between industry and Government in a manner which will be fair and helpful to the public and not simply a means for industry to get rights and privileges at the expense of the people. It is particularly gratifying to have a man among us who knows what is proper and right for an industry to ask of the government and who also realizes the obligations of the government as a trustee of the country's resources.

Sir Lomer Gouin leaves his Government office with the good will, the good wishes and the gratitude of Canada's largest province. He has well earned an enviable reputation as a high minded, foresighted political force, who has always had the best interest of his Province. His ability will assure his success in the field he has chosen to enter, and it is only to be hoped that his successors at Quebec will follow the broad-minded policy of his administration.

Hon. L. A. Taschereau, who has been Sir Lomer's right-hand man for some years, succeeds him as Premier, and it is gratifying to have him give the assurance of a continued progressive policy along the lines so successfully laid by his predecessor. In his first public utterance since assuming command of the administration at Quebec, Mr. Taschereau said:

"I will continue to follow in the way which Sir Lomer Gouin led, so that the Province of Quebec may be the sanctuary of all classes and religions, all living to give her peace, harmony and concord, and so that it will continue to be said in the future as in the past that there is no province or place such as Quebec where there is such a measure of liberty."

Members of the American Society of Chemical Engineers, of whom about 140 visited the E. B. Eddy plants at Ottawa, were profuse in their compliments on the way the visit was planned and conducted. A souvenir program, printed on the premises, outlined the processes and indicated the itinerary. Small groups were provided with competent guides.

Pulp and Paper Opportunities in Japan

The following is a summary of some remarks by Mr. A. E. Bryan, Canadian Trade Commissioner to Japan on the pulp and paper industry in that country to members of the Canadian Pulp and Paper Association, July 7, 1920.

Mechanical Pulp.

There are only a few small mills in Japan manufacturing ground wood pulp for sale. The total annual production of mechanical pulp in Japan is estimated to be nearly 200,000 tons, but the correct figures are almost impossible to obtain since most of the leading mills manufacture for their own use and keep the figures of production private.

There have been no imports of mechanical pulp into Japan since the war, and I do not see any prospective opportunities in sight for business.

Imports of Sulphite Pulp.

Origin:	1919.	1918.	1916.	1913.
Total	10,687,205	6,835,589	9,017,719	4,620,477
Canada	3,781,512	4,079,144	656,281	354,146
U. S.	3,859,774	2,333,858	1,205,173	113,622
Sweden	2,529,784	418,476	5,697,424	1,254,625
Germany		4,109	73,024	2,176,454

Total 28,742 tons in 1918—Canada 18,240 tons.

The first presumption that will probably enter your heads, gentlemen, is that the pulp manufacturers of Canada certainly must have been hot after Japanese business. But with only one or two exceptions that I know of, this has not been the case at all, and our sales would not have been so successful if Japanese buyers had not gone out of their way to purchase from Canada. I suppose that I receive more inquiries for Canadian paper pulp than for any other article, and although our mills have been hard pressed to handle all the business received from other quarters, I am pleased to say that many of the inquiries which have passed through the Yokohama office have resulted in substantial business. From the returns just read you will note the remarkable change in Canada's contribution, say between the years 1916 and 1918. In the former year we supplied a little over 7 per cent of the total requirements, while in 1918 we sold Japan 62.7 per cent of what she bought. Last year our portion dropped to 38 per cent of the total, but even at that we supplied over 752,000 lbs. more than our next competitor, the United States, and we can presume that a good proportion of their shipments were made up of Canadian pulp.

Future Prospects of Pulp Business.

Last summer I had the pleasure of taking a trip to the Northern Islands of Hokkaido and Karafuto. One of the chief objects of my visit was to investigate the pulp resources of Japan. Through the courtesy of the managing directors of the various pulp companies I was able to go through every pulp and paper mill in the Hokkaido. I then went on up to Karafuto and there had a most interesting as well as profitable insight into the pulp industry. I went through every pulp and paper mill, and saw two new mills in course of construction. I saw the process of manufacture from the taking of the logs out of the bush to the finished pulp and paper, and to our pulp producers in Canada I can say this—there will be a market for Canadian pulp in Japan for some time to come.

In the first place, nearly all these mills are now 5 to 20 miles away from their log supply. In most cases there are no available rivers to boom the logs down to the mill, as is the case in this country. The logs which are cut in 12 foot lengths are therefore all drawn by horses, in some cases ten miles, to the nearest railway siding (owing to this situation the Japanese are now looking for pulp wood in Manchuria and Siberia, where mills will be built). Here they are stacked up to be hauled down by train during the summer months to the mill. The cost of getting these logs from the bush to the mill must in most cases be very high, in spite of the advantage of lower wages. These logs are brought down the rail line in some cases from 20 miles distance, while in many places the logs have been all cut and used up close to the railway, and, as I say, they are bringing them in from a distance of five and ten miles, perhaps one log at a time, depending on size. In some districts the logs are drawn down to the sea, and boomed from there to the mill in what are called "Ikada" or rafts. These logs are cut from what is called "Matsu" (pine). About 70 per cent are Ezo Matsu, while the rest are Todo Matsu. Although Todo Matsu makes more pulp per cubic foot Ezo Matzu is used the most because its fibre is much stronger. About 70 per cent of all the timber in Karafuto is Ezo Matsu and Japan has here a good many years' supply of pulp wood.

I, therefore, feel quite certain that Canadian pulp will always sell in Japan—for the following reasons:

1—On account of the extensive handling of logs by hand and methods of bringing same to mill, costs are of necessity high.

2—Although the cost of labor is half that in vogue here in Canada, I figure that two Canadian workmen will have the same efficiency as three Japanese. It therefore takes more men to look after a machine in Japan than in Canada.

3—Wages in Japan are continually advancing—so that ridiculously cheap labor is really a thing of the past. I was rather amused to read in a Canadian journal the following news item:—

"MADE PAPER 250 YEARS AGO.

"The Japanese paper industry was already estab-
"lished nearly 250 years ago, when the Dutch traders
"set foot in the country. Today nearly 150,000 peo-
"ple are said to be employed, at an average daily
"wage of 24 cents. Labor at this price leave plenty
"of room for price-cutting."

This is very far from the truth. In all mills I visited in Hakkaido and Karafuto the men laborers were receiving the equivalent of $2.50 or $3.00 a day. They received $1.00 a day wages and free house, while they could get their rice, clothing and other necessities at one-third of the price charged in retail stores. The management figured that they were thus getting the equivalent of $2.50 or $3.00 per day. Women laborers get 50 to 60 sen per day and house, etc.

4—The Japanese mills do not make bleached sulphite pulp—although some of the mills bleach pulp for their own use.

5—Canadian pulp has the reputation of being the strongest in fibre of any pulp on the market.

6—Canadian, up to the present, has been the cheapest and, therefore, the best value for the money of any other pulp. Its market price is often lower than that of domestic production and, really, the local mills have to regulate their prices to meet the Canadian.

7—Canadian pulp is now well known and those mills who have been using it, being conservative, will want to continue using it.

Some of our brands are established and will now almost sell of themselves.

I also think that this business could be considerably enlarged if more Canadian mills would cater a little to it, and send out their own representatives to study the requirements and consult with the users, etc.

Production and Consumption of Sulphite Pulp in Japan.

Perhaps you would be interested to hear what Japanese mills are capable of producing: In 1919 the production of sulphite pulp, unbleached for sale amounted to 23,404 tons. Of this amount 64,044 tons were sold on the open market. Three of the pulp mills in Karafuto are to double their capacity in the near future. It is estimated therefore that the domestic supplies of sulphite pulp, unbleached, for sale in Japan this year will amount to 90,000 tons, while some paper men state that by the end of 1921, 150,000 tons will be produced.

The consumption of sulphite pulp in Japan is not definitely known, although those best informed state it to be approximately 120,000 tons, but we know it has been increasing every year, and some idea of the requirements may be gained by comparing the output of paper during the past six years. These figures include about 50 per cent of newsprint.

	Lbs. (approximately).
1914	327,000,000
1915	367,000,000
1916	405,000,000
1917	455,000,000
1918	499,000,000
1919	519,000,000

Imports of Chemical Pulp.

During the same period the imports of chemical pulp have been as follows:—

Year.	Tons from Canada.	Tons. Total.	Values declared, Yen.
1914	2,924	45,342	4,574,212
1915	7,774	53,688	5,974,892
1916	5,692	57,720	9,017,719
1917	8,580	14,334	2,800,741
1918	18,000	28,762	6,835,589
1919	15,426	40,744	10,696,233

It will be seen therefore that there is a market for about 40,000 tons a year of imported sulphite pulp. It is up to Canadian mills to maintain the lead in this business. There are many improvements to be made in the Canadian product, for there is no use in denying that some Japanese prefer the Swedish pulp for quality and will pay higher for it. It is said that our pulp is stronger than the Swedish in fibre and that, if our mills paid more attention to packing and grading, we could increase our business.

Quote in Canadian Dollars.

One of the features that worked against us last year was the fact that as soon as American exchange started to go up some Canadian mills demanded payment in gold dollars. Thus, for instance, in January last, Canadian easy bleaching sulphite coming in quality between the Swedish 3 crown and 2 crown, cost the Japanese importers over 10¾ sen per lb. at the rate of exchange for American gold dollars (49⅞). On the other hand the rate for the pound sterling was rapidly dropping and Svartvik 3 crown bought at £28 and 2 crown at £27, 10s per 1000 kilos (2,204 lbs.) c.i.f. Japan, cost the Japanese importers only 10½ and 10 1-3 sen per pound laid down, duty paid. This accounts for the increased shipments of Swedish pulp, because the imports from Europe were costing the buyers less than those from Canada.

Gentlemen, if at all possible do not specify "Payment in U.S. gold dollars," but "Payment in Canadian funds." In some cases where a manufacturer must pay for his raw material, etc., in U.S. currency this may not be practicable, but stick to the flag, if at all possible, every time. I should think that pulp is one of the things that could be manufactured and sold in any country for Canadian gold dollars.

Value of Paper Imports.

	Total Yen.	U.S. Yen.
1918—Total printing	1,040,073	1,026,946
(Under 58 grams per sq. metre*)		
Other printing paper.	2,898,428	2,635,625
Writing paper	578,879	254,978
Drawing paper	118,023	4,801
Packing paper	2,012,917	1,838,038
Match paper	68,869	47,560
Cardboard paper	912,198	908,748
Tissue paper	251,008	161,590
Parchment, parafine wax	441,971	330,883
Fancy	574,967	509,651
Other	498,157	336,612

* Equals 36.6 lbs. 24 x 36—500.

Although Canada secured the magnificent total of yen 2.00 worth of business with Japan in paper in the year 1918, I think that if the figures were procurable for 1919, there would be at any rate a small increase, as I know of shipments of wrapping paper which were ordered in Montreal. However, Canada certainly should do better than the above figures will illustrate.

American mills send their travellers over to Japan to drum up the business and deserve all the business they get. There have been no Canadian men that I know of who have in recent years touched Japan to look into market conditions. Gentlemen, you will never get, nor do you deserve to get, export business by sitting down in your comfortable offices, expecting to have orders flow into your hands of their own accord. The firms who send out their salesmen, prepared to stay a few weeks in the country to familiarize themselves with the East, to meet the Japanese in the trade—to be entertained and to entertain—to show samples and quote prices delivered Japan—to meet buyers half way at least, if their specifications should vary a little from what is used at home—Gentlemen, these are the firms who are going to build up a suc-

cessful and permanent business. Some American and British mills have their own offices in Japan—others have one of their own men out there, who works in co-operation with their sole agents. He attends to claims, studies the requirements, etc.

Yes! There is good business to be had in Canadian papers if we want it. Up to the present our mills have apparently not cared for it, so naturally they did not get it. For instance I know of one firm who sent in orders during the last six months for 120 tons of high grade bonds and 12,000 reams of other writing papers, but to date have been able to get only 10 tons. How can we build up a business, if firms in Canada will not send us the goods? If they are sending it to other countries why not Japan? I would strongly advise our mills not to be indifferent to the Japanese market. There will probably come a time when your European customers will be able to get their requirements filled in Europe, when your Australian or New Zealand friends will through various causes not require as much as they have been during the past few years, when our American neighbors may get some of their supplies from old sources in Europe. We cannot tell what the future conditions will be, but we do know this, that the pulp and paper industry in Canada is expanding by leaps and bounds and, as our capacity increases as it is doing by leaps and bounds, we will be looking for foreign outlets. But, gentlemen, do not look for these outlets in Japan if you intend to neglect the market now, and do not think you can trot over to our next door neighbor and sell anything you have left to them just whenever it pleases you. If you do, you are greatly mistaken because you will be forestalled. America is forestalling you right at this present time—whereas England, Scandinavia and Germany will before long be pounding at the back door endeavoring to get in again on this business.

What I would like to see some of the mills do, is to lay aside, say 1, 2 or 5 per cent.of their output for Japan. There are plenty of good Japanese firms who would only be too anxious to get your paper and pulp. These shipments, although perhaps small, would at least be an advertisement of what we produce. They would at least cause the mouths of the Japanese consumers to water for more, and then in future when you have more available for export to Japan—you would have your channels dug through which your product could be put on the Japanese market. Just think that over, and if you decide to follow my advice in the matter, let me know. I will be delighted to co-operate with you in this direction. This applies not only to paper but to all lines exportable to Japan.

Output of Paper in Japan in 1918.

According to the investigation of the Japanese Paper Union of manufacturers, the total output of all kinds of paper, except straw pasteboard, during 1919 amounted to 519,142,000 lbs. As regards the production of the fourteen members of the union, the figures show an increase of 20,177,000 lbs., over 1918 and of 65,042,000 lbs., over 1917. The following table denotes the output of the different kinds of paper during 1919.

Kind	Output for 1919 — lbs.
Fine Printing Paper	72,737,000
Common Printing Paper	81,985,000
Newspaper	229,762,000
Imitation Paper	25,991,000
Rolled Paper	12,276,000
Match Paper	10,296,000
Colored Paper	5,449,000
Packing Paper	23,961,000
"Renshi" and "Toshi"	9,766,000
Miscellaneous Paper	46,920,000
Total	519,142,000

The following table shows the production of paper by every paper mill during 1919:—

Kind	Production Pounds
Oji Mill	192,223,000
Fuji	144,209,000
Mitsu Bishi Mill	51,077,000
Kyushu Mill	28,514,000
Kokura Mill	20,447,000
Yokkaichi Mill	17,928,000
Kiso	15,844,000
Central	14,366,000
Tokyo Pasteboard	12,979
Tokyo Hokuyetsu Mill	6,266
Kumano Mill	4,005
Umedzu Mill	3,905
Nakanoshima Mill	3,650
Yutansha	2,379
Total	519,142

DIRECTORATE OF NEW RIORDON COMPANY.

Organization of the Riordon Company, Limited, securities of which recently were placed in the Canadian and American markets, has been completed. On July 1st last, the Riordon Pulp and Paper Company, Limited, ceased to be an operating company, all its mills as well as the mills of the Kipawa Company, Ltd. having been taken over by the new organization.

A strong board of directors has been appointed, comprised largely of members of the Riordon Pulp and Paper Company board, although two new names are included, that of W. D. Ross, director of the Bank of Nova Scotia, Nova Scotia Steel and Coal Company, Limited, Matagami Pulp and Paper Company, Ltd., etc., and Senator W. C. Edwards, who represents some of the new interests which have been included in the company.

The full board of directors of the Riordon Company, Limited, now stands as follows:— Charles Riordon, president; Carl Riordon, vice-president and managing director; C. B. Thorne, second vice-president and technical director; J. B. White, third vice-president and timber director; T. E. Warren, manager of the Ticonderoga Pulp and Paper Company, fourth vice-president and mercantile director; F. B. Whittet, secretary and treasurer; J. S. Douglas, general manager of the Mail Printing Co., Toronto; T. J. Stevenson; C. G. Bancroft, president, International Trust Company, Boston; J. W. Wheeler, Parkinson & Burr, Boston; W. D. Ross and Senator W. C. Edwards.

The above make twelve directors in all, but it is expected that from time to time new names will be added to the board until the fifteen directors authorized for the company, have been appointed.

The board of Gatineau Company, Limited, has also been appointed, and is constituted exactly as the board of the Riordon Company, Limited. The Gatineau Company, Ltd., takes over the Edward and Gilmour and Hughson properties. All of its capital stock is owned by the Riordon Company, Limited.

FORT FRANCES VS. WESTERN PUBLISHERS.

Decision was made July 8 by the Paper Control Tribunal, consisting of Justices White, Archer and Middleton, that the Fort Frances Pulp & Paper Co., must refund to the various newspapers concerned all charges over and above the authorized prices for newsprint, amounting to about $122,000. At the same time the Tribunal granted the appeal of the Fort Frances Pulp & Paper Co., against another ruling, and allowed the company to charge $80 a ton for paper from and after the 1st of December 1919. While no date was set for the continuance of this order it was understood that it would mean until the recent advance in prices allowed on July 1st. In any event ia was intimated by I. Hellmuth, K.C., who appeared for the company, that the decision of the tribunal would be carried to another court, since the company challenged the jurisdiction of the Paper Control Tribunal.

A Double Win.

At the conclusion of the argument the Tribunal adjourned to draft their order. This was concluded shortly after noon, and handed over for preparation, the judges returning later in the afternoon to affix their signatures, the decision being unanimously agreed to.

Following is the decision and order based thereon:

"We do determine and order:

(1) "That the appeal of the Fort Frances Pulp and Paper Company from the said order of the 24th December, 1919, should be and the same is dismissed.

(2) "That the appeal of 'the publishers' from the said order of the 24th December, 1919, should be and the same is allowed;

"And we do further determine and order that the price chargeable by the Fort Frances Pulp and Paper Company, Ltd., to the publishers shall be:

"From January 1 to 31, 1918, $50 per ton.

"From February 1st to June 30th, 1918, $57 per ton.

"From July 1st to November 30th, 1918, $66 per ton.

"From December 1st, 1918, to December 31st, 1919, $69 per ton, with an additional charge of $3 per ton in each case for shipments in less than carload lots.

(3) "And we do further determine and order that the appeal of the Fort Frances Pulp and Paper Company from the order of the 31st December, 1919, should be and the same is allowed and that the price to be paid by the publishers to the said company from and after the 1st January, 1920, shall be $80, per ton, with an additional charge of $3 per ton for shipments in less than carload lots.

"And we do further determine and order that the said company shall refund and repay to each of the said publishers respectively the amount by which the amount charged by the said company to such publisher exceeds the amount payable upon our finding and determination, such amounts being subject to a set-off for any balance due by any publisher for paper supplied either before or since the 31st December, 1919."

Copies of this decision and order were sent to the litigant parties, and, following the intimation of Mr. Hellmuth, will probably form the basis for further litigation in the civil courts.

Many Papers Interested.

The claims involved in the appeal of the newspapers, mostly western journals, covered a period from January, 1918, to December 31, 1919, during which it was alleged that the Fort Frances Co. had charged and collected prices in excess of those allowed by the Paper Controller, to a total sum amounting to $122,136.41, which the order now states must be refunded.

These claims based, on the accountant's reports, were not disputed as to amount: Herald Printing Co., Prince Albert; Lethbridge Herald Printing Co.; Leader Publishing Co., Regina; Manitoba Free Press Co., Winnipeg; News Publishing Co., Moose Jaw; Times Co., Moose Jaw; Northwestern Publishing Co., Winnipeg; Phoenix Publishing Co., Saskatoon; Chronicle Printing and Publishing Co., Port Arthur; Canada Northwest Publishing Co., Winnipeg; Daily Grain Trade and Live Stock Journal, Winnipeg; Regina Daily Post; Saskatoon Daily Star; Sun Publishing Co., Brandon; Winnipeg Telegram; Winnipeg Tribune Publishing Co. are the papers affected.

Will go to Higher Court

Mr I. Hellmuth, for the Fort Frances Co., opened by stating that his clients did not admit the jurisdiction of the Tribunal. They did not quarrel with the accuracy of the figures presented by Mr. Clarkson, the accountant, except regarding a quantity of paper sold at $69 in December, 1919, for which they had to secure replacement by the Spanish River Co., paying $80 for it. This involved 9.094 tons, and he claimed that the company should be allowed on this cost, the more so as he claimed the Fort Frances Co. had shipped far in excess of the obligatory 15 per cent of their output.

Asked by Judge Archer if an order were issued fixing this price whether the company would accept it without suit, Mr. Hellmuth said he could not answer as to that. Mr. Thomson, for the publishers, objected to a general order fixing the price, while he claimed that the $69 order held, and that the Laurentide and Belgo-Canadian Companies had shipped more than their obligatory quota of 15 per cent of their output at that price.

Mr. Hellmuth said that the December figures were the only ones the Fort Frances Co. took exception to, and intimated that in any event the whole matter would have to be dealt with by another tribunal.

SPANISH RIVER DISPOSES OF ARREARS IN DIVIDENDS.

By the unanimous consent of the shareholders represented at a special meeting of Spanish River Pulp and Paper Mills, Ltd., held in Toronto on June 23rd, Preferred Shares equivalent to 42 per cent of the par value of the outstanding Preferred Stock will be issued in full payment of all arrears in Preferred Dividend up to June 30th. A further 7 per cent in Preferred Stock will also be issued to retire the dividend vouchers issued for one year's unpaid dividend on the original $3,000,000 of Preferred Stock.

As a result of this action the Spanish River Company is now able to consider the question of cash dividends on both Preferred and Common Shares. It will be remembered that early in the spring the Company redeemed the talons issued in 1915 in lieu of bond interest and that several other outstanding obligations were disposed of. It is generally understood that current earnings are extremely large, and an announcement of cash dividends within a short time is expected.

Men should strive to find points of contact, not principles of separation.

The Black Liquor Recovery Process*

By G. F. ENDERLEIN.
Brompton Pulp and Paper Company, Ltd., East Angus, Quebec.

By the recovery of a black liquor is meant the process by which the liquid used for cooking the wood is collected and worked over to make new cooking liquor. The more of the salts or chemicals that are regained the better. The question is, Where do the losses occur and how? This is a difficult question to answer, the losses being hard to stop, but some of the causes may be enumerated as follows:—

Incomplete washing of the pulp;

Loss by leaks in pipes, connections, valves, pumps

Salts decomposing from the heat in the furnace and salts carried away mechanically by the draft;

Loss of salts in the lime sludge from the causticizing tanks;

Loss in leaks by pipes, connections, valves, pumps and tanks; spattering out from tanks in making up the liquor.

Following the recovery from department to department we may start with the

Washroom.

The washing of the pulp is worked on the principle of diffusion—the pressing away of a heavy liquid by a lighter, which makes it posible to get a relatively concentrated liquor. The washing is done either in open or closed vats, the latter commonly called diffusers and mostly used at present, having some advantages over open vats. Open vats usually are larger in diameter than diffusers and take up more room, besides allowing a larger contact surface by washing, which hinders the concentration of the liquor.

Diffusers are washed under hydraulic pressure where a liquid—the weak black liquor—may be presed from one diffuser to the other, whereas by the open vat a storage tank has to be provided for the weak black liquor.

With the diffuser system, washing has been tried in different ways in order to ascertain the shortest time necessary and the least waste of liquor to get a pulp free from alkali; among others the continuous washing system where the last blown diffuser is connected to the drain of the previous blown, the washwater being kept on the first diffuser in the series till the drain shows clear water. In the series are three to four diffusers, the liquor going from the bottom drain to the top of the next diffuser. But this system is not much used, the friction caused by pressing the liquid through so many diffusers being considerable and the washing slow.

Then there are diffusers washed after the old open vat system, each washed by itself, pumping weak liquor on fresh blown and following up with water until clean. Strong black liquor from the diffuser drain goes into a storage tank for evaporation, the weak liquor being passed back to weak liquor storage.

Then we have diffusers washing in pairs, this being considered a superior method. One diffuser is here washed down to weak and the drain then connected to the top of fresh blown. Washwater is turned on to top of weak diffuser and hydraulic pressure applied. The friction of liquor passing through the pulp is limited, the washing being hastened by pressure on the washwater. The whole washing is accomplished inside of the diffuser, no tanks for weak liquor being needed, while impurities from the air are excluded. It is here that incomplete washing may result in a great loss of salts. Of course the washing cannot be driven any further than where the liquor can be taken care of. The washing will be the more complete corresponding with the strength of the liquor used for cooking, and the less the condensate from the steam by direct cooking there is mixed in with the liquor. The weaker the liquor from the digester a lesser quantity of liquor, having the necessary strength for the evaporator, can be washed out from the diffuser, consequently more weak black liquor than can be taken care of will be on hand and has to be allowed to go to waste through the sewer.

Another cause of excess of weak liquor comes when the washing cuts through on a place in the pulp leaving a part of it unwashed. A perfectly clean washing of the pulp in each diffuser is seldom accomplished as it would bring the strength of the strong black liquor too low for economical evaporation, but the washing is driven as far as possible to reduce loss.

By washing down to 4 degrees Beaume before cutting off the flow of black liquor to the storage tank the average test of liquor in the tank will be 8 to 9 degrees measured hot and not too weak for the evaporator. The diffuser ahead will be practically clean at that point and the pulp, after the remaining very weak solution has been drained to the sewer, ready to wash out. By indirect heating of the liquor in the digester the black liquor from the diffusers will be of much higher density and a more thorough washing can be done and still keep up the strong black liquor. The hydraulic pressure ought not to be too high, for excessive pressure will only pack the pulp harder in the diffuser and slow up the washing process. A pressure of about 20 to 25lb. is, in most cases, as high as it may be kept without packing the pulp. In many cases it may be too high; it will depend on local conditions. The washwater ought to be kept as hot as possible.

The next department would be the room for the

Indirect or Vacuum Evaporator.

Of vacuum evaporators several are in use, the best known being the Yaryan, the Swenson, the Zaremba and the Scott. The two last mentioned are very much alike. Of all evaporators Scott's is preferred on account of its high chamber over the tubes in the steam chest. The loss in chemicals will mostly result here from the liquor foaming over during evaporation. It is here that the high chamber in the evaporator effect counts, as it allows the vapor to separate more easily from the foam on its way over to the next effect steam chest. Liquor drawn over as foam is lost in the drip from the following effect steam chest. The effects ought not to be filled higher than to allow the black liquor to just cover the top of the tube-sheet and allow as much room as possible for the separation

*Reprinted from "Paper", April 21, 1920.

of foam and vapor and make the work for the save-all light. The save-all is an expansion on the vapor line between effects with tubes and baffles to separate liquor from vapor, the liquor being led back to the effect. As in most effective evaporators only the first effect is heated with live steam and the other effects receive their heating from the vapor of liquor from the effect ahead, each effect being under a lower pressure, respectively higher vacuum, than the previous effect. The condensate or dip from the first effect can therefore be used for washing or other purpose, but the drip from the other effects received from the vapor of the liquor contains gases injurious to the eye and if used for washing will cause trouble for the men. Other losses may occur on account of leaky connections, valves and pumps. Leaky tubes will only cause a loss of liquor when the evaporator is shut down, but as the pressure in the steam chest is higher than in the liquor side of the effect the condensate will be pressed back to the liquor again through the leaking tube and consequently cut down considerably on the efficiency of the evaporator. Indications of leaky tubes are found in the drip when the evaporator is shut down.

The next department to be considered is the

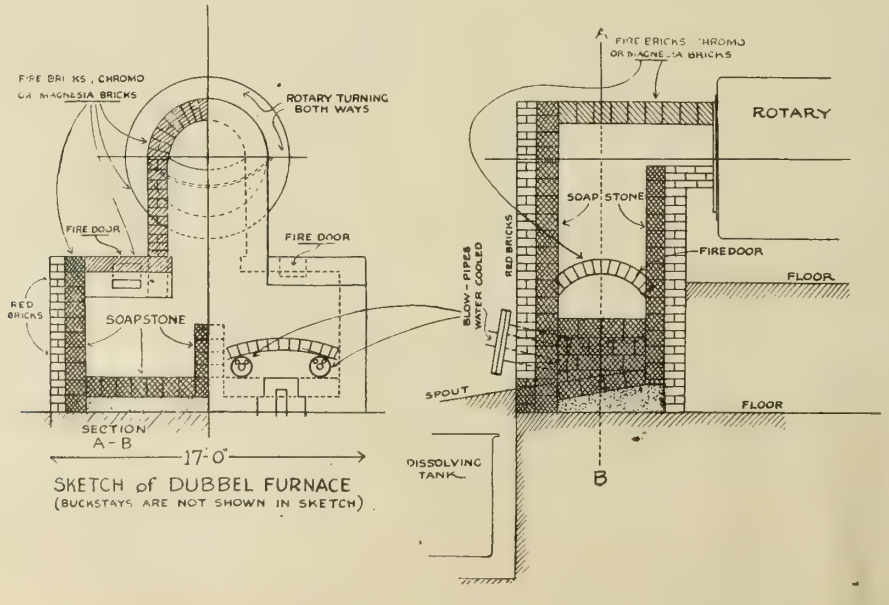
Black Ash Room, Furnace Room, Recovery Room.

In the recovery room the heavy black liquor is worked over into green liquor and, to make up for the losses, saltcake is added. To get a still higher density of the liquor after it has left the vacuum evaporator it is fed to the disk evaporator. Of those two are commonly used, the Enderlein evaporator and the Carlston evaporator. The former, invented in 1887, is the older of the two and most in use. The difference between the two, in a broad line, is that in the Enderlein evaporator the direction of the gases passes through a radial to the disks whereas in the Carlston evaporator the direction is axial. As to which one is the better of the two may be a matter of opinion, but the Enderlein evaporator is in my opinion simpler in construction; the bearings are the better protected; disks easier to change; it offers less resistance to the draft, while giving the same evaporating surface and perhaps more as the evaporator can be made as long as wanted and disk rolls added.

The purpose of the disk evaporator is not only to evaporate the water, but also to give the gases a washing and catch as much as possible of the salts mechanically carried away in the gases. The velocity of the gases in the disk ought not, therefore, to be too high; this the width of the evaporator takes care of. A certain amount of carbonizing takes place as well. With natural draft three disk rolls have been considered a good medium; using a fan four-disk rolls may be used to advantage. To lessen loss from leaks the body is made of iron below the center of the disk roll and then lined with bricks. The brickwork goes to the top of the disk roll, the top being covered by sheet iron, bent according to the disk roll causing the gases to turn over and mix before entering the next roll. Newer disk evaporators have been made of all-iron without any lining and have been found to work satisfactorily. The radiation on the brick-lined disk evaporator is of course much less, but the all-iron disk evaporator is lighter in construction.

From the disk the heavy black liquor is fed into the rotary by a 4-inch water-cooled pipe and evaporated down to black ash. The rotary, invented in England in 1853, consists of an iron shell 7 to 9 feet in diameter and 15 to 30 feet long, 9 x 20 mostly used, with a larger opening toward the furnace and a somewhat smaller one toward the disk evaporator. To protect the rotary it is lined with bricks. The lining is made in several ways and different kinds of bricks are used. Some rotaries are lined heavily toward the disk evaporator and less heavily toward the furnace making the inside tapered for a better feed, but this will only make the rotary unnecessarily heavy and put a heavy strain on trucks, rails and gears. The black liquor may even run too fast over toward the front and prevent a desired gradual drying out of the black ash. Two courses of bricks on short edge the whole length of the rotary, that is with a thickness of about 9 inches have given satisfaction. A lining of common red bricks, well burned, wedged tightly with a mortar made up of cement and sand will give a lining that will stand up as well as any and better than certain expensive linings like firebricks and fireclay.

The lining nearest to the furnace is most exposed to wear on account of the heat and mechanical wear from the ash rolling and sliding down when the rotary



turns over. Here one course of bricks will have to be renewed about once in nine to twelve months. On the other part of the rotary, two-thirds to three-quarters of its length, the lining will stay up for a long time. Of course the feeding of the black liquor to the rotary is of importance as an irregular feeding of the rotary will shorten the life of the lining. Black ash that is too dry indicates that a burning of the black liquor is taking place in the rotary, which will expose the lining and overheat it, and when a lot of black liquor is fed to the rotary and touches the overheated lining, it will have a bad effect on it. A good black ash should not be too dry. It ought to contain enough moisture so that it can be balled together. A fine, powdery black ash contains less combustible matter and will pack hard in the furnace where a moist black ash will be porous . A greater amount of salts will be carried away by the draft when the ash is fine and dry, the reduction will be poorer and the result in general will not be so good. A black ash that is too wet is as bad, since it is almost impossible to handle; it will run in the furnace and plug blowpipes and spout. Therefore a careful feed to the rotary of black liquor, as even as possible, will result in a good run and protection of lining in the rotary. The lip or lips of the rotary are lined with fire bricks as these are exposed to direct fire. The black ash from the rotary is shoveled into the furnace mixed with saltcake to make up for loss in salts. Devices have been tried to get an automatic feed from rotary to furnace, but up to the present nothing satisfactory has been found. This arises from the fact that the black ash from the rotary is very difficult to get to an even consistency, and it consequently will plug and gum the apparatus used.

The construction of a Dubble furnace is shown in Dubble furnaces with fire doors on top have advantages of their own. They are easy to fire and keep filled whereby a combustion in the mass takes place. When black ash is kept low in the furnace, a combustion more on the outside of the mass takes place and the brickwork has to stand up against a strong heat and the reduction will be less efficient. One of the losses of salts in the furnace is caused by the decomposing of salts by too strong heat through driving up the air pressure in forcing the furnace. The blowpipes ought to be large enough to supply sufficient air for a combustion without having to raise the air pressure higher than six to eight inches of water. Too much air blown in the furnace retards reduction and there may even be a partial oxidation. A poor reduction will result in a non-conversion of the saltcake to sulphide in the green liquor. As sulphate has no value in a cooking liquor the less there is of it the better. It only brings up the density of the liquor and makes the causticizing process more difficult. Another source of loss occurs when the air blast is too full and strong. When this is the case the ash, especially when very dry, will be blown in the draft and carried away through the chimney.

The molten salts from the furnace are received in a tank partly filled with wash liquor from the causticizing tanks. When the smelt touches the liquor, explosions take place and the hotter the liquid becomes the stronger these are, and the greater quantity of smelt is running in the dissolving tank. These explosions splatter around the liquor and cause a loss. The dissolving tanks ought to be constructed so that the spattering out of liquor is eliminated as much as possible. If any quantity of the liquor is spattered up on the spout on the furnace it will spoil the spout. To overcome all this the smelt has been let out on sand for cooling and then put in the dissolving tank, but this has also its disadvantages in the higher cost of handling and because the reduced salts from the furnace oxidize very rapidly in the air.

Causticizing Room.

Here the green liquor from the dissolving tank is received and worked over in white liquor, or causticized. The main loss here will be in the lime sludge. After causticizing, the liquor is allowed to settle and is then drained off. The settlement or lime sludge left in the tank is then stirred up with water or with liquor from a previous wash and left to settle before drawing off. This is repeated several times and at last the lime sludge is dumped into the sewer. From this it follows that the more lime sludge there is and the lighter it is the harder it is to wash free from salts andthe more of the salts will be retained by the sludge going to the sewer. A filter press is here of great help, but as no filter medium, that would stand up against the strong liquor and work satisfactorily, has been found, the process has to be divided up into two operations. First is the decanting of the strong liquor and then the pressing out the sludge in the filter after it has been stirred up with a full charge of water. In this way practically all soluble sodium salts in the lime sludge are recovered.

The Dubble Furnace.

The construction of a Dubble furnace is shown in the accompanying sketch. Each combustion chamber has a bottom area of 5 x 6=300 sq. ft. Two water-cooled blowpipes, 4″, supply the air for each chamber. Bottom and sides are lined with soapstone, 12″ thick. Fire bricks are used for arches. Arches are only 9″ thick, which may have some effect on them as they are kept cooler than a thick and heavy arch would be. Chrome and magnesia bricks are better and last much longer, but are or were, impossible to get. A thin arch like that does not of course last so long as a thick arch, but relative to the thickness it will last longer and is much easier to replace. To make an easy removal of the torn down bricks, in renewing arches, the space between the blowpipes is arched over so that it can be opened up without spoiling the rest.

ST. MAURICE BEAT LAURENTIDE.

Three errors and six hits gave St. Maurice seven runs and the game, in the eighth inning at Cape Madeleine on July 11th, against the Laurentide A.A.A. The final score was 7 to 9. Through their victory, St. Maurice went into first place in the St. Maurice River Valley League.

Score by innings:		R.	H.	E.
Grand'Mere	000 000 000	0	4	4
St. Maurice	000 000 07x	7	7	2

Batteries: Timins and White; Reynolds and Keefe.

STANDING OF THE LEAGUE.

	Won.	Lost	P.C.
St. Maurice	3	2	600
Laurentide	3	3	500
Three-Rivers	1	2	333

PROPOSE CELLULOSE SECTION OF A. C. S.

Under the able guidance of Mr. Jasper E. Crane, a Cellulose Symposium was organized as a part of the program of the Division of Industrial and Engineering Chemistry at the St. Louis meeting of the American Chemical Society last April. One of the objects of this symposium was to ascertain whether a Cellulose Section, if formed, would secure the interest and support of a sufficiently large number of chemists. The object of such a section would be to promote intercourse and co-operation between the chemists in the various cellulose industries. This group constitutes one of the largest and most important of American industries; all branches of it are intimately concerned in the problems of cellulose, and it seems highly desirable to promote technical activity in this country along these lines. The proposed section would serve as a clearing-house for papers and information on cellulose technology, and should also play an important part in promoting research on the chemistry of cellulose.

The symposium at St. Louis was distinctly successful. The interest shown was so great that it was voted to hold a second Cellulose Symposium under the auspices of the Industrial Section at the Chicago meeting during the week of September 6th. At this time, the advisability of forming a permanent Cellulose Section will be considered. An interesting program is being arranged, and a large attendance of those interested in cellulose is anticipated.

Titles of papers or suggestions for the symposium should be sent to G. J. Esselen, Jr., 30 Charles River Road, Cambridge, 39, Massachusetts.

FLOOD OF PULP MILLS FOR TWIN CITIES.

Nipigon Company.

It was announced last Thursday that the Nipigon Fibre and Paper Mills, Limited, would locate their pulp mill at Nipigon and that officials of the company would be in Port Arthur at the end of this week. They will also proceed to Nipigon to look over the site and arrange for construction work.

The new company, which is capitalized at $1,000,000, is composed of local and Eastern business men. The mill, when in operation, will turn out forty tons of pulp a day. This output is to be increased to 100 tons within a year.

The site selected for the location of the mill is about a mile west of the village of Nipigon, and will be connected by spur lines with both the Canadian Pacific and Canadian National main lines.

The head office of the company will be at Port Arthur temporarily and later at Nipigon.

Spanish River Subsidiary.

Fort William, last Friday received a telegram from the Spanish River Pulp and Paper Mills, Ltd., dated Ottawa, stating that arrangements had been completed for the location at the Mission, Fort William, of the pulp and paper industry they have had in contemplation for some time.

This will be a three million dollar industry and building operations are to be commenced at once. It is reported that the new concern will be called the Fort William Pulp and Paper Company and that Mr. J. G. Sutherland is president.

Raw material will be procured from limits to the Northwest of Fort William which have for some time been held privately.

The Spanish River Company will take Kaministiquia power and it is understood their requirements will amount to all the Kam company has to spare, so that future industries locating in this district will have to take Hydro power, unless the Kam company should procure rights for further development which seems unlikely.

The Great Lakes Company.

This latter point would settle the controversy that has been in progress for months concerning the right of the Great Lakes Company which procured the Pic and Black Sturgeon Limits, to take privately developed power. With nothing else to take there would be nothing for this company to do but to turn to Hydro Power.

It is further understood that this company, which was first billed for North of Port Arthur and later for the Mission is now likely to locate between the two cities.

The Spanish River industry is the third of its kind announced for this district inside of two weeks, Port Arthur, Fort William and Nipigon each getting one. That for Fort William, however, is much the largest, but there are reports of more to come for one place or the other or both, and it looks as if this district were to shortly become the leading pulp and paper centre of the Dominion. The Kaministiquia Pulp and Paper Co. was referred to last week.—News Chronicle.

SWENSON EVAPORATOR COMPANY WINS CASE

The recent trial of the Swenson Evaporator Company of Chicago vs. the Minnesota and Ontario Paper Company of International Falls resulted in favor of the former.

Late in 1916, Defendant purchased from Plaintiff some of the machinery required for the pulp end and more particularly the reclaiming end of a 75 ton "Kraft" mill, the purchase totalling the sum of $170.-000.00.

Early in 1919, the Plaintiff filed a suit in the United States District Court at Minneapolis for the remaining amount due in accordance with contract, which was long overdue, claiming about $40,000.00 and interest.

The Defendant claimed that this money was not paid as the machinery was not built according to contract and filed a counter-claim for damages.

The testimony proved, according to the verdict reached by the jury that the troubles of the Defendant were due to incompetent management and operation, and not to any faulty design or defects in material as furnished by the Plaintiff. It was shown also that the machinery and plant was never given a fair trial, and that similar machinery made by the Plaintiff was giving excellent service at other pulp mills when operating on similar materials.

The case was submitted to the jury June 25th, 1920. and a verdict for the Plaintiff for $43,862.00 returned the next morning.

INCREASED CHINA CLAY PRICES.

To meet increased cost of labor, coal, and other materials, the China clay producers have agreed on an increase of 12½ per cent on the prices of all goods of China clay, for the six months from June 30, to December 31, exclusive of the 1s. 6d. extra railway carriage which will continue to be added to the prices f.o.b. Fowey.—China Clay Trade Review.

Business Meeting of the Technical Section

The meeting was called to order almost on time, in the Community Hall of the Spanish River Pulp & Paper Mills, Ltd., Sault Ste. Marie, Ont., June 23rd, 1920. Chairman L. H. Shipman presided, and about 40 members were present. The official welcome of the company had been extended the previous evening, so the meeting got right to work.

GYPSUM ROOFS

Mr. Howard S. Taylor was asked to begin the program by reading his paper on "Gypsum Roofs for Paper Machine Rooms," as he was obliged to leave early. In reply to a question, it was brought out that the laying of the gypsum roof should be continuous, but that if work must be interrupted, a good bond is made if the old work is left with a rough edge. Mr. Taylor explained to the editor that the Management Engineering and Development Co., which put up the roofs at Espanola and the Sault, had spent a great deal of effort in the design of a successful and economical truss to carry this roof.

Mr. Taylor's paper was published last week.

WASTE SULPHITE LIQUOR

The second paper on the program was an address by Ralph H. McKee, Ph.D., on "Sulphite Waste Liquor Utilization," which was printed in Pulp & Paper Magazine last week. In the brief discussion which followed, Mr. Stephenson called attention to the fact that the figures presented were on the basis of the U.S. gallon and mentioned that bulletins have recently been issued through the Superintendent of Documents at Washington, and others, on the use of alcohol as motor fuel, which is one of the most promising markets for it. Mr. Hovey asked how the figure of 1,930 gallons of liquor per ton of pulp was obtained. This was answered by Dr. Johnsen, of the Hammermill Paper Co., who said: "In discussing with Mr. Holmes the matter of yield of liquor per ton, I said that it would not be possible to obtain more than about 800 gallons per ton, but in order to check this figure up we made some tests and proved that it was possible to obtain as much as 2,000 gallons per ton. In later experiments it was found that between 1800 and 2000 could easily be obtained without any special equipment.

The method of obtaining this liquor is to drain the liquor from the pulp in the blowpit before any water is added, then to add water on the top of the blowpit, obtaining the rest of the liquor by diffusion. On account of the water being present in the blowpit at the time of blowing a certain dilution of the liquor is unavoidable, but this dilution could be reduced by replacing this water by waste liquor. The figures 1,800 to 2,000 gallons per ton refer to original liquor. The waste liquor as it comes from the blowpit is diluted to about 85 per cent of the original concentration."

"The strength of the sulphite liquor that is produced under this process is 6° Be.," Dr. McKee added, in response to a question.

A CENTRAL RESEARCH LABORATORY.

Mr. Shipman introduced the subject as follows:

Included in new business is the matter of the paper section of the Forest Products Laboratory being taken over, re-organized and started out on an entirely new basis by the industry, which has been an open question with us now for a long time. The Canadian Pulp & Paper Association has requested that the Technical Section, at this meeting, discuss this matter, appoint a strong committee, who will go thoroughly into it in all its phases, and have a complete, definite and concise report ready in January at the Annual Meeting, with suggestions to the Association, embodying recommendations of the Technical Section.

I have a telegram from Mr. Stadler which I wish to read to the meeting.

L. H. SHIPMAN:

Regret very much my inability to attend meeting of Technical Section. Referring to your letter of the 20th. re Forests Products Laboratory, have looked over this matter from various angles but unable to give you a positive reply as the interests to be involved by having the laboratory taken over by the industry will be so different on account of the various products manufactured. As far as I can see only an expression of different opinions at the meeting can be used by the committee as a basis for drawing up a proposition. The Belgo Company is willing to support such a movement but in working up the proposition for operating the laboratory by the association the amount involved must be limited and the scope of work to be done clearly defined. With best wishes for a successful meeting.

JOHN STADLER.

I wrote a number of letters a few months ago for an expression of opinion on this matter, and have several letters from prominent men in the industry to aid us and our committee which will be appointed, to go into this matter. I do not know whether we can take the time to read them all, but will go over as many of them as possible.

A letter from Mr. Thorne reads:

I have also received the program for the meeting June 21st. to 24th., and I must give you and your company my compliments for the liberal way in which you are treating the Technical Section members. I just had a party of eighty, of whom fifty were American bankers, visit us in Temiskaming about a week ago, and I can therefore realize the amount of work it takes to carry out a program such as you have laid down successfully, but I know that anything Col. Jones supports will be supported liberally.

As to the discussion of the future development of the Forest Products Laboratory, I should think that this preferably should be had at a meeting not connected with this visit. It may be too bright and too warm a day to sit down and thrash out such a difficult proposition as this.

I also think this is entirely too difficult and entirely too important a matter to be discussed in a hurry.

It looks to me as if it would be very much better to appoint a committee consisting of five men to prepare for a meeting. Of this Committee I would suggest that Mr. Chahoon be a member, not only because he is President of the Pulp and Paper Association, but because he is an important figure in the industry, and with his personality be is able to reach pretty far.

Dr. Bates should also be a member because he knows more about this matter than anyone in the country.

It would also be well to have the Minister appoint a member of this committee as the Government will eventually have something to do with the matter. In fact, would it not be well to have the Minister appoint this committee himself, but from names suggested by us, thereby giving the committee more weight?

The paper business may look very prosperous today, but in three years from now, maybe sooner, maybe later, we will have a business reaction, and the question is, will the pulp and paper mills at such a time be able to support a laboratory liberally enough? Some of the larger companies will, but the smaller ones will not, and the slackers may have a bad influence.

A laboratory of this kind, in my opinion, should be supported by the Government, because its work is for the benefit of the whole country, not of this industry alone.

The German Government started a laboratory of this kind, maybe on a broader scale, and ran it with success. The Federal Government may be able to run it with success in this country, but so far it has not and it therefore may be wise to take up the matter with the view of making the Pulp and Paper Association responsible for the management of this laboratory.

However, as this laboratory is for the benefit of the whole country it naturally should be supported by the Federal Government and it seems to me that it may be possible to let the Association take over the management and the responsibility for its success with the understanding that the Ottawa Government support the laboratory with a certain percentage of the cost.

There are no doubt a number of ways in which this laboratory could be re-organized, and these should all be carefully considered before any one is adopted, and it seems to me that a committee could work out these different ways and make a study of them.

Maybe it would be well to discuss this matter at the Soo and have the meeting advise the appointment of a committee to go further into the matter.

Thanking you for your kind letter and invitation, I remain,

Sincerely yours,
THE RIORDON PULP & PAPER Co., Ltd.
C. B. Thorne,
Vice-President.

Now we have been requested by the Association to go thoroughly into this matter. It is a simple proposition and should be tackled as we would any problem in our own company—before we put a suggestion to our management we want to work out the problem and have it in definite, clear and concise shape.

We have here this morning our friends Mr. Hovey and Mr. Bryant, who formerly were in the Forest Products Laboratory; also Mr. Van de Carr from the Laurentide Company, and I would like to ask these three gentlemen to give us their views on this question.

MR. HOVEY: I have had the matter of the Forest Products Laboratory discussed pretty thoroughly at the mill, and in speaking now I have been asked by Mr. McInnis to express his opinion in this respect. We feel that there are two forms of work to be done at the Laboratory for the industry, one is direct and the other is indirect. Now I cannot see much hope for the direct work ever working successfully at a central laboratory, and if we are going to accomplish the indirect work, on which we want to get the best results, we feel that in the first instance, the heads of the Government should be approached. They should be approached and the matter put before them in very clear detail and if we can receive their support, then start from that basis.

We feel that one man in charge of the Laboratory should be of the organizing type; a man who can deal with the companies and make them understand thoroughly what is going on and also that they can get work done at the Laboratory.

In connection with the handling of the work, we feel that there should be a consultation every few months with all the heads of the technical departments in the mills. These heads will be informed of each problem that is being worked on, will receive the reports and will study the reports, and in every way try to forward the work of the Laboratory. Now if that can be done it would probably work out allright, but to do that it means the very closest kind of co-operation. But if we cannot get that co-operation we feel that there is not much use in having anything but small laboratories doing fundamental work at the mills, with probably a small central laboratory. We feel that it is better to go ahead on that small scale than do nothing at all. On that basis Mr. McInnis has asked me to say that Abitibi is prepared to subscribe whatever sum may be decided upon. As regards the question of a central laboratory we feel that its success will depend chiefly on the type of management that might be at its head and the actual support of the heads of the companies.

MR. BRYANT: In connection with the Forest Products Laboratory as I see it, there are two things that we can do—we can leave the thing under the Government or we can ask the Pulp & Paper Association to take it over. If we leave the Laboratory under the Government control I think what we should do would be to ask someone in proper authority to take it out from under the Forestry Service. Another thing that should be done is to take it out of the Civil Service. I make these suggestions because of lack of interest on the part of the Forestry Service and lack of ability on the part of the Civil Service to secure men of proper standard. You all know the conditions under which Civil servants work—two men are located at a desk and no matter what they do they both receive the same salary. I think if it is left under the Government it should be recommended that the Industrial Research Council take the thing over and be made responsible for it.

I say for the Laurentide Company that we feel that if the Association does take this laboratory over the laboratory should be located in some central position relative to pulp and paper mills, preferably in Ontario or Quebec.

Under these conditions, although we do not think the thing will work, Laurentide Company is prepared to back the thing to the limit today.

MR. CARRUTHERS: As I understand the history of the Forest Products Laboratory as administered by the Government, one of the chief drawbacks seems to be, in the first place, that they insist on Canadians holding the head or executive positions. Now I

would be the last person in the world to discredit the ability of a Canadian, but I feel that this limitation should be thrown off at once so that we can step into the field and secure the very best man possible, so that he would not be a man who is merely taking his lead from the industry but rather giving lead to the industry. Another feature is the limitation of salaries by the Government. We all understand it—we cannot hire a man with ability to hold any position and work for a mere pittance. He has got to have a good salary, a salary which will warrant or call forth his best efforts.

I know that the industry is prepared to support and support liberally, the Forest Products Laboratory if put on a proper basis. The matter of organization is one of very great importance. Someone has intimated here that we should have two men at least who would be leaders in this work. If the first of these could be a leader in research work then the other man should be an executive who is in very close touch with the paper industry in Canada. These men, I am prepared to admit, are difficult to get but I feel that if we would offer the necessary inducement in the way of salary that we would secure them.

Personally, I am in favor of the industry taking over the Laboratory for I feel sure that if you were doing good work the Government would come forward and support it.

MR. WATERS: Gentlemen, I am not prepared to make any definite statements regarding this matter, I think Dr. Bates has been handling it. I think, however, that Price Brothers would be willing to back to the measure financially, according to any recommendation that the committee may make.

COL. JONES: From the point of view of Spanish River we are in favor of laboratory work, of course, The Forest Products Laboratory, it seems to me, hasn't functioned properly for the paper trade and something is needed. I am not a believer in the sudden building up of laboratories; I think laboratories should follow the job. When we started our research department we established it by getting a vacant room and we are trying to work from that up, so that I think, in the first place, when we discuss laboratories we should have firmly in our minds what we can do in this respect.

Naturally, in a technical association they should have something concrete and definite to recommend to them. The Canadian Pulp and Paper Association represents the executive, the managerial part of the business and they are the ones who look primarily over the new proposition for bettering conditions. They will say "what are you going to do in the Laboratory, what is it going to cost, how is it going to be managed, etc.?"

The Technical Section should give the matter its most careful consideration. It appears to me that they should select the wisest and strongest committee they can get and they should first consider the matter from the point of view of any information they can get and then ask the Association to appoint a like Committee to meet with them for a full discussion from all points and angles. Discuss it from the point of view of the paper trade taking over the Laboratory, disclose it from the point of view of the Forestry Branch of the Government operating it in conjunction with the paper trade.

To be of most value to the companies interested, the work, and the results secured therefrom, must be of a research nature. It must be work that is not done in our local laboratories. The work of our local laboratories must continue, so the work of this central



Those in the picture:—Dr. Ralph H. McKee, A. A. Holmes, J. N. Stephenson, A. L. Dawe, C. D. Waters, Alex. Beique, D. L. McLeod, F. A. Garrett, F. L. Darrell, D. Boyer, E. G. Cameron, O. F. Bryant, V. DelVaux, F. McHenry, F. Barnes, G, Meerbergen, C. R. Van de Carr, T. J. Keenan, N. D. Paine, D. Crabtree, R. B. Wolf, B. Johnson, A. O. Bownes, E. B. Slack, George Carruthers, A. P. Costigane, T. L. Crossley, F. C. Clarks, Ross Campbell, D. R. Miller, L. E. Kendall, T.E. Kloss, R. W. Sterns, M. W. Davis, R. W. Hovey, J. Haugerod, C. A. Moyle, L. H. Shipman, Col. C. H. L. Jones, S. S. Berger.

laboratory, as I see it, must be of the progressive research type.

This committee might determine that perhaps an advisory committee from the paper trade of Canada, having proper powers vested in it, could obtain probably the very best results from the Laboratory being under the Industrial Research Council. That is to say, the Government would own the Laboratory and be responsible for running it but an advisory committee from the paper trade would indicate or direct the program of work that should be carried on in it and the committee attend to the distribution of the results of the laboratory work in each program so carried on.

Now to sum up. Spanish River wants to take part in anything that is good that is taking place in the industry. It wants to have determined if it should be a laboratory of the paper trade or whether it should be a laboratory of the Industrial Research Council, and when this joint committee or any committee that is appointed determines that a central laboratory of the paper trade is the thing, then we will support it. In that event, with great wisdom, there should be made up some rules of procedure to be followed in connection with securing the type of man who should carry on the work because a good deal of money can be spent and a great deal of useless work can be done unless it is wisely directed by the very best type of men. The committee should also deal with expenses, and particularly expenses pertaining to the salaries of the men in charge of the work. I should say, without any hesitation, that we should be sure to get the very best there is; anything that is second class should not be considered at all.

Spanish River in that case, would be willing to contribute its share, whatever that may be, towards securing the very best man for the work.

MR. SHIPMAN: Col. Jones has suggested that perhaps we might have a committee meet with a similar committee selected by the Association. Our committee should be a technical committee and has necessarily got to be a strong one if it is to be of any use and I do not believe that in this room this morning, by either discussion or ballot, we could arrive at the best committee and your chairman would like to have power given him to appoint a committee after due consultation with the executive.

It was moved by Mr. Carruthers, seconded by Mr. Slack, that the chairman be empowered to select a committee after due consultation with the members of the executive.—Carried.

Reports of committees will follow next week.

PORTER LEAVES SYRACUSE FOR A. P. & P. A.

Slracuse, N.Y.—O. M. Porter, instructor in forest engineering, has resigned from the New York State College of Forestry faculty to go to the American Paper and Pulp Association at a greatly increased salary, as assistant to Dr. Hugh P. Baker, former dean of the College of Forestry.

The resignation is not only one more evidence of the manner in which the industries are looking to the forestry profession for men for practical business life, but will mean the placing of one more trained forester in the paper industry which offers great opportunity for the practical application of forestry principles.

Mr. Porter came to the college in 1917, but soon left to become a private in the forest engineers, where he rapidly won promotion being discharged with the rank of captain, after extensive service in France.

LAURENTIDE FORESTRY POLICY DECLARED TO BE WITHOUT EQUAL.

Mr. M. A. Grainger, Chief Forester of British Columbia, accompanied by Mr. William Turnbull, timber commissioner for the same province, visited Grand'-Mere as guest of the forestry department, en route to London to attend the Imperial Timber Conference which takes place there this month. Both gentlemen were enthusiastic over the reforestation work and experimental work carried on by the company and stated that they believed more real substantial forestry work was being done here than by any government of private concern in the Dominion.

Mr. Grainger is a graduate of Cambridge University and has written a book called "The Woodsman of the West," which is an excellent volume on forest problems. He stated that an aerial fire patrol is to be established in British Columbia in conjunction with the Air Board.

The Imperial Timber Conference to be held in London will be largely attended by all men interested in forest questions, as all policies affecting timber in the entire British Empire are to be discussed and voted upon.



SIR LOMER GOUIN,
Ex-Premier of Quebec, recently appointed Director of the Laurentide Company.

FOREST FIRES REPORTED.

Quebec, July 8.—Mr. C. G. Piche, chief of the Forestry Department, has received information from Indians living along the Upper St. Maurice river, near the Hudson Bay basin, that forest fires are devastating those immense areas. Mr. Piche declares that prompt protective steps will be immediately taken.

FORESTERS TO VISIT GRAND'MERE.

The Society of Northeastern Foresters, comprised of the best known men in the profession in the United States, university professors, and foresters employed by the United States Government, certain states and some railways, will visit the company nursery at Proulx and look over the forestry operations of the company for three days beginning July 27. There will be between thirty and forty in the party.

British Trade News

(From Our London Correspondent).

London, June 25, 1920.—The newspapers are keenly interested in the shortage of newsprint and the supplies of pulps just at the moment. Never in the history of printing have such subjects been given such attention as they are receiving now, for the reason that publishers are finding themselves in a tight corner for paper. Needless to say, suggestions for meeting the shortage of newsprint and good quality printing papers are numerous. All kinds of raw materials for pulps are spoken of—raw materials investigated 20 and 25 years ago—and they are mentioned as the real solution to the present difficulties. Napoleon once said that "a soldier marches on his stomach." A newspaper is in the march of progress when it has good newsprint supplies, but, if it is neglected through want of forethought —and this is what is occurring in British newspaper circles—it will collapse as surely as the soldier, if his "inner man" is not replenished. It is astonishing to find today the ignorance that prevails as to what the pulp and paper manufacturers have been doing in the past to conserve supplies and secure raw materials. Newspapers have no conception of it and they think a pulp mill can be run up like a printing-room in a few weeks and set in motion. One gentleman writes to the "Newspaper World" as follows:—"The real difficulty is pulp. The situation will not be relieved until the output of pulp is increased. This can be done in two days: first, by getting all the pulp mills in Central Europe to work again and, second, by putting down more pulp mills in Canada and elsewhere. Meanwhile, the Bamboo Pulp Mill in Burmah, say that they can supply pulp equal to sulphite at £15 per ton in London. It appears that Nelson and Co., the Edinborough publishers, are already constructing a bamboo pulp mill in India—not a big affair, but a pulp mill all the same." We have always recognized the valuable work and the valuable investigations of Mr. W. P. Raitt, of the Indian Forestry Department, into bamboo as a pulp wood, and I would like to hear what he has to say on the price of £15 in London. One agrees that Canada can do with more pulp mills, but will the wealthy newspapers of the United Kingdom support them and put the money down for initial outlay? History tells us that in the past they were printing on German and Scandinavian newsprint—and now they are bitten to the core. Indeed, the newspapers that wanted the foreigner placed on the same level as the Canadian in the British markets, are now crying out "Trade within the Empire" and in the next column they had an announcement that "owing to the shortage of newsprint" their size "will be reduced" to so many pages. If the money that had been sunk in Scandinavia and Germany and Austria in the past had been invested in Canadian pulp and paper; and if they had not allowed these countries in the past to take the place Canada occupied in the market, British newspapers would not be in the plight for newsprint and pulp that they are in today.

Labor demands.

This week the paper mill owners met representatives of the Amalgamated Society of Papermakers and the National Union of Printing and Paper Workers to discuss the recent request of the workers for an increase in their wages. If the request is granted it will mean an increase in the cost of paper.

The Scotland paper mills are in a happy position just now. This week large shipments of esparto have arrived from Africa and Spain, which will tend to relieve the anxiety that prevailed some time ago.

A New Reed Mill.

At the 17th ordinary general meeting of Albert E. Reed & Co., Ltd., Mr. A. Ralph Reed presided. Reference was made to the new mill that the company is building at Aylesford, in Kent, and it was mentioned that work was going apace, railway sidings and a long concrete wharf having recently been constructed. Building operations were in full swing and a large quantity of machinery and plant had been ordered for the production of paper. Mr. Reed said they had left no store unturned to secure the best obtainable, both in design and equipment, and heavy as the initial outlay would be, they are confident that the natural advantages of the site, and the economy resulting from up-to-date equipment would more than justify the expenditure and greatly add to the prosperity of the company. It was also pointed out to the meeting that the trading profit of the company was not quite so much as in the previous year. This was due to the company not having advanced their prices so much as their manufacturing costs had increased. The company had taken into consideration the position of consumers in regard to high prices and the directors had been content to sell rather below the actual market prices, which they might have asked for and obtained. At all the Reed paper mills the system of three shifts, of 8 hours each, is now in vogue which has compelled the company to promote semi-skilled men to most highly-skilled occupations, but still the output was maintained.

Seaweed as Pulp.

Seaweed that has been taken from the river Thames was recently treated at the Thames Paper Company's Laboratory and the mill chemist said it was useless as a sample, cellulose was not worth estimation and the amount of fibre was practically negligible. In view of the companies that have been formed in Italy and Japan for exploiting sea weed, this information from the Thames Paper Company is interesting. The Trade Board says that it is probable the sea-weed is of a different nature from that of the sea-weed found round the East Coast of England and they are instituting further inquiries into the subject.

Boards from Canada.

The following were the imports of boards from Canada in May:—

Strawboards	22	11
Millboards	735	18
Card and Paste Boards	50	12

The pulp market is dull, buyers being well supplied. More attention is being given to a reduction in prices, but the general opinion prevails that a considerable time must elapse before valuations ease off. Both the chemical and mechanical markets show this dullness. Groundwood is still on the scarce side. Small shipments of sulphite continue to arrive from Canada. Prices today are about as follows:—

Bleached sulphite	£80 to 84
Easy bleaching	62 to 63
Strong sulphite	52 to 54
Kraft No. 1)	52 to 53
Kraft (strong)	40½ to 45
Groundwood	19
Groundwood (dry)	37

Technical Section

NEW MEMBERS.

The Technical Section has elected the following new members:—Junior members, Donald L. McLeod Esq., Alfred G. Jacques; Associate Member, H. D. Boyle, Esq., all of Price Bros. and Co., Kenogami, Que.

REVIEW OF RECENT LITERATURE.

B-9. Forest resources of British Columbia. A. L. Clark of Dallas, Texas, Wes. Lumberman, April, 1920. p. 29. Reply to a former article regarding the amount of timber in British Columbia; argues that only a comparatively small proportion of the total stand is commercially accessible.—C.L.

B-9. Timber conservation. H. Bromley Coleman. Pacific Coast Lumberman, April 1920, p. 27. Aerial surveys of forest resources; aerial forest fire patrol; cutting regulations; methods of logging; slash disposal reforestation.—C.L.

B-9. Protecting Canada's forests. Pacific Coast Lumberman, April 1920, p. 37. A summary of the annual report of the Committee on Forests, Commission of Conservation.—C.L.

B-9. Radical Reforms to Check timber wastage. F. J. D. Barnjum. Can. Lumberman & Woodworker. February 1, 1920, p. 47. Shows that the forest resources of Canada have been greatly exaggerated and argues that the annual growth of timber is more than balanced through loss by fire, insects, decay, etc. Predicts that due to the rapidly increasing shortage of supplies, both stumpage and lumber prices will continue to rise.—C.L.

B-9. Canada's lumber from national viewpoint. H. K. Wicksteed. Can. Lumberman & Woodworker, February 1, 1920, p. 56. The alleged inexhaustibility of forest wealth is a veritable myth. More timber has been wasted and burned than utilized. Two alternatives face the lumber and pulp companies at the present time: The first, the slaughtering of their limits, which would double their existing output for a short while; the second, which is based on conservation, will result in a diminished annual yield and immediately higher prices for lumber, pulpwood and newsprint. Canada is in a position to make conservation both possible and profitable. Need for the inauguration of a system of handling our forests on a sustained yield basis. Need for planting; fire protection, and intelligent regulation of methods of cutting.—C.L.

B-9. Future of Quebec in the lumber industry. Hon. Honore Mercier. Can. Lumberman & Woodworker. March 15, 1920, p. 68. Province has 45 million acres of timber lands under license, and 75 million acres of unlicensed forest lands. Complete forest survey urgent: development of great natural resources; bright future for the pulp and paper industry.—C.L.

B-9. Some reconstruction problems in Ontario. W. F. V. Atkinson, Can. Lumberman & Woodworker. Mar. 15, 1920, p. 69. Necessity of true forest inventory of the Province. Protection from fire and waste and greater utilization of what we now possess is urgent. —C.L.

B-9. Report of annual meeting of the Canadian Lumbermen's Association held at Quebec, February 4 and 5, 1920. Canada Lumberman & Woodworker, February, 15, 1920, p. 40. Text of resolutions adopted, including one endorsing the work of the Commission of Conservation in conducting a survey of the forest resources of the country and the investigation of forest reproduction. Summary of papers and of addresses at the banquet.—C.L.

B-9...Foresters and Lumbermen hold conference. Can. Lumbermen & Woodworker, Feb. 15, 1920, p. 61. Summary of proceedings at the annual forestry conference at Montreal, January 28 and 29; Quebec Forest Protective Association and Woodlands Section of the Canadian Pulp and Paper Association. Discus sion by G. C. Piché, on Railroads and Forest Fires Reports of results of slash burning experiments, with indications of costs. Resolutions looking toward better forest protection and conservation. Discussion of damage by spruce budworm. Need for a general survey in eastern Canada of burned-over lands, to facilitate a prediction with regard to the future crop. Research work under way by Commission of Conservation, New Brunswick Forest Service, Quebec Forest Service, Laurentide Company, Bathurst Lumber Company, Riordon Pulp and Paper Company, Dominion Forestry Branch and Ontario Forestry Branch—C.L.

B-9. The forest as Finland's money chest. Canadian Forest J., January 1920, p. 7. The Finnish forestry department was created in 1863. In 1910, Finland exported $50 million worth of forest products this being 80 per cent of all exports.—C.L.

K-10. Treatment of paper stock. Fr. patent No. 499,415, May 12, 1919. J. A. DeCew, Canada, and R. J. Marx, England. Papeterie, **42**, 269-70, (Mar. 25, 1920). The stock is treated, either in the beater or at some early stage, with ¼—½% of Na aluminate. This improves the retention of size and color and decreases the sticking of the sheet to the felts and presses.—A.P.-C.

K-10. Colloidal rosin in beater sizing... John Traquair. Paper, **26**, 185-6 (1920.) As account of experiments on the colloidal precipitation of rosin in beater sizing, showing the advantage of adding a colloid such as feculoid or glue to the rosin size, which results in a much harder sizing, showing the advantage of adding a colloid such as feculoid or glue to the rosin size, which results in a much harder sizing for a given amount of rosin, or an equally hard sizing with a greatly decreased consumption of rosin. This is due to the fact that the feculoid or glue causes the rosin aluminate to be precipitated in a colloidal, i.e., very finely divided, state, so that the particles are spread out over the fibers to the maximum extent.—A.P.-C.

K-12. Elongation and shrinking of paper on the machine. A. Vander Stichel. Papeterie, 42, 270 (Mar 25, 1920.) In the manufacture of watermarked papers it is useful to know the changes occurring in the sheet during its manufacture to determine the proper spacing of the letters or other designs on the roll, and the

diameter of the latter. A wire under normal tension exhibits an elongation of about 5 mm. per running m. A printing paper consisting entirely of chemical woodpulp and made on a machine 1.655 m. wide showed an elongation of 8.05 per cent in the machine direction and a contraction of 5.44 per cent in the cross direction.—A.P.-C.

K-12. Obtaining and regulating static pressure hydraulically. Fr. patent No. 498,942, March 31, 1917. Léon Thiry, Belgium. Papeterie, **42,** 216-7, (Mar. 10, 1920). The patent covers a device whereby a static pressure may be applied to the presses, etc., of a paper machine by hydraulic means instead of the usual counterpoises and systems of levers. By the use of appropriate piping and valves the device may also be used for raising the rolls to change the felts.—A.P.-C.

K-12. Guide rolls for textile and paper machines. Fr. patent No. 498-436. Emil Schneebeli, Switzerland. Papeterie, **42,** 214, (Mar. 10, 1920).—A.P.-C.

K-12. Merits of wide and narrow machines. Pulp and Paper, 18, 207-12, 237-40 (1920); Paper, **26,** 3-7, (1920). An account of the discussion on the relative merits of wide and narrow machines, held at the annual meeting of the Tech. Sec. of the C.P. & P. A., Jan. 29, 1920. R. A. McInnis, Abitibi Power and Paper, leading the discussion in favor of wide machines, and John Ball, Price Bros., for narrow machines.—A.P.-C.

K-23. Paper from bagasse. Carence J. West, Arthur D. Little, Inc. Tech. Engineering News, Feb. 1920; Paper, **26,** 62-4, (1920). A brief description of the manufacture of paper from bagasse at Olaa, Hawaii, and of the use to which the paper is put in cultivating the sugar cane.—A.P.-C.

K-23. Machine for saturating paper. Fr. patent No. 497-476, March 20, 1919. Chas. W. Mayer, U.S.A. Papeterie 42, 263-9, (March 25, 1920).—A.P.-C.

K-23. Paper substitute for cedar wood. Fr. patent No. 491,778. Feb. 15, 1919. Cedaroid Co. Inc., U.S.A. Chimie & Industrie, **3,** 74, (Jan. 1920). The patent covers a paper or cardboard which imitates cedar wood used for packing such articles as tobacco, and susceptible of imparting to the goods packed therein a peculiar aroma depending on the essential oil used to this end. To the pulp, preferably groundwood as pure as possible, is slowly added in the beater a mixture consisting of H_2O 25 per cent, oil of cedar 25 per cent, sugar 15 per cent, licorice 10 per cent, vinegar 10 per cent, alcohol 10 per cent, glycerin 5 per cent. An adhesive such as Na silicate, gum arabic, or flour paste may also be added.—A.P.-C.

K-23. Chemicals used for fireproofing paper. Rev. du Blanchissage; Color Trade J., March, 1920; Paper, 26, 186 (1920). The process of rendering paper flameproof does not differ essentially from that used in the fireproofing of cotton and similar fabrics. The chemicals employed for fireproofing are $(NH_4)_2SO_4$, NH_4Cl, $CaCl_2$, $MgCl_2$, $ZnCl_2$, $ZnSO_4$, $SnCl_2$, alum, borax, boric acid, salts of Al_2O_3 and especially those precipitated from a solution of Na aluminate. The most practicable are the salts of Al_2O_3 of NH_3. The minimum quantity necessary to render 100 parts of cotton non-inflammable is stated as follows: tungstate of ammonia, 12 pts. $(NH_4)_2SO_4$ 4½; Na phosphate, 30; NaCl, 35; Ca phosphate, 30; Mg phosphate, 30; Mg chloride 4½; Zn phosphate, 20; Zn sulphate, 4½; Al borate, 24; hydrated Al_2O_3, 3.8; NH_4Cl 4.2; NH_4 phosphate, 4½; Na silicate, 50; borax, 8½; Ca chloride, 4.6; Mg sulfate 15; KCl, 45; Zn borate; 20; Al phosphate, 30; boric acid, 10; silicic acid, 30.—A.P.-C.

K-0. Printers' paper troubles. E. A. Dawe. World's Paper Trade Rev., Feb. 27, 1920; Paper, **26,** 53, 82, (1920). A lecture on "Printers' Paper Troubles; or Paper Maladies and Obstacles avoided," before a Brit. association of printers. The author goes into the various troubles experienced by printers, showing how in many cases the cause could be traced to many things other than the paper itself; e.g., the ink used, the conditions of storing, static charges on the paper, improper handling of the paper, etc.—A.P.-C.

M-0. Removing rust from iron. D.R.P. No. 310,-261. Badische Anilin und Soda Fabrik, Germany. Chimie and Industrie, **3,** 54, (Jan. 1920). The rusted metal is treated with dilute acids, except ferro and ferricyanic acids; and either simultaneously or subsequently with an aqueous emulsion of oil or greases. —A.P.-C.

N-4. Boiler compound. Fr. patent No. 493,691. Mrs. J. Claviez, nee Jerome, France. Chimie and Industrie, **3,** 47, (Jan. 1920). Mix 15 parts of tannin or 50 parts of chestnut, 200 parts of Ba chloride, 25 parts of sugar or 50 parts of molasses. The mixture should have a density of 25°Be. Use 3 kg. per cu.m. This mixture permits the use even of sea-water.—A.P.-C.

N-5. Forest steam circulation for paper mills. Pulp and Paper, **18,** 167-8, (1920); Paper, **26,** 60-1, (1920). A description of the closed loop boiler feeding system developed by the Farnsworth Co. of Conshohocken, Pa. The condensation from the paper machine and all other heating apparatus, and the make-up water as well, is held under pressure and returned to the boiler at a high temperature thereby saving anywhere from 10-30 per cent. of the coal. The system eliminates individual traps on the dryers, vacuum pumps, receiving tanks, hot wells, boiler feed pumps, much piping, and maintenance cost.—A.P.-C.

R-2. Books for the student of papermaking. Paper, **26,** 58, (1920). A list of the principal books in English on papermaking.—A.P.-C.

R-5. The Russian paper market. Wm. A. Sullivan. New York Commercial, March 20, 1920; Paper, **26,** 128, (1920). Points of interest to the American manufacturer in connection with the Russian paper market. —A.P.-C.

R-6. Technical progress in papermaking. Jas. J. O'Connor. Paper, **26,** 99-100, (1920). A discussion of the importance of technical control in the paper industry, and a plea for co-operation between the technician and the papermaker.—A.P.-C.

R-12. Handling and costing raw materials. Fred. C. Clark, M. M. Kiley, H. R. Harrigan. Paper, **26,** 139-184, (1920). Papers on How Rags are Handled, The Treatment of Old Papers, Costing and Measuring Pulp, presented at a joint meeting of the Connecticut Valley Section of the T.A.P.P.I. and the Holyoke Division of the Paper Industry, held at Holyoke, Mass., Jan. 19, 1920, together with the ensuing discussions. The papers dealt with the costing of rags, old papers, and pulp, as carried out at the mills of the Am. Writing Paper Co.—A.P.-C.

R-0. Utilization of waste products. Walter H. Dickerson, M.E., Atomized Products Corp., N.Y. Paper, **26,** 97-9, (1920). A discussion of the great importance of the utilization of waste products with a few examples of the innumerable and extremely important uses to which they can be put.—A.P.-C.

PRICE BROS. CLOSE NEW CONTRACT.

It is understood that Price Bros., Limited, have effected a large newsprint paper contract with the Daily Express, of London, England, at favorable terms. In this connection it is pointed out that the newspaper which is one controlled by Lord Beaverbrooke, has been anxious for its newsprint supply for some time past and the contract is satisfactory to them, while it is also in line with Price Bros.' policy of enlarging its overseas market.

EDWARDS ON RIORDON BOARD.

Hon. W. C. Edwards, whose appointment to the board of the new Riordon Company, Limited, as well as the Gatineau Company, Limited, is announced, has long been identified with the timber business in the Ottawa district and as he recently stated, only advancing years prompted him to relinquish private ownership of large interests on the Gatineau. He is probably best known as president of Canada Cement Company.

SIR GEORGE BURY LEAVES WHALEN COMPANY

Vancouver, July 11.—Much surprise was created here this morning when the Sunday Sun announced that Sir George Bury had resigned from the presidency of the Whalen Pulp and Paper Company.

Although it had been kept a close secret, the resignation had been in the hands of the directors for several weeks. It is said that efforts have been made to retain Sir George in the service of the company, but he has declined, declaring that he had accepted an appointment in an advisory capacity to certain large interests on the Atlantic seaboard.

It is rumored that Sir George Bury's retirement has been hastened by the probability of the Whalen Company being absorbed after its next annual meeting, on July 29th, by the Fleishacker interests of San Francisco which now control the Pacific mills of Ocean Falls and the Powell River Company at Powell River, both large pulp and paper mills.

At the present time the majority of the Whalen directors are composed of representatives of the bondholders, and these include I. W. Killam, of the Royal Securities Corporation, of Montreal. An effort is being made, it is said, to retain control of the company in Canada, but recently a large block of stock has gone into the hands of the Fleishacker interests, and it is said that control will pass to the latter at the next meeting. This will mean that all the developed pulp concerns on the coast of British Columbia will have passed into American hands. The Whalen Company has three plants at Woodfibre on Howe Sound at Swanson Bay and at Port Alice on Quatsino Sound. Practically all of its pulp is shipped in mat form to the Orient, and the demand in the last year has been so great that the company's earnings under Sir George Bury's direction have climbed over the four million dollar mark.

Each of the three companies is engaged in a different phase of the business. Ocean Falls ships its product in the form of manufactured newsprint almost exclusively to Australia and New Zealand. Powell River supplies the newspapers of British Columbia and the Northwestern States, including California, while the Whalen mill sends its pulp to Japan and China.

CANADIAN MILLS DROP U. S. CUSTOMERS.

The New York Globe and the William R. Hearst newspapers have been notified that their paper contracts with the Canadian Export Paper Company will not be renewed at their expiration at the end of 1920, according to Editor and Publisher. The contract of the Globe calls for 12,000 tons and the Hearst contract 27,000 tons.

Jason Rogers, publisher of the Globe, is chairman of the executive committee of the Publishers' Buying Corporation, a newly organized body of newspaper publishers whose purpose it is to buy co-operatively.

It is understood that the Canadian Export Paper Company has taken this action in order that it will be possible for it to meet other obligations already entered into for its 1921 supply of newsprint. Old Australian customers who were cut off last year on account of shipping conditions will again be taken care of for their full requirements of 25,000 tons, it is said. Exports to South Africa will also be increased from 3,000 to 9,000 tons, the amount furnished that market prior to the outbreak of war.

The Canadian Export's explanation of its action in the case of Mr. Hearst and the New York Globe, it is said, is that it has found it necessary to drop new customers to take care of the older customers. The Canadian Export is said to be over 20,000 tons oversold for the current year.

Under an old arrangement it is understood the Chicago Daily News contract for tonnage will be increased 18,000 tons for 1921. The new contract of the New York Times with the Canadian Export, which goes into effect January 1, calls for 45,000 tons but that will be made on special machines. It is reported, however, that arrangements have been made to supply the London Mail during 1921. The Mail has been buying largely on the open market and has never before been a contract customer in the Canadian market.

The action of the Canadian Export will cause the switching of accounts that call for a total of more than 70,000 tons of paper and will undoubtedly throw additional customers for newsprint on the open market for a large part of their 1921 supply.

G. Frank Steele, general manager of the Canadian Export, is now on his way to Europe and could not be reached by Editor and Publisher this week.

Claiming that the newsprint emergency has passed, Canadian newsprint manufacturers are now said to be switching converted mills back to kraft papers. In the face of this, however, they are talking of continued increase in prices with between 7 and 8 cent paper as the outlook for 1921.

The plans of the Publishers' Buying Corporation for co-operative buying are going forward and the membership has now passed one hundred and fifty. This week the corporation announced that it has 250 tons a month to offer, beginning September 1, at 10¾ cents f.o.b. mill. This week it was also offered 1,350 tons of Scandinavian delivery at 11½ cents f.o.b. New York, which was declined at that price.

Mr. Earl Stafford has recently become a member of the engineering staff of Arthur D. Little, Incorporated, Chemists and Engineers, Cambridge, Mass. Mr. Stafford is a graduate of the Engineering School of Tufts College, 1908, and for the past twelve years has devoted his attention largely to hydro-electric developments with particular reference to ore treating plants, pulp and paper mills and light and power companies.

PULP AND PAPER NEWS

Arthur Beattie, foreman of the Ontario Paper Mills at Thorold, died on July 3rd from injuries received in a mysterious manner. He was found lying on the cement floor of the shipping platform and never regained consciousness. The man's money was found in his pocket and it was evident that robbery was not behind the occurrence. A wife and six children are left. An inquest will be held.

The current issue of the Canadian Gazette contains notice of the incorporation of Clarke Brothers Paper Mills, Limited, by Toronto barristers, for the purpose of carrying on business as pulp and paper manufacturers. The company is capitalized at $5,000,000 and the chief place of business is at Bear River, Nova Scotia.

For the purpose of operating saw mills, planing mills, pulp and paper mills, the Rolland Lumber Co., Limited, has been granted incorporation by the Dominion Government, with a capital stock of $50,000 and head office in Montreal. Montreal barristers are named as incorporators.

To carry on a general printing, lithographing and publishing business, the Sentinel Publishing Company, Limited, Toronto, has been incorporated and granted a charter by the Ontario Provincial Secretary. The company is capitalized at $100,000 and the provisional directors are Grant Cooper, H. A. Hall, R. P. Locke, L. Dillon, R. Hatton and M. Bruce.

Dredging for section 5 of the Welland ship canal is rendering the water of the Lake Erie level of the present canal so roily that it is interfering with the production of paper mills along that waterway. One concern last week had a $10,000 shipment thrown back on its hands as a result of the unfilterable sediment.

At the sixteenth annual meeting of the Canadian Association of Advertising Agencies held in Toronto officers for the current year were elected as follows: President, Mr. J. P. Patterson of Morris, Patterson, Ltd., 1st Vice-President, Mr. E. Desberats, of Desbarats Advertising Agency, Ltd., Montreal; 2nd. Vice-President, Mr. J. E. McConnell, of McConnell and Ferguson, London; Secretary-Treasurer, Mr. A. J. Denne, of Smith, Denne and Moore, Ltd.; member of committee, Mr. R. A. Baker, of the Baker Advertising Agency, Ltd.; immediate past President, Mr. W. B. Somerset, of A. McKim, Ltd. Mr. W. B. Somerset, the retiring President, occupied the chair and his annual report surveyed the work of the Association during the year, which showed a satisfactory advance in the volume of business transacted.

Commencing with its issue of July 2nd, the Galt Reporter increased its subscription rate from two to three cents per copy and from 10c. to 15c. per week.

The Provincial Paper Mills, Limited, has forwarded notice to the shareholders stating that the stock certificates of the new company are now ready and requesting the certificates of the Provincial Paper Mills Company, Limited, to be sent in to be exchanged. The exchange is on a basis of three shares of new for two shares of old. Half shares are settled for at $50, being at the rate of $100 per share.

The death took place in Toronto on Monday of the oldest employee of the Copp-Clark Company, in the person of Mr. James M. Young. With his wife he had spent the week-end in Stratford and while returning he was taken ill on the train. In spite of the infusion of blood from his son Hugh, he succumbed. Deceased was in his 58th year. His father was the late John Young of the Upper Canada Tract Society. He was a director of the Copp-Clark Company. Besides his wife three sons survive.

The rise in Spanish River Securities, the new dividend disbursement scheme of the company and the Dominion Day celebrations were all of secondary importance to Mr. J. G. Gibson, Toronto, Secretary of the Spanish River Pulp and Paper Mills, Limited, during the past week. Competent authorities have pronounced the boy a remarkably fine one. In the shower of congratulations in connection with the joyous event Mr. Gibson, who is an ardent, out-and-out Canadian received two rude jolts. One came when the President of the company wired congratulations from Dayton, Ohio, stressing the point that Gibson, Junior was born on the glorious Fourth and the other when the nurse blandly remarked that the hirsute adornment of the little chap was even then more profuse than that of his father.

Mr. S. B. Monroe of Kalamazoo, Mich., one of the directors of the Provincial Paper Mills, Limited, was in Toronto this week visiting the head office of the company.

Word has been received in Toronto that Mr. R. V. McCabe, who for several years was the popular office manager of the Dominion Pulp Company, of Chatham, N. B., and who severed his connection shortly before the time when it was taken over by the new owners, the Fraser Company, Limited, is starting in business for himself and has formed a partnership with Mr. J. W. Bowers of Blissfield. They will engage in the pulpwood brokerage business.

The agreement between the town of Kenora and the Backus interests re the sale of municipal power to the company for $335,000 and the location of pulp mills in the town, has been approved and signed and returned to the Kenora council for further approval.

A large new paper machine has arrived at the Ontario Paper Co.'s plant at Thorold, to be installed in the new concrete addition. The company is also putting a new fire proof roof on the main factory to take the place of the old asphalt paper roof. The new office recently built is in use and the factory extension will cover the ground formerly taken up by the office.

Mr. Richard Reece of Melbourne, Australia, and a former member of Parliament in the Commonwealth, has been spending a few days with Mr. George Carruthers, of Toronto, President of the Interlake Tissue Mills, Limited.

The Canada Paper Board Company, Limited, Toronto, was recently incorporated to manufacture and deal in lumber, pulpwood, paper board and all kinds

of forest products. The authorized capital is $5,000,000 and among the incorporators are H. H. Davis and J. S. Beatty, of Toronto.

The Thompson and Hyland Lumber Company, Toronto, have been appointed purchasing representatives in Ontario for the West Virginia Pulp and Paper Co. of New York, in order to supply their mill at Tyrone, Pa. with poplar wood, while the West Virginia Company's mill at Mechanicsville, N. Y. will be supplied with spruce.

Official denial has been given the report current in Toronto that the Howard Smith Paper Company's plant at Cornwall would be closed down owing to the acute coal shortage. The Cornwall manager of the company states that the plant is, and has been for some time past, working to its full capacity, with every prospect of this condition keeping up for some time. The company is also building an immense sulphite mill near its present plant, which will add greatly to the output.

Rev. D. M. Sclandt, B.D. of Winnipeg, is the nominee of the Presbytery of Winnipeg for the post of manager of Presbyterian Publications at Toronto, to succeed Rev. Douglas Fraser, who is retiring on account of advancing years.

There is quite an exodus of Canadians to foreign lands. T J. Stevenson of the Riordon Company and W. B. Stokes of the Forest Products Laboratory are in England. N. E. Wainwright, of Canada Export Paper Co. sailed Saturday with his family for England. Mr. Nickenig of the same company has gone to South America while J. A. Bothwell, General Manager of the Brompton Pulp and Paper Co. and G. F. Steele, General Manager of the Canada Export Paper Co. have departed for Scandinavia.

Friends of Mr. Kay Crabtree will be glad to know that he is again on the job as superintendent of the Crabtree Division of Howard Smith Paper Mills, Ltd. Although the wound caused by the loss of three fingers through having his left hand caught in the gears of a save-all, is not completely healed, he is well enough to get around.

PULP MILL FOR LEVIS.

It is stated that a large pulp plant is about to be erected between St. Romuald and New Liverpool, at Levis, Quebec. The company would begin doing business with a capital of $5,000,000, under the direction of Mr. John Breakey, a lumber marchant of Breakeyville, Levis. The mills are expected to turn out more than a hundred tons of pulp daily.

AMERICANS BUYING CANADIAN PAPER STOCKS.

The report is current that Americans have become very large buyers of Canadian paper stocks. The buying from this source has been particularly large during the past week. It is thought a number of newspaper owners in the United States are coming into the market for Canadian paper stocks, hoping by the profits from their holdings to offset the increases that are occurring in the prices for newsprint.

IN OLD DAYS.

A Swede came down from the woods, and, entering a saloon, asked for a drink of good old squirrel whiskey. The bartender said: "We have no squirrel whiskey, but we've got some good Old Crow."

"Oh, Yudas Priest!" said the Swede, "I don't want to fly, I just want to hop around a little."

BROMPTON'S STOCK INCREASE.

Following a meeting of the Directors of Brompton Pulp and Paper Company, Ltd., held on June 17th last, official announcement was made of the intention of the directorate to recommend to Shareholders plans for the re-arrangement of capital stock.

It is proposed to increase the Company's common capitalization, presently consisting of 70,000 shares of a par value of $100 each, to 210,000 shares of no par value, of which 140,000 shares will be immediately issued, holders of the present stock to receive two shares of the new, no par value shares for each one of the old held. The remaining 70,000 shares of the new stock will be held in treasury to provide for possible future financing.

The record and extent of the operations of the Brompton Company are already familiar. It is significant of the present favourable industrial and financial position of the Company that funds for extension at East Angus and elsewhere are being provided out of current earnings.

CANADA PAPER CO. GOES TO APPEAL.

A. W. P. Buchanan, K.C., on behalf of the Canada Paper Company, inscribed in appeal, in the Court of King's Bench, the judgment of the Superior Court, rendered by Mr. Justice Maclennan, granting the petition of Albert Joseph Brown, K.C., and ordering the company perpetually to refrain from using sulphate of soda, or any other obnoxious compounds calculated to give off objectionable odors, in the manufacture of pulp and paper at the company's works at Windsor Mills, Quebec.

The company submits that the discharge of gases from the mill in question is not injurious to health or vegetation. The process of manufacture of pulp and paper adopted by the defendants is one of the most modern. Carbonate of soda was used up to 1908, but now the use of sulphate of soda is the only process that enables their mills to compete with imported pulp and also with pulp largely manufactured by this process in this country. It is submitted that there is no known process commercially practicable for removing all or even the major portion of the so-called bad smelling compounds and fumes from the discharged gases of sulphate pulp. If the injunction is allowed to stand, appellants say they will be compelled to close their chemical or pulp mill and also a portion of their paper mill, which gives employment to a large number of the inhabitants of the town.

CARL RIORDON A SUN LIFE DIRECTOR.

Carl Riordon, B.A., Vice-President and Managing Director of the Riordon Pulp and Paper Co., Ltd., and a well known business man has just been elected to the Board of Directors of the Sun Life Assurance Company of Canada.

Mr. Riordon replaces the late Mr. John McKergow. Besides being Vice-President and Managing Director of the Riordon Pulp and Paper Co., Ltd. with their extensive interests, Mr. Riordon is also Vice-President Mail Printing Co.; Vice-President and Managing Director Ticonderoga Pulp and Paper Co., Ticonderoga, N.Y.; Director Niagara Falls Suspension Bridge Co., Ltd; Director Buffalo Contractors' Plant Corporation, Buffalo, N.Y.

Not exploitation but service is the sound philosophy of life.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto July 10.—The week in the Canadian pulp and paper trade was characterized by additional advances in several lines of paper, notably some lines of book and manilas. The same general conditions as to shortage of both raw and finished stock prevail, the mills are still months behind with their orders and the stocks in the hands of the jobbers are very low. A number of the jobbers who bought early and built up small reserve stocks are now using their emergency supplies in order to meet the demands of their customers and unless these stocks can be replenished a real famine in some lines seems inevitable. No one can afford to waste a single sheet of paper these days and every scrap is utilized. The bursting of a water pipe in the basement of one of the Toronto publishing houses the other day damaged a number of rolls of newsprint. In normal times the stuff would have been scrapped as useless. But in this instance the damaged rolls were salvaged by a printer who, by careful handling and cutting, made a nice little profit on the deal.

Pulpwood.

Considerable activity in pulpwood is reported at the present time owing to the high prices prevailing, and in some quarters it is believed that there is a speculative element in the market. There are evidences that certain parties are quietly buying up stocks with the hope of realizing a handsome profit in the fall owing to the scarcity of pulp and ascending values. Contractors report that there will be an enormous cut of pulpwood this fall. Sales of groundwood pulp continue to be made at around the $140 mark and even higher prices would be paid if the pulp could be obtained. But it requires a lot of digging these days to land even a small shipment and paper mills all over the country are begging for the commodity.

The same conditions apply to chemical pulp, the prices of which remain unchanged with supplies extremely hard to get.

Newsprint.

As far as can be learned practically all of the Canadian publishers have been supplied with newsprint and are protected for July, August and September at 5½c: for rolls and 6c. for sheets on two ton lots or up. It is generally predicted that at the end of the present quarter there will be a pretty substantial rise in price owing to the continued shortage of raw stock and the high prices prevailing for labor and paper ingredients.

Box Board.

Box board producers are all extremely busy and are months behind with their orders. As yet no decision has been reached by the Canada Box Board Company as to the location of their new plant, although the announcement is expected within a week or ten days. While the officials of the company are guarding the secret, if they have made up their minds, it is generally believed that the choice lies between Toronto and Frankfort. It is understood that work will proceed this summer and that the next two weeks will see the selection of a site. In the meantime the company have embarked on a program of improvements at their various mills with a view to increasing their tonnage, although no new machinery will be installed until the new mill is built. The prices of board for the present quarter beginning July 1st: straw board $121 a ton: Chip board $121: vat-lined board $133: filled wood board, $157: patent coated manila back, $212: patent coated news back $197. These prices represent a fifteen per cent. increase.

Manilas.

Another advance in manilas went into effect on July 1st, the increase representing a cent a pound on some lines and one and a half cents a pound on No. 1 manila. B manila is now quoted at 11c.: grey rag 10¾, fibre 12c. and No. 1 manila 12c. a pound. There are no changes in the prices of paper bags.

Book Papers.

The shortage in book papers is indicated by the fact that a jobber of one of the largest jobbing houses in Toronto, in checking over his invoices this week, found that his bill for book papers for July with one of the mills was just $1,700 in place of $30,000 which it would have been under normal conditions. Frequently before the famine days came on this jobber would dispose of twenty five and thirty thousand dollars worth of book stock in a month and he counted himself lucky to have gotten the small proportion that he did. With the beginning of the present month another advance of from ten to twenty five per cent. went into effect with the result that the jobbers are now paying the mills 19c. for mill-finished book. In a day or two it may be twenty cents a pound and that is about the only grade that it is possible to get at the present time. It is stated that the cheapest paper the mills will be turning out for some time to come will be 20c. a pound and at that orders are only accepted at the price governing at the time of shipment. The mills have ceased making any definite promise as to delivery and most of them talk of November and December as the most likely months for shipment of orders placed now. Thus the jobbers are buying almost blindly both as to price and delivery and take the mill's word for it that shortage of raw material, the uncertainty of the fuel supply and transportation facilities and the large arrearages of orders are responsible for the unsatisfactory conditions that prevail. The latest price list sent out by the Howard-Smith Paper Mills quotes No. 1 book at 19c.; S. C. at 22½c. and M. F. at 22½c. and the mill is fully booked up until January.

Bonds and Ledgers.

Pretty much the same conditions prevail in regard to bonds and ledgers, the jobbers paying a price to the mills for linen record which necessitates a re-sale price of 70c. a pound. Generally speaking, however, the price range of bonds from the mill to the jobber is from 22c. to 40c. a pound and ledgers run from 24c. to 50c. a pound.

Kraft Papers.

The inordinate demand for kraft keeps up, the product now selling at 12c. a pound. Unable to get manila and fibre papers the trade has been falling back on kraft, a fact that has been mainly responsible for the big demand that has developed for this class of paper. The same conditions prevail in Western Canada. Most of the manila mills in the west have been closed down largely through inability to get raw stock and as a result the eastern kraft mills are being pressed far beyond their capacity. At the beginning of the present month manila and fibre went up another cent. In car load lots now grey or rag or news counter rolls are quoted at $10.75. "B" manila is quoted at 11c. and No. 1 manila at $12.50 in car lots Ontario and Quebec points.

Toilets and Tissues.

No further increases in the prices of these lines are reported this week but another advance is looked for in most lines. In the meantime all light weight papers, including towels, toilet papers and tissues are firm in price and there is an ever increasing demand for the products of the mills which are several months behind in their orders.

Rag and Paper Stock Prices.

	F.O.B. Toronto
No. 1 shirt cuttings	19c
No. 1 unbleached cotton cuttings	16c
No. 1 fancy shirt cuttings	13½c
No. 1 blue overall cuttings	13½c
Bleached shoe clip	15c
White cotton hosiery cuttings	17½c
Light colored hosiery cuttings	13½c
New light flannellette cuttings	13½c
No. 2 white shirt cuttings	13c
City thirds and blues (repacked), No. 15	5c
Flocks and satinettes	3¼c
Tailor rags	$3.00
Gunny bagging	3½c
Manila rope	8c

No. 1 white envelope cuttings			$7.50 $5.25
No. 1 soft white shavings			$7.00 $5.00
White blanks		$5.25	$2.25 $3.25
Heavy ledger stock		$3.80	$3.90 $3.75
No. 1 magazine	$3 90	$3.50	$3.27 $3.50
No. 1 book stock		$3.15	$2.80 $2.50
No. 1 manilas			$3.25
No. 1 prina manila			$3.00 $2.00
Folded news		$2.35	$2.00 $1.90
Over issue, news			$2.25
Kraft		$5.50	$3.75
No. 1 clean and mixed papers	$2.20	$1.70	$1.65 $1.60

NEW YORK MARKETS.

New York, July 10.—The first half of July is the time of the year usually selected by paper manufacturers to temporarily shut down for semi-annual inventories, to make repairs and otherwise to put their plants in order. This year manufacturers are so busily engaged that they are staying closed only for the shortest possible time in which the necessary work can be done, and yet the shutting down of this and that mill in various parts of the country makes for a quieter condition at producing centers.

Consuming markets, however, remain just as active as in the recent past. There are no visible signs of any material let up in demand for paper and board and the market continues to evince a very strong undercurrent, with prices firmly maintained in practically every instance. In only one corner of the trade can it be said that business has decreased to any important extent, and that is in the spot newsprint market. Daily newspaper publishers are still pursuing a policy of refraining from purchasing newsprint for spot shipment even though such action on their part makes it necessary that they omit large amounts of advertising from their columns. That they are realizing some success in softening the tone of the spot market for print paper must be conceded. Offerings of roll newsprint for spot delivery are more numerous and of greater volume than for some time, yet prices are being held up fairly well. About the lowest quoted on newsprint in the open market is 12 cents per pound and a good portion of the available spot supply is held at a cent a pound or more beyond this level. Supplies have not reached a point where sellers have to compete with each other in finding an outlet for stocks and there is consequently little cutting of prices to effect sales. Demand for sheet news is quite active and high prices are being readily obtained for all the supply dealers and mills have to offer, in the vicinity of 13 cents per pound being the average figure quoted.

Book papers continue in an exceedingly strong market position. There is very little supply of this kind of paper to be had for prompt delivery or for shipment for some months ahead, and mills are operating at maximum, or at as near maximum as prevailing conditions will permit, in an effort to cover the wants of customers. Practically the entire output of book paper over the balance of the year has been contracted for, and most mills are therefore out of the market insofar as regards accepting orders for additional tonnages. It is a well known fact that popular magazines are being obliged to conserve paper in every possible way; editions are being limited both as regards sizes of the publications and the number of copies printed. It is stated that one of the best known weekly magazines which is now issuing 2,000,000 copies a week could well afford to print another million copies if it had the necessary paper. This is the periodical which recently announced no more subscriptions would be received from Canada, it being the idea of this publishing firm to supply domestic readers with as many copies of the magazine in question as it is possible to do under present circumstances. Prices on book papers are firm and the tendency is decidedly toward higher levels. Machine finished book is selling at 15 to 16 cents per pound, supercalendered at a cent higher and lithograph and coated from 18 cents upward.

Fine paper prices have again advanced. About the lowest named on any kind of bond paper today is 20 cents a pound and very few lines are to be had at this price, average quotations ranging around 25 cents on medium and low quality bonds. Writing papers are firm and mills are constantly raising quotations a cent or two per pound. It is proverbial that when other lines of merchandise are in slow demand, manufacturers and distributors increase their circularizing and advertising of their products, which accounts in a measure for the continuance of active demand for all kinds of fine papers. Then, too, export demand is brisk, and there is small question that much more business could be easily effected with foreign buyers had sellers larger amounts of paper to dispose of.



SOLE AGENTS in the United States, Canada, Mexico and Cuba for

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INQUIRIES SOLICITED.

Wrappings and tissues hold their own in price and are sought in comparatively large volume considering the dullness existing in many retail lines. The board market is characterized by strength and mills are well stocked with orders, some being foresold for three and four months ahead. Local distributors of board say that it is quite a problem to secure additional tonnages, even through regular sources, and there are predictions made that when box makers commence to cover fall requirements in more general fashion prices on board will jump to new record heights. Prevailing quotations range from $125 up on filled news board and around $115 for plain chip board.

GROUND WOOD—A strong demand continues for ground wood and prices, while mainly nominal as regards spot tonnages, are marked by firmness. Consumers are eagerly searching in all directions for available supplies and are anxiously absorbing the pulp found, seemingly paying little heed to the prices they must pay. What actual market values are is a question. Sales have been made at $140 and up to $150, and talk now in the trade is that even higher prices than those have been realized for spot deliveries of prime spruce pulp. The market appears absolutely devoid of sizable accumulations; which is a novelty at this season when grinders usually are operating at capacity in not only covering the wants of customers but in storing up stocks for the fall and winter when manufacturing conditions are less favorable. Everything would seem to point to a further advance in ground wood values later in the year unless some situation arises whereby demand and consumption materially decrease.

CHEMICAL PULP—Local importers assert that it is becoming more and more of a problem to secure fresh supplies of sulphite in Scandinavian countries. Manufacturers there have in a great majority of cases disposed of their output for the remainder of the year, and are selling even into 1921, and are devoting little attention to the American market for the reason that better prices are being obtained from European buyers. It is known that bids from consumers on this side of 10.25 cents per pound for No. 1 unbleached Swedish sulphite have been flatly refused, from a quarter to a half cent more being demanded. Bleached sulphite is pretty nearly unobtainable in Norway and Sweden, while kraft pulp is held at strong prices. Such amounts of foreign pulp as are arriving here are mostly all sold before landed, and importers have but scant lots on the spot here to offer.

Domestic chemical pulps rule quotably firm and are being quickly absorbed by consumers whenever offered. Newsprint sulphite continues to sell at 8 to 8.50 cents per pound at pulp mills, bleached sulphite at 12 cents and higher and domestic kraft at around 7.50 cents. There is no semblance of easiness in the market; on the contrary prices incline distinctly upward.

RAGS—Paper manufacturers are buying fewer rags at present than for a long time. This apparently is due to two major causes; one, many mills have supplied their requirements for a time through recent purchases, while the second is that because of the inventory and repair period the average papermaking plant is not consuming as many rags at the moment. Were it not for the tight money situation the probabilities are prices would hold very strong but with numerous packers and dealers obliged to come to convert their stocks into cash concessions are being granted to move rags. At the same time, only in roofing rags has the decline amounted to much. New cuttings are firm, old whites are available only at slightly lower figures than heretofore while most other high-grade old rags are selling at close to the top levels reached a short time back. Roofing is now quoted at around 2.60 cents a pound f.o.b. shipping points for No. 1 packing; new No. 1 white shirt cuttings are bringing 21 to 21.50 cents per pound, old No. 1 whites around 15 cents and repacked thirds and blues about 4.50 cents. New washables, fancy shirt cuttings, silesias, lawns and muslins are quotably steady and moving consistently.

PAPER STOCK—Firmness in old paper values can probably be attributed more to the woodpulp situation than to any other single cause. Demand is steady and, with the exception of one or two grades, present supplies do not seem ample to fill the wants of buyers. Dealers and packers continue to stress the small amounts of waste paper they are receiving from print shops, department stores and other producing establishments and say they are up against it in acquiring sufficient supplies to cover commitments. This condition has a particular bearing on shavings, old kraft and manila papers and overissue newspapers, and these grades obviously display a firmer price tone than others. Hard white shavings of No. 1 quality are quoted at 8 cents a pound at shipping points. No. 1 soft white shavings at 7 cents and colored shavings at 4.50 cents and more. Old No. 1 kraft paper is readily fetching 5.25 cents per pound in current sales, and No. 1 overissue news 2.40 to 2.50 cents. Another very strong grade is white blank news cuttings, which are freely commanding 5.25 cents a pound. Folded newspapers are quotable at 2.05 to 2.10 cents f.o.b. New York and No. 1 mixed paper at 1.95 to 2 cents. Books and magazines continue to be priced at relatively

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low levels, with No. 1 heavy books offered at around 3.35 cents at shipping points, and, in some instances, down to 3.25 cents.

OLD ROPE AND BAGGING—The markets for old rope and bagging are lacking in developments, current business being of narrower scope than for some time but evidently of ample volume to sustain values. No. 1 manila rope is selling at $7.25 to 7.50 cents per pound to mills, while No. 1 scrap bagging is available at 3 cents or a shade higher.

EXTENSION OF BELGO PLANT.

The Belgo Canadian Pulp and Paper Company publishes the following report of the plant extension which the company is carrying out this summer. It may be mentioned that the designs have all been made in their own designing office, in charge of Mr. Claxton.

The contract for the buildings has been let out to the Raymond Concrete Pile Company and the work on the foundations has already been started.

There will be 533 wooden piles and 106 Raymond Concrete piles supporting the foundations. There will be 2,470 cu. yards of concrete foundations, 131 tons of structural steel and 544,000 bricks.

The buildings will consist of grinder room extension with a span of 59.5 feet and 108 feet in length with possibility of further extension.

Boiler room extension with a span of 64 feet and a length of 84 feet; transmission building with a span of 26 feet and a length of 74 feet.

The transmission building will be located at the further end of the new boiler house.

The new groundwood mill will provide room for three grinders units, of which two will at present be installed. The new plant will be entirely electrically driven.

The power will be supplied by the Shawinigan Water and Power Company. The current supplied will be 6,000 volt 3 phase 60 cycles.

The electrical equipment will consist of 3 2,000 K.V. A. 60,000—2,000 volt Westinghouse transformers, 2 2,600 H.P. 225 R.P.M. 2,200 volts 3 phase sychronous motors and 1 motor generator set. 875 R.P.M., 2,200 volt, 3 phase and 125 K.W. 125 volt D.C. respectively.

The grinders will be of the magazine type, two to a unit, each grinder with an approximate capacity of 20 tons.

The logs for the grinders will be of 4 feet lengths, instead of 2 feet for the present grinders and will be carried from the barker room to the grinders by means of a conveyor across No. 1 building.

For screening of the ground wood slush the Quiller screens now in use will be employed. They will however be remodeled so as to give them a double capacity.

The thickened stuff will be pumped to the new shipping shed basement, where it will be lapped and pressed ready for shipment.

The new boiler house will have place for 5 additional boilers. The basement is designed to suit the installation of modern underfeed stokers and ash handling equipment.

We come to our best, not by subjugating others but by working with and helping others. The larger meaning of life is brought out by co-operation, not by competition.

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DEALERS CANADIAN BOND ISSUES

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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. **GARDENVALE, P. Que., July 22, 1920.** **No. 30**

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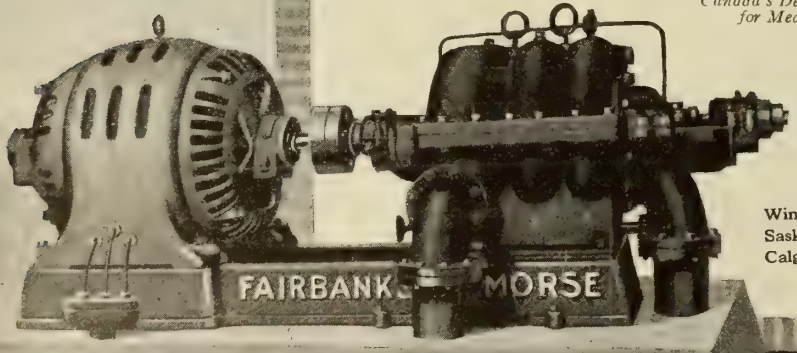
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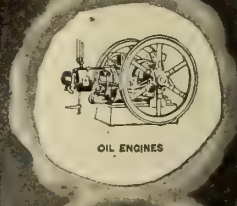
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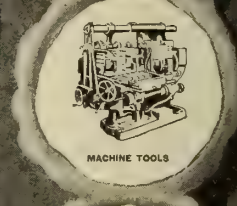
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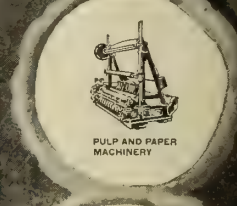
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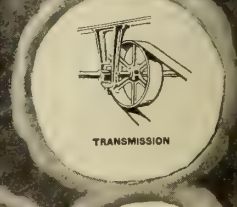


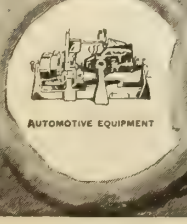

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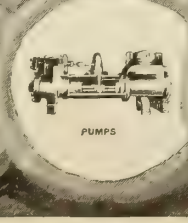

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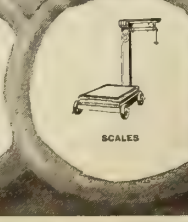

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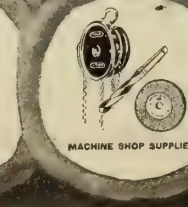

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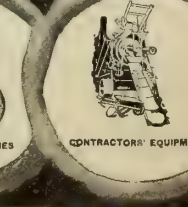

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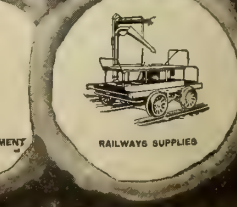

PUMPS


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EDITORIAL

UNDERMINING PROSPERITY.

After Canadian industry had recovered from the first shock occasioned by the outbreak of the war, it was realized that there must be an enormous amount of production in manufacturing as well as food producing industries in order to maintain the allied armies at the front. With this realization came a readjustment of industry in the Dominion which, with the huge demand on our resources and energies, resulted in unprecedented prosperity for workers in every line. Naturally, a number of industries which had catered to trade in temporary needs or luxuries required readjusting, but the fundamental industries continued at a rate which had not previously been dreamed of. With the enlistment of large numbers of Canada's strongest and keenest young men for the various military services there came a huge demand for labor, with largely increased wages as well as increased costs of living and materials. From the way in which the excess wages were spent we can see that the increase in this item was greater in most cases than increases in expenses. Large sums were subscribed to the various Victory Loan issues. This was no doubt largely due to the patriotic appeal, but must have been in part due to the lack of opportunity for spending on luxuries. This appears to be evident from the present large expenditure for non-essentials and even the conversion of savings as represented by Victory Loans for this purpose.

Further evidence of the tendency to spend rather than to save is furnished by the recent report of the Department of Trade & Commerce on the exports and imports of Canada for the first quarter of this fiscal year, ending June 30. As compared with the same period last year, exports have decreased by many millions, while imports have increased in even greater proportion and have now surpassed the amount of our exports. The danger in this line is twofold. In the first place it shows that Canada's income as indicated by foreign trade is less than the expenditure. In the second place every dollar in excess of export values which is spent abroad means to that extent a mortgage on the future prosperity of the Canadian people. In plain language, *Canadians cannot afford to be spendthrifts.*

This is a land of natural resources unsurpassed by those of any other country. They furnish materials which are in great demand the world over. The efforts of our people should be to convert these resources as far as possible into finished products, both in order to furnish maximum employment to Canadian labor and also to bring the maximum return in our dealings with other countries. The trade returns show that at present we are not paying our own way. There is no excuse for this, but the reason is extravagance. This is the fault which lies at the bottom of most failures, whether national or individual. Incompetence, which is the other great cause of business failure, cannot be charged to the Canadian people. It is necessary, however, that there be a curtailment of extravagance, because a safe recovery from the operations of the war demands that all our efforts be directed to the payment of our debt, and the re-establishment of industry along peace lines. If we continue to buy luxuries abroad on credit there will come a time when it will be difficult to buy necessities. The rate of exchange with our principal market place is already heavily against us, and the manner and rate of spending at the present time are making matters seriously worse. Business has had fair weather for a long time, but there is likely soon to come a rainy day, and it looks as if a lot of Canadians would get wet. The thing to do is for all of us to join in harmoniously blending all our efforts toward the increased production of the commodities which the world's markets are in need of and to spend as little as possible for non-essentials, particularly such as must be imported.

IS THE A. F. OF L. INTERNATIONAL?

There have been some evidences that Canadians were not highly pleased with the action of the convention in Montreal of the American Federation of Labor in passing the resolution in favor of an independent Ireland. The action was strongly criticized by labor union men in Brantford, and "Investment Items," which is issued by the Royal Securities Corporation of Montreal, not only takes exception to this action of the convention but protests strongly the assumption that the A. F. of L. is an international organization. This paper makes the contention that the organization is overwhelmingly American, and that the principal function of Canadian members is to pay dues.

The first objection to the action of the convention is certainly well taken. The second point has much to support it as far as internationalism is concerned. It must not be forgotten, however, that some trade unions, in so far as they represent a certain craft,

are often really international. Among them are the Brotherhood of Paper Mill and Sulphite Workers, and the International Brotherhood of Papermakers. These organizations have done much to stabilize labor and improve working conditions in this industry. Besides these functions of a labor organization, which should be effective through co-operation with manufacturers, there is a feature which seems to us to be a possibility rather than a complete realization. This is the binding together of the members in good fellowship and by extending the knowledge of the industry, to instill the pride which will prove an incentive to further progress.

THE FISHERMEN'S CREED.

The Canadian Fisheries Association has made a declaration of principle and belief which might well serve as an example. We believe the members of the Canadian Pulp and Paper Association could honestly subscribe to a similar noble creed. Let's have one.

The Fishermen's creed runs:—

OUR CREED.

We are proud of our industry. Its beginnings are lost in the mists of antiquity. We are an ancient profession. When Jesus Christ desired to humble Galilean fishermen to act as fishers of spread his gospel of love and humanity he called men's souls.

In the forecastles of mediaeval fishing craft boys dreamed dreams which, as men, they realized and built navies and discovered empires.

This beloved Canada of ours was first colonized by fishermen—men of endurance and faith, pioneers of courage and thoughtful minds.

We therefore feel we are members of an ancient and honorable profession. We believe we possess the greatest fishery resources in the world today. We believe we have the faith and ability to develop them. We believe we can become the greatest fish producers on earth.

Let us co-operate and work towards that ideal —feeling each one in his own heart that we are nation builders, that we can take pride in our work and produce nothing but the best, so that others may say:

"IF IT IS CANADIAN, IT IS ALL RIGHT!"

COBWEBS.

As a safety suggestion we suggest printing on each pay envelope: "If you want a full envelope each week, *Be Careful.*"

It is reported that requests to furnish Canadian exhibits for Chicago's zoo will be taken care of by the Department of the Interior. This is almost an invitation to make an observation which might not be appreciated.

Every little shower brings joy to the heart of the ground wood manufacturer these days. With paper mills hungry for pulp, the grinderman must use every available minute.

The Spruce Falls Pulp & Paper Co. is not dead after all. A report from Cochrane says that work will proceed at an early date. We hope so.

We are glad the exhibit illustrating pulp and paper manufacture at the Canadian Industries Exposition in England is attracting attention. Mr. W. H. Stokes, of the Forest Products Laboratory, has put a lot of work on the pulp and paper cabinet.

Madison, Wis., is the scene of an interesting celebration this week. The Forest Products Laboratory is ten years old. May it grow stronger as it grows older and continue its good work in showing how to use the forest to the best advantage.

The argument that Canadian goods, unless raw materials are bought in U.S. funds, should be quoted in Canadian dollars is supported by evidence from the trade commissioner to Japan in an article printed last week and also in an open letter to Canadian manufacturers from Trade Commissioner D. H. Ross, Melbourne, Australia. The latter plea is particularly pertinent as it involves an inter-empire policy of trade.

It is interesting to note that an offer has been made to buy the pulpwood that is being burned by settlers in Saskatchewan. The offer of $12 a cord, delivered, will just about leave a day's wage for cutting and hauling. Perhaps the wood, which would otherwise be burned, should be considered worthless, but it really is a settler's possession. $12 today is cheap wood, even for poplar and jack-pine.

Many people in Canada and the United States are suffering (?) from acute vacationitis. This is a malady that is best relieved by a few days or weeks in the open air tramping, fishing, or boating. This means camps in the woods with all the joys that come with living in the open. Benefits to the camper are not without some responsibility, for a large proportion of the fires which have damaged and continue to destroy the forest wealth of this continent are the result of carelessness on the part of those who are enjoying life in the woods. A little common sense and reasonable care will protect the forest better by preventing fires than the most elaborate machinery could do in locating and extinguishing them.

News of the success of Sir Thomas Lipton in winning the second cup race should give the Shamrock a much higher standing. Too bad all Ireland doesn't sail so smoothly.

The Banquet of the Technical Section

The banquet which the hosts of the Technical Section have fallen in the happy habit of providing at the summer meetings is always a delightful affair. The Spanish River Pulp and Paper Mills, Ltd. entertained the Section at the Soo, and Col. Jones, General Manager of the company was toast-master—and such a genial host!

Col. C. H. L. Jones.

I note by the newspaper that I am supposed to make a formal address. I want to say that I have done everything exactly as I have been told to do so far during this convention and have attempted to entertain the guests during the day and during the night, and have done everything that I have been able to do, but I want to say to you definitely that I absolutely refuse to make a formal address.

Now, before making an address of any kind whatever, I will ask you to fill your glasses, or take them as they are and drink to the health of His Majesty, the King.

I will now read to you a formal telegram, which has just been received from Mr. P. B. Wilson, who could not be with us because of more important matters demanding his attention elsewhere, who is attending a meeting of the Board of Directors, and those of you have had anything to do with this can sympathize with him. I will read you his telegram and you will see how badly he feels, "Please express to the gathering how much I regret not being able to be with them today but am looking forward to meeting them all on Thursday morning at Espanola. I hope you will have a very successful and splendid time."

Now, gentlemen, I really do not know what is expected of the Chairman of a gathering of this kind at a technical meeting because this is the first Technical Section Convention that I have been at. It is the first dinner of the Technical Section at which I have acted as Toastmaster, so that you can imagine I am overcome with feeling of emotion and regret at my inexperience, etc. I don't know why Mr. Shipman, who is Chairman of the Executive, should have told the Soo Star that I should make a formal address. The question that comes to my mind is, "Do all Toast Masters at dinners given to the Technical Section have to make formal addresses? Do Technical Section men delight in hearing formal addresses? I can make a formal address if you desire, but am certainly not going to do it tonight.

Spanish River is delighted to have the Technical Section with them tonight. You are not exactly on our territory when you sit in the Country Club, because while Spanish River owns an immense territory, still they do not own the Country Club. They are delighted to have you inside of Algoma and they look upon it as an epoch in the history of Spanish River to have you here.They believe that the progress and development of the paper industry or of the cellulose industry, let us call it, really depends upon what the technical man is going to make of it. We have begun to develop cellulose but we have merely scratched it. Now, gentlemen, we must rise on our oars. We must be always on the alert if we are to forge ahead. I believe that if there is really any forging ahead to be done in Canada, it is going to be done by the Association represented here tonight.

Sault Ste. Marie is proud to have you here; some of us have been here for a good many years. They accuse me of having helped to take the place from the Indians, I do not know, perhaps I did. I knew a good many Indians when I came here twenty-one years ago, and I believe there are still Indians here as far as I can see, and I cannot say that I blame them for it.

I believe that the city which you have chosen for your convention this year is a good old place. It has a good history. Here the Ojibway and the Chippewa, years before, banquetted together, just as we are doing tonight. It is quite true they did not have table cloths or cutlery, but I am sure they had a good time just the same. Personally, I have grown to like this particular city. I believe that it presents itself in good form to the stranger who comes here for the first time. For myself, I am inclined to think like the man who lived in New York, who was asked if he liked New York better than any other place. "Why," he said, "what other places are there?" I feel just that way about Sault Ste. Marie, and I hope that you, gentlemen, may have a particularly good feeling for Sault Ste. Marie also.

I am not trying to sell the stock of the Spanish River Company, it is easy to sell, but I do not know of any place that holds a more strategic position from a point of view of a pulp and paper company. If you will look at the map you will find that Sault Ste. Marie is situated directly north of the central population of the great United States. When we sell a very great percentage of paper and our pulp in the United States, why should we not like the situation of Sault Ste. Marie, and why should not I, as manager, be strong for it?

Gentlemen, we are glad to have you here with us, we believe in the Technical Section of the Pulp and Paper Association, we believe that in the minds of you men, if you will apply yourselves to the great problem of cellulose in connection with the pulp and paper industry you have great things within your scope, we believe that the possibilities of the pulp and paper industry have been but scratched, we believe that much as we would like to assure ourselves otherwise, the pulp and paper industry on the North American continent is just in its infancy. All you have to do is to look at the picture which was shown last night illustrating the groundwood section of our business. If you will look at the picture, and look at it closely, you must have been struck with one thought in connection with groundwood. That is, that we are showing you something that existed forty years ago. Groundwood is the basis of a very great part of our business, yet we are showing you something in this picture in the method of producing groundwood that existed thirty or forty years ago. This illustrates but one of the problems to which the Canadian Pulp and Paper Association should divert its attention. There are great opportunities for the development of the business in the particular sphere that is controlled by the Technical Section. I want, on the part of the Spanish River Company, to express our serious appreciation. From the President down to the Directorate through the Managerial section of our business we appreciate very much the work which the Association is doing. I want to assure the Association and the new members here tonight that the Spanish River stands behind

whatever efforts are put forth by the Technical Association. I want to say in a most serious way that the Spanish River looks to the Technical Association for great developments in this business. If you apply your efforts in the right direction you can accomplish these things by co-operation and through the proper direction of concentrated effort.

Now I speak from a point of view of Management and I feel sure that I speak from the point of view, also, of the practical man in the mill. He is the craftsman who delights in the production of his own craft. You have got to show him that the technical features of the business will be a complement to these things that he has developed to a certain point. If you can do this, you have a practical man with you, but this is a difficult task. We know that the practical man looks askance at the man who comes in from college. It requires great tact on the part of this man and above all great care should be taken that you do not assume the duties of showing the practical man how to run his business. You set him on edge when you do that, but convince him in the first place that you are putting long years of research work to his long years of training in the business and can carry it out, and you will have accomplished a great thing. This is, I believe, one of the large problems of the technical man. If the technical man develops something in the "Lab," he has got to make the practical man believe in it and make the practical man develop it in the mill. Personally I have the greatest faith in the ability of the technical men of the industry to accomplish these things, and I have the greatest faith in the practical man, showing that the combination of the two should carry the industry forward and onward in its sphere. We are today confronting many problems. We are confronting the high cost of living. The high cost of living exists. The high cost of producing exists. How are we going to confront it? We must combat it as I see it, in two ways. You have to do it through greater production and greater economies. Economies that were never contemplated in the past must be secured. How are we going to overcome the high cost of production? Take, for instance, today we pay $7.25 f.o.b. the mine for coal, practically double what we paid last year. If you enquire into this the mine owner will tell you that he is paying practically double for having the coal produced. We, on our part, who sell paper to our customers have to sell on the basis of cost of producing. It is a never ending wheel. The answer to the whole problem is in greater production and greater economies and as I see it, the solution of the problem rests with the technical men, and rests in a large measure in research work, and gentlemen, as Manager, I tell you, with every respect for the practical and without attempting to land in any way the theorist, this industry depends as other industries do today, upon the technical man to find other methods and more economical measures and as I see it, it is the sincere duty of everyone to assist in every way possible to discover those things which will mean a help to this great problem.

I talk to you seriously, just as I feel the duty existent of the Technical Association and I would rather leave that message with you than anything else I can tell. I would rather leave that message of the appreciation of the duties that exist with respect to the Technical Association by the Management of these great companies who are exploiting the cellulose industry in this country. The Technical Section has a definite duty to perform and I think that duty is such as I have outlined to you.

The cellulose industry in this country has not been scratched. The great thing is the development of the cellulose industry. For instance I heard a man say tonight, he made a broad statement that sulphite pulp would some day only be a by-product of what would be produced from the waste liquor of the sulphite business. We are still making sulphite to sell so I cannot go as far along the road as that gentleman did. But I believe he was sincere and I believe he has given serious thought to this whole problem.

Now, gentlemen, I am more pleased than I can tell, at your appreciation of what Spanish River is trying to do. In the first place let me reiterate what I have said before, that, Spanish River knows far better than my humble words can tell, what is expected of the technical men of today; we expect great things from you, and if the humble program that we have laid out for your entertainment, has met with your approval we are well repaid. Of course we want you to have a good time—we expected that when we started. Everybody has a good time when they come to Sault Ste. Marie.

I don't know whether Chairman Shipman is a prophet or the son of a prophet, but I see that tho I did not intend to at first I have given you what might be termed a formal address. However, gentlemen, I am sincere in what I have said, namely, that the future progress of this industry rests with you.

I think that the Chairman of the Section should make a formal address. He seems to know all about them and so I call upon Mr. Shipman to give us a formal address on the part of the Technical Section.

Mr. Shipman.

Mr. Toastmaster and members of the technical section of the Canadian Association, the American Association and other guests. I may be the son of a prophet and may have been able to forecast what kind of a speech Col. Jones would make, but I do not believe that he is even the grand-son of a prophet; in fact I know he is not when it comes to prophesying my speech. My feelings have been somewhat mixed today, in fact everything that I have had to do with for the last two or three days has been somewhat mixed and I really hardly know how to talk as I am partially a host and partially guest as Chairman of the Technical Section, and so I have felt that I really should not make a formal reply to Colonel Jones so I am going to ask one of our most genial members to reply for the Technical Section and for myself; Mr. George Carruthers, whom I know you will all enjoy hearing—Mr. Carruthers.

Mr. Carruthers.

Mr. Toastmaker and friend, who passed the buck just as gracefully as I do myself when I am to report on the Educational committee: I have heard of the Spanish River Company—we have all heard of the Spanish River Company and we have all heard of the Sault and about its strategic position as an industrial centre.

I feel like the Scotchman who went to the races and put a shilling on one of the horses. He met with two of his friends and they finally induced him to put a shilling on a dark horse. After the race they came up to Sandy and gave him back his original shilling and two pounds ten besides. Sandy was very much

amazed and stared at them in astonishment, remarking, "How long has this been going on?" I think I am expressing the sentiment of the Technical Section when I use the same expression in connection with Spanish River—how long has this thing been going on: Our toastmaster said that he had no secrets.—I wonder what he calls this method of entertaining of his?

There is a shrewdness under all these arrangements—it comes out in various ways. Now when a friend asks $140.00 for groundwood there is a reason for it. The Spanish River Co. does that. They get the buyers together and show them this film, illustrating what it costs to do the different operations—tell them that everything doesn't always run so smoothly as shown in the picture, loads upset, etc., and then we have to pay the shot.

Now, not long ago in New York we exchanged views, At one of the recent meetings in New York the statement was made which quite bears out the facts that have been given regarding the cellulose industry tonight. This man made the statement that the time would come when there would be just as many industries established on the sulphite liquor and by products as have already been established on the coal tar by-product. This is a very important statement to make on this and has impressed me very much.

Now, another gentleman, at one of our recent New York meetings—you see I have been in New York many times—made a remark about the wonderful industrial progress that we are witnessing. In the olden days if a man had any secret about his business he kept it to himself and he swore his sons to secrecy with the result that there was very little progress made in many industries. Once men started to exchange views once men started to do what this Company is trying to encourage us to do, industry went ahead with leaps and bounds. New machinery and new methods come into being with such rapidity that they appear to be invaluable to us, so much so that they become commonplace in almost twelve months. Not long ago I was writing out a list of things that have been invented since I was a boy. I was really amazed at the number of new inventions and new methods that have come into being in that short period.

Gentlemen, on behalf of the Technical Section, we will recall Mr. Jones' statement when he said that he had no secrets. I am sure they have allowed us to see everything that could be seen in the mills. They told us that we were welcome—will anyone say that we haven't been welcome? In other words, Col. Jones is a man of his word—we have no reason to doubt his word and I am going to ask you gentlemen, to fill your glasses and rise and drink to the health of the Spanish River Company and to the health of Col. Jones.

Col. Jones.

Here we have not only the strategic location that I spoke of before but immense natural resources at the back of us. This country has only been scratched for minerals, but I believe that its metallurgical value is very vast, and practically undetermined as yet.

The history of Sault Ste. Marie is a wonderful one: here the red man in days gone by, held his councils. These were no doubt a different kind to what we are holding here tonight, but nevertheless the Indians appreciated the fact that Sault Ste. Marie was a strategic point.

We are proud in Sault Ste. Marie of our history; of those things that you read in the Canadian history, which are dear to the heart alike of the men of mature age as well as the school child. Sault Ste. Marie was always an outstanding point. Twenty years ago, when I first came here, this place I don't think had more than 2,500 people, today it has almost 28,000. Happily, in Sault Ste. Marie, we have always been blessed with men in our civic affairs who realized all these things and have endeavored to the best of their ability, to serve it well and I think that those of us who are connected with any of our industries have always appreciated the efforts of those who take part in our civic government matters. Gentlemen, we have with us tonight Mr. Farquhar, the Mayor of Sault Ste. Marie. This city's government is second to none, I can assure you, throughout the length and breadth of the whole Province of Ontario. We are trying to develop, and develop to the greatest possible extent, all those things which the city should have. I can assure you that the City Council of Sault Ste. Marie, and the City Council as represented by the Mayor, is doing all these things, and I have very great pleasure in calling upon the Mayor of Sault Ste. Marie to say a few words.

Mr. Farquhar.

Mr. Toastmaster, officers and members of the Technical Section of the Canadian Pulp and Paper Association, and officers of the Spanish River Company. I can assure you that it gives me great pleasure to have this opportunity of being present with you tonight and I wish to thank Col. Jones and the officials of the Spanish River Pulp and Paper Mills for their kindness in extending to me this invitation. I am especially pleased to have the opportunity and the pleasure of meeting with the men of the Technical Section of this Association and on behalf of the members of the City Council and of the citizens of this city I take much pleasure now in extending to you a real hearty welcome on this your visit to our city. This may be the first time that some of you have visited Sault Ste. Marie. I have found that a great many of the visitors coming here know very little of the industries in our midst. They know very little of the Pulp and Paper Mills and of the Steel Industry, to say nothing of the great resources of this part of the district, our timber, our minerals and our power. I believe that the Spanish River Pulp and Paper Mills do not realize the extent of their resources and I believe that they will not realize their resources until the flying boat completes its work of surveying and cruising their properties.

I find this lack of knowledge of our great resources, true not only of those who visit us from across the border, but I also find it true of visitors from within our own Province and country.

With the unlimited and undetermined resources of this great North country and Sault Ste. Marie situated as it is, there is no question about it but it must become a great industrial centre, and I am sure tonight, as I have already stated, just let me repeat, that it gives me much pleasure indeed to extend to you visitors and members of the Technical Section of the Pulp and Paper Association, a real hearty welcome to our city. I thank you.

Col. Jones.

Gentlemen, as you know, in all cities and in all communities there are outstanding figures who dominate the things which count in their own particular spheres.

Those who dwell in this particular sphere always recognize these things. We have in Sault Ste. Marie certain citizens in whom we recognize these qualities. I do not know of any citizen who shows these qualities in a more marked way then the Senior Judge of Algoma. We have the Senior Judge of Algoma with us tonight in the person of Judge Stone. If there is a wedding or if there is any great event like the meeting of the Technical Section or anything like that I can assure that it would not be complete at all unless Judge Stone was there. In addition to all this, Judge Stone is a good fellow.

The Judge is a wise man and a good judge of things. Now, admitting all this which I have just said, and attempting nothing derogatory in any way to Judge Stone, I do not think he knows anything at all about the technicalities of paper or of pulp, or of cellulose or of any of those things at all. Nevertheless, all the rest of the things that I have said stand.

The Judge is a very wise gentleman, filled with the lore of this particular district, and Canada in general, and I have much pleasure indeed in asking the Judge to say a few words about Sault Ste. Marie, and about anything at all that he may have to present to you.

Judge Stone.

Mr. Chairman and Gentlemen:—

In the first instance I want to thank those in charge of this banquet for a very pleasant evening and for what promises to develop into a fairly entertaining night. I was on the boat this evening as you know, and Mr. Chairman, in the midst of my observations, I was struck with the number of long, conspicuous, inquisitive noses that are associated with the membership of this technical section, and I cannot help thinking that a predatory nose has always been taken as an indication that its possessor was a searcher for truth, and whether that truth be spiritual or scientific or merely mechanical, they are designed naturally to be effective enquirers.

I have been askd to welcome you, to say something in regard to the District in which we have gathered. In the first place I may say that this is only part of my District. It extends from away up midway the length of Lake Superior to down about half way to Sudbury, and from Sault Ste. Marie to the Albany River in the vicinity of the Hudson Bay; that is the land that lies between old Ontario and the new District called the District of Patricia. We have in this District four railways crossing it from East to West, and one crossing from North to South, 300 miles long.

As the Colonel has just said it is a marvellous district. It is a district which is self supporting and I am speaking not only on behalf of those citizens who are directly interested in such plants as the Spanish River and the Algoma Steel, but as representative as well of the citizens generally of the District, when I say that the existence and progress of the community are accompanied by the transformation of its own immense and varied natural resources into the finished product for the world's markets. It is by reason of the successful efforts of such organizations as that whose hospitality we are this night enjoying in taking the raw materials of the District, reducing them to marketable commodities within our own boundaries and bringing tribute from the ends of the earth right into this new District that the community subsists. It is therefore peculiarly appropriate that the people of such a District should have the opportunity of welcoming you men whose main job is, either by mechanical process or mechanical device to improve production methods, thereby increasing the output, and so contribute as Colonel Jones has said, in a most eminent and forceful way to the prosperity and success of this district.

Now, as Colonel Jones has said, this is a District with a wonderful history, he has made reference to the old lore of the District. Recently in my reading I happened to pick up a Parkman's volume on La-Salle and the Discovery of the Great West, I had read it before, but it impressed me more this last time with its descriptions of the early history of this District; how on the 14th of June, 1671, 250 years ago on the 14th of next June, St. Luzon, a Frenchman, arrived and took possession of this district and of the territory drained by the rivers that run into Lake Superior and Lake Huron and all territory discovered or undiscovered from the seas on the North and the West to the great gulf on the South; took possession of it in the name of Louis 14th of France. Does it not sound like ancient history? At the foot of the rapids stood the village of the Saulteurs. Near at hand stood the rude fort of the Jesuits.—Forth from this port St. Luzon, with all the panoply of uniform and colors, leads his little force of fifteen, followed by the faithful Jesuit priests and surrounded by bands of wondering redskins. He leads them to the hill hard by, and there they, with the blessing of the Jesuit Fathers, erect a large cross and sink a cedar post to which is attached a leaden plate engraved with the Royal Arms of France—and that occurred 250 years ago next June within a few rods of the place from which I am speaking tonight.

Today this has all gone from France and has come into the hands of a people destined by Providence to carry their raw potentialities to the doors of commerce for the sustenance of men and for the advancement of civilization. So today we stand on the property originally claimed on behalf of the Grand Monarchy of France. The only remnant of this French domain in the Dominion of Canada today we find in the two little islands in the St. Lawrence, St. Pierre and Miguelon.

So much for the lore that the Colonel is so fond of. You have come then gentlemen today to the young and growing city of Sault Ste. Marie. As we were sailing up the River today I could not help thinking with what wonderment and amazement these first adventurers threaded their way up this River, and the amazement with which they must have looked out over these great inland seas. Today we have conquered the natural obstacles in the way of transportation by the building of the great locks through which we passed this evening, which have followed in the wake of the first lock built by the fur trader and which you see represented along the side of the general offices of the Company. And so the world is progressing—progressing during these last few years more rapidly than it has ever done before, and it belongs to you gentlemen of the Technical Section of the Canadian Pulp and Paper Association to see that in so far as your branch is concerned, nothing that industry and application and ability can do to improve methods and increase production shall be left undone.

Col. Jones.

After that discourse can you wonder that when any prominent citizen passes away it is demanded that the Judge should be a pall bearer?

There are a number of great institutions throughout the length and breadth of this country and those of us who come in contact with them learn to appreciate them. I believe that there is no institution—I do not except Spanish River when I say this — throughout the length and breadth of this country that has a more wonderful record than the Canadian Pacific Railway.

We have with us to-night for the first time in any gathering of this kind, an official of the Canadian Pacific Railway in these parts. I rather imagine that he and I were associated together in days gone by because at one time I was a humble worker for the great Canadian Pacific Railway, I know it will come as a surprise to Mr. Wilson to be called upon for a few remarks tonight. He has been very good indeed to the delegates as they travelled through from Montreal and has shown them a great many kindnesses and done everything possible to make the journey comfortable and enjoyable. Gentlemen, I am going to ask Mr. Wilson to say a few words.

Mr. Wilson.

Mr. Toastmaker and Gentlemen:

This is surely a surprise. Unfortunately, I am not an after-dinner speaker. I have railroaded all my life—and that particular part of my education has been sadly neglected. However, on behalf of Mr. Tremblay, Mr. Bowen and myself, I wish to thank you for the privilege of attending this banquet, and I may say right here that Mr. Bowen looks after the social end of it. Unfortunately, he is indisposed and could not be present this evening. Now, as I told you before I am a very poor speaker, I have no statistics to give you but I will tell you a little story, killing time as it were. This story is about the salesman who was trying to sell an incubator to an old farmer, but although he had used practically every argument possible he could not convince the farmer to buy. As a last resort he approached the farmer and began explaining the great amount of time that would be saved by using an incubator, but the farmer only replied in disgust, "Oh, what's time to a clucking hen?"

Gentlemen, I am sorry that I have no statistics, that I could not better represent the Company that I have the honor of representing here tonight, but I hope the next time I may have the honor of attending a similar banquet I may be better able to tell you more concerning our organization.

I thank you very much for the kindness extended to us during our visit to the Sault, and as I am going back with the delegates as far as Espanola, anyway, I will endeavor to give them a good time for that distance. I thank you.

Col. Jones, introducing Mr. Keenan:

I am going to ask you now to drink to the health of the President of the United States and I am going to couple with this toast the name of Mr. Keenan. Mr. Keenan is a Scotchman to start with, having become an American, and being the representative here of the great United States, I feel him well qualified not only to respond to that toast, but in his usual clever manner to say something that is of interest not only to the meeting in general but to the Technical Association in particular.

I will ask you to charge your glasses and drink to the health of the President of the United States.

Mr. Keenan.

Col. Jones, Chairman Shipman, Members of the Technical Section of the Canadian Pulp and Paper Association:

I am very glad and very pleased to be able to present the greetings of the American Technical Association to the Technical Section of the Canadian Pulp and Paper Association. The meetings of these Associations are becoming more profitable year by year and we find that the two Associations are becoming more closely united and are accomplishing very fine work.

In my opinion there should be complete dissemination of the information secured covering the progress made in cellulose industry through our joint Association. There should also be committees on standards, processes and testing. In this way we should be able to collect from all parts of the country where paper making is carried on, the best results of effort, and endeavor to place these before the members of the industry in this country.

It is very encouraging to feel that our efforts have the hearty support of the executives of the many Companies, of Col. Jones and Mr. Mead. Wherever I have gone in Canada I have always been treated with such courtesy and kindness that it is among the most pleasant memories of my life and we hope, on the American side, that the Canadian section will send a large representation to our meeting in Saratoga Springs, September 1st, 2nd and 3rd. We have the entire Grand Union Hotel in Saratoga Springs at our disposal and we can assure you and your wives and sweethearts a very hearty welcome if you will come.

Gentlemen, I thank you again, on behalf of the American Technical Association for the many kindnesses and courtesies extended to us all by the Canadian Section.

SPAIN GETS CANADIAN PULP.

Winnipeg, July 16.—Initial steps toward establishing trade between Canada and Spain are being taken by Augusta Ramoneda, of Barcelona, Spain, who as the representative of all the paper mills of Spain, is a visitor here today, en route to British Columbia. Mr. Ramoneda stated that the primary object of his trip to Canada was to investigate the lumber and pulp supply of the country and to ascertain how much of the product was available for export. The paper mills of Spain need 60,000 tons of pulp, he said, and the first two shipments from Canada amounting to 7,000 tons left Quebec the latter part of last month. Development of trade in other products would follow later, Mr. Ramoneda declared. An office has been established in Montreal.

The Nashwaak Pulp and Paper Co. is urging the city of St. John to install a 36″ concrete pipe from Spruce Lake. The company wants assurance of 4,000,000 gallons per day.

No decision has yet been given by the Ontario Government on the application of J. J. Carrick for a fiat against the Hydro-electric Power Commission of Ontario. Mr. Carrick wants to bring action to compel the commission to fulfill the conditions of the alleged bargain he claims was made regarding the purchase of the Campbellford Pulp Mill and the Bruton Limits in central Ontario. He alleges the commission did not live up to the conditions.

TECHNICAL SECTION SCREENINGS.

Courtesy of Spanish River News.

Hats off to A. L. Dawe! He can give cards and spades to the railroad officials when it comes to sleeping 40 men in a 30-man car.

They say a good mill chemist is one who can adapt simple apparatus to many uses, who can get along with a tin can and a blow torch. The more I travel with Alf. the more I realize he should have been a mill chemist. Say, Alf., did you ever try tooth paste as a shoe polish?

Can you beat it for the noise and confusion stirred up by one "Snowshoe" from Shawinigan?

As usual, Geo. Carruthers was there with bells on. We would suggest that Geo. scatter just a few choice ones here and there throughout the text books so as to sustain the interest of the students.

Lest we forget; can anyone imagine better hospitality than was accorded us by Messrs. Wilson, Bowen, and Tremblay of the C.P.R.

Also many thanks are due to both the Algoma Eastern Railway and the C.P.R. for the fine manner in which they co-operated. The C.P.R. sent Supt. Wilson's private car to aid in making our guests' trip as comfortable as possible and also very kindly held the evening freight, to which the Technical cars were to be attached, until after the close of the banquet at the Country Club. The change over from C.P.R. to Algoma Eastern at Espanola was done so quickly and easily that hardly any of the party knew they were on another line.

Many expressions of appreciation were made by our guests of the kindness and hospitality shown us both by the Algoma Steel Co. and the International Nickel Co., and the chairman wishes to express particularly to Mr. Collins of the Nickel Co., his appreciation of the most excellent lunch which was served us at the Copper Cliff club.

The Chairman wishes to announce that he didn't do any of the work of preparation. But he had a grand little committee, as follows:—

Railroad Transportation, Frank O'Brien.
Automobile Transportation, Herb McCoy.
Soo Rapids & Locks Boat Committee, A. H. Chitty.
Country Club Banquet, C. C. Irvine.
Hotel Meals, Ben Avery.
Mill Lunch Room, Geo Kohl and Alf. Gaudette.
Moving Picture & Auditorium, Bert Waters.
Soo Mill Guides' Committee, Chas Mackey, Bob Cooper, Guy Durgin.
Special Folder Committee Rod Olzendam.
Badges, Scotty Coulson, Miss Delaney, Miss Collins.
Pictures, Scotty Coulson by himself.
Espanola Breakfast, Hugh McNenly.
Espanola Guides, Doug. Parker.
Copper Cliff Lunch, Mr. Collins.
Copper Cliff Guides, Mr. Kent.

(We knew the Chairman couldn't have done *all* of it. Glad to thank the committees individually by name.—Ed.)

INTERNATIONAL NUMBER OF PULP AND PAPER MAGAZINE.

The Pulp and Paper Magazine has felt for some time that it would be desirable to present in one issue, a comprehensive survey of the pulp and paper industry in Canada, so that paper buyers in all lands might know the extent and variety of our manufactures, the resources behind the industry, and the excellence of our mills and management. The matter has been contemplated for several years, but the time has not been opportune until now. With improvement in transportation facilities and increased production coming along, it will soon be possible for Canadian mills to give better service to foreign customers. Hence our first special number.

The contents include; The Pulp and Paper Industry in Canada (foreword), brief histories of the Canadian Pulp and Paper Association, Canadian Paper Box Makers Association and Canadian Paper Trade Association; articles on How to Get the Goods to the Customer, Canada's Exports of Pulp and Paper, How sulphite pulp is manufactured (semi-technical), Imports of Pulp and Paper Into Canada, The Pulp and Paper Mills in Canada (with map), Future Newsprint Production in Canada, Paper Products made in Canada, Pulp and Paper Personalities (biographical), Canada's Pulpwood Resources, Canada's Water Powers, Pulp and Paper Exports and Imports of the U. S. A., and descriptions of a number of representative pulp and paper mills and their products, including: Abitibi Power and Paper Co., Belgo-Canadian Pulp and Paper Co., Whalen Pulp and Paper Mills, Brompton Pulp and Paper Co., Canada Boxboard Co., Canada Paper Co., Canadian Vegetable Parchment Co., Donnacona Paper Co., Don Valley Paper Co., Dryden Pulp and Paper Co., E. B. Eddy Co., J. Ford and Company, Garden City Paper Mills, Hinde and Dauch Paper Co. of Canada, Interlake Tissue Mills, Kinleith Paper Mills, Laurentide Co., MacLeod Pulp and Paper Co., Nashwaak Pulp and Paper Co., Northumberland Paper and Electric Co., Powell River, B.C. (town), Price Bros. and Co., Provincial Paper Mills, Riordon Pulp and Paper Co., Rolland Paper Co., Howard Smith Paper Mills, Spanish River Pulp and Paper Mills, St. Maurice Paper Co., and Wayagamack Pulp and Paper Co. There are also a goodly number of attractive and instructive advertisements, and 221 illustrations.

The editor was greatly assisted by Mr. Edward Beck, who is in charge of the publicity work of the Canadian Pulp and Paper Association, and wishes to thank him and the paper mills and advertisers for their hearty co-operation. The paper is heavy coated stock, of Canadian make of course, with a kraft paper cover. There are 260 pages, including ten special inserts, some in three colors. Through the efforts of the advertisers and by sending out a large number of complimentary copies, the publishers are "planting" this number where it will bring the most good to the Industry. Scarcity of paper—in spite of a great effort on the part of the manufacturer to help us out—made it necessary to limit the edition. There will, however, be a few copies available, for which we must charge $1.00 each, post paid.

NEW MILL CONTEMPLATED.

The Masset Timber Company, Ltd., is making investigations at Graham Island, Canada, with a view to establishing a paper mill there on the property of the company in the near future.

HOW TO TREAT NEW BELTS.

Mechanical tests show that the ordinary new belt will not carry the same load as it will after a few weeks' service, by from 10 to 20 per cent. It follows that on new belting a good light coat of dressing should be applied in the manner suggested below—before installing. Repetition at frequent intervals for the first few weeks would help, too.

Remember that dressing is not put on the belt so that it may stick the belt to the pulley and thus make it pull more. It is put on so that by entering the leather fibres it may toughen them, lubricate them and thus give longer life to the belt. Whenever the leather seems dry, harsh, tinny, does not have the right mellow feel—you may be sure dressing should be used.

Another important factor in belt economy is cleanliness, first of belt and then of pulley. A clean, soft hand will not slip easily even on smooth glass or polished wood. Leather was once skin, and smooth, clean leather will not slip easily on a smooth, bright pulley surface.

Belt surface should be clean, smooth, level and comparatively dry. Tests have shown that the coefficient of friction (on iron and steel pulleys) is:

.56 when dry
.36 when wet
.23 when greasy
.15 when oily.

Therefore it is very important that both belt and pulley be kept as dry and clean as possible.

Too much grease is injurious to leather. Mineral oils in particular rot leather rather rapidly, and where belting is liable to become soaked with oil, mechanical means should be taken to keep the oil from the belt.

Where mechanical protection is impossible, the belt should be removed from time to time and the oil extracted with some solvent such as naptha or carbon tetrachloride. Packing the belt in dry sawdust or shavings will sometimes answer the purpose. If it is impossible to remove the belt, wiping on the pulleys with a dry cloth or waste will help. Machine oil, in addition to its tendency to rot leather, when present in excess, gives a very poor frictional surface, as shown in the table preceding.

Too much oil will penetrate the belt and affect the adhesive quality of the ordinary cement used in gluing belts together. Frequently, from this or other causes laps start up at the points, a result sometimes due to running belting in the wrong direction. Single belts should be put on so as to run with the grain or hair side next to the pulleys and so that the points of the laps will run against the pulleys, as the laps on the outside of a belt are the most liable to come apart when the points are run against the atmospheric pressure.

Double belts should be put on so that the points of the laps will run with the pulleys, as both sides point in the same direction.

Remember that because shafting was in line once it does not necessarily remain so indefinitely, and regular attention to this point will result in a large saving of time, trouble and power. Light machines, especially when not firmly fixed on the floor, are apt to get out of line a little. This will cause a lot of trouble unless quickly remedied. This misalignment is difficult to detect and always results in uneven belt strain, excessive slip and reduced delivered power.

Periodical Overhauling Advisable.

To make certain that you are getting the most out of your belts and to safeguard yourself against the possibility of a sudden shut-down in some department on account of belts going wrong, have all belting overhauled periodically. Have greasy belts cleaned up. Have the plies looked over and the laps that have picked up carefully cemented down again. Have worn out belts cut down to a narrower width and use them over again.

In this article we have briefly indicated several ways to keep belting equipment in trim. To summarize: Place a responsible man in complete charge of all transmission equipment; standardize belting as to type, brand, width and weight for every drive; demand regular inspection and reports as to condition of belts; run belting at a uniform tension and as slack as possible; eliminate injurious dressings and use a little good dressing; keep pulleys and belts clean and smooth; make sure that shafts and pulleys and belts are in constant alignment; overhaul belting periodically. If these suggestions are faithfully adhered to it will mean less power used, less work for mechanics and millwrights, uninterrupted operation of machines, increased output, lower cost of power transmission, and—more profits for the firm.—The Amphibian.

INTERNATIONAL PAPER CO. FOUNDED BY CANADIAN.

The International Paper Company, which has appeared so prominently in the campaign against Canada at Washington, was founded by a Canadian—it was a consolidation, in 1898, of some 30 newsprint mills—the late Hugh J. Chisholm who was born at Niagara-on-the-Lake. He went to a business college in Toronto and, beginning as a newsboy on the train, his work carried him to Maine where he became interested in a newspaper and thence in lumbering and papermaking. Probably no man did more to build up these resouces in that state than Mr. Chisholm, where he was not only highly regarded during his life-time but has left a clean reputation behind him. The greatest monument to him is the model town he developed for his employees at Rumford, Me.

Process Engineers, Ltd., are issuing interesting advertising booklets. The last one announces that 36 per cent. of the daily tonnage of sized paper from all the mills of Canada is made in the 55 mills equipped with the DeCew sizing system.

MAKING WATERVILLE MACHINERY IN CANADA.

Canadian Mead-Morrison Limited have procured the rights to manufacture the wood preparing machinery designed and patented by the Waterville Iron Works of Waterville, Maine. This line includes all the important equipment of the wood room, such as barkers, which are equipped with the Lombard attachment; a slab barking machine, log splitters, sawing machinery, chippers, chip crushers, rechippers and chip screens; as well as several varieties of trucks. The product of the Mead-Morrison Company will be entirely Canadian and prompt delivery will be possible.

The "Papermaker's Pocketbook," compiled by James Beveridge, who is well known to papermakers in at least four countries is temporarily out of print.

ACCIDENT SEVERITY IN ONE PAPER MILL 439 TIMES GREATER THAN IN ANOTHER.

A range from 23.4 to 119.5 in accident frequency rates and from .065 to 28.5 in the accident severity rates is shown in a compilation of the accident records of seventeen paper and pulp mill members of the National Safety Council, just made at the headquarters of the Council. In other words, while one paper and pulp plant has only 23.4 lost time accidents per million hours of work another plant in the same industry has 119.5 accidents for every million hours of work; and while one plant loses exactly 39 minutes (based on a theoretical ten hour working day) out of each thousand hours of work, another plant in the same industry loses 286 hours out of every 1,000 hours —a loss 440 times as great as the plant having the lowest severity rate mentioned in this tabulation. In reply to a request of Robert M. Altman, Chairman of the Paper and Pulp Section of the National Safety Council, seventeen mills employing 8,368 workers sent statistics from which the following table was compiled:

Accident Records — Paper and Pulp Mill Members — January to April, 1920, inclusive.

Company	Average Number of Employees	Total hours worked	Number of lost time accidents	Total days lost	Frequency rate	Severity rate	Deaths	Permanent Disabilities
1	114	92,503	3	6	32	.065	0	0
2	90	90,760	4	19	44	.21	0	0
3	589	130,000[1]	11	36	85	.27	0	0
4	325	338,000	14	97	41.3	.29	0	0
5	260	214,389	5	71	23.4	.33	0	0
6	252	210,132	6	75	28.6	.357	0	0
7	675	567,000	31	252	54.5	.445	0	0
8	1,226	1,020,120	37	543	36	.53	0	*1
9	312	257,800	14	158	54	.61	0	0
10	1,248	953,000	114	880	119.2	.92	0	0
11	221	204,770	15	215	73.2	1.10	0	0
12	330	271,972	16	382	59	1.41	0	*1
13	427	374,935	23	573	61.5	1.53	0	*1
14	288	290,678	13	486	45	1.67	0	*1
15	1,183	1,292,088	33	12,335	25.5	9.52	2	0
16	570	370,084[2]	35	6,371	95.5	17.25	1	0
17	258	235,333	26	6,696	111	28.5	1	*1
Total		6,913,564	400	29,295	57.8	4.23	4	5

Note: The frequency and severity rates are calculated according to the method adopted by the United States Bureau of Labor Statistics and by the International Association of Industrial Accident Boards and Commissions, and recommended by the National Safety Council. Deaths and permanent injuries are weighted according to the standard scale adopted by the above organizations.

[1] One month only.
[2] Three months only.
* finger.

Each company has been given a key number and will be advised of this number so that it will know how its record compares with that of other paper and pulp mills.

The records are arranged in order of their severity rates, as the severity of accidents has a more important influence on plant production and accident costs than does the frequency.

The average of these seventeen plants, operating a total of 6,913,354 hours, shows a frequency rate of 57.8 and a severity rate of 4.23. This high severity rate is caused principally by the four fatal and five permanent injuries. Omitting these nine serious accidents the severity rate would be only 0.55. It will be noted that seven of the above companies have a severity rate of less than .05, that ten have a rate of less than 1.0, and that the only plants having a severity rate of more than 1.0 are those having a death or permanent injury.

This table seems clearly to indicate that paper and pulp mills members should not be satisfied unless they can keep their frequency rate below 50 and their severity rate below 0.5.

The Council will be glad to print quarterly in the NATIONAL SAFETY NEWS the accident records of the paper and pulp mill members who will send in these records as requested by the chairman.—R.H.G. in "National Safety News."

BUGS BLAMED FOR PAPER SHORTAGE.

One of the reasons why the price of news print is soaring is that there are eighty-four different kinds of bugs, fungus and bacteria which are destroying the wood before it can be made into paper. The activities of these bugs and germs and a study of how the wood can be destroyed and deteriorated by them are now to be made the subject of study by the United States Forest Products laboratory in Wisconsin.

Isolated in a separate building, called by the officials of the Forest Products laboratory the bug house, this investigation is being conducted. It is claimed that millions of dollars can be saved the paper manufacturers if a means can be discovered to check the deterioration of wood used in making paper by those wood destroying agencies.

The bug house contains a room about twelve by twelve feet, heated to a summer temperature and moistened by a misty spray.

Under present conditions it is practically impossible to make paper from other products than wood. Paper manufactured from corn stalks and other substances has been found more expensive than the wood product.

SCANDINAVIAN NEWS PRINT FOR RIO DE JANIERO.

What is said to be the first Finnish steamer to enter Rio de Janiero port has arrived, the Garryvale, of the Finland Transoceanic Co. Of more interest to newspaper owners, however, was the cargo—1,000 tons of print paper from Scandinavia for local delivery. The shortage and consequent high price of print paper is the most important question confronting Brazilian newspapers.

PULP MILL FUMES HINDER NAVIGATION.

An enquiry into the cause for the grounding of a steamer at Three Rivers indicates that fumes from the pulp mills there are the source of the trouble. It was intimated at the hearing that a few thousand dollars would avert the nuisance. It is likely to take a good many thousand dollars to do so and success is not entirely assured. No doubt some action will be necessary, however.

It is your duty, as well as your protection, to report unsafe conditions to your foreman or superintendent.

Business Meeting of the Technical Section

(Concluded.)

REPORTS OF COMMITTEES

Following the reading and discussion of the papers, the Chairman asked for the reports of Standing Committees, which were accepted as follows:—

Report of Committees on Education.

Your committee has been chiefly occupied with work on the textbook arrangements.

A joint meeting of the U.S. and Canadian committees was held in New York, April 13th, when the report of the joint executive was considered, with progress report of Mr. Stephenson.

A financial statement showed satisfactory returns to have been secured.

Mr. J. C. Wright of the U.S. Federal Board for Vocational Education outlined their system of work and also assisted in discussions.

Upon motion, Mr. Wright was asked to make a survey of the pulp and paper industry such as had been done in other cases, and that Mr. Wright's expenses be paid for a trip to Canada for the purpose.

Resolutions have been passed in both the United States and Canada making the Joint Educational Committee trustee and administrator of all funds collected for or arising from sale of text books, etc.

The members of your committee have endeavored to assist Mr. Stephenson in his arduous duties as editor-in-chief.

In the campaign to enlist interest of students and university authorities, lectures have been given on pulp and paper making by members of this committee in Montreal and Toronto.

The mills have indicated openings for upwards of sixty students for vacation work. Details as to actual employment are not to hand.

The attention of your committee will be given in the next six months to plans for making the text books and courses available to workers.

Respectfully submitted.

George Carruthers, Nelson Gain, D. Daverin,
A. P. Costigane, J. N. Stephenson, T. L. Crossley.

Report of the Committee on Abstracts and Publications

With Hints on Filing Abstracts.

The Committee on Abstracts and Publications is at work by virtue of the energy and activity of one of its members (not the chairman) on the preparation of the biographical list of members and proceedings of the Section since the last published report. The change of position of this member has somewhat delayed the work.

It is anticipated that a slight change in the machinery of furnishing abstracts will be proposed because of certain changes in the affairs of the Technical Association of the pulp and paper industry. The plan as now being considered is that the abstract committees shall continue to work in co-operation and that the abstracts be assembled at the New York office of the Association and distributed to journals subscribing to the abstract service. By having all the abstracts pass at one time through the hands of the secretary it is expected that considerable duplication will be avoided and your chairman will be relieved of some work as regards the preparation of the manuscripts submitted. It is believed that a better service will result and that it will be possible to cover the ground even more completely than is being done at present.

It is proposed that the Pulp & Paper Magazine continue to pay the abstractors working under the direction of the Technical Section Committee and to divide this expense with the American Committee while assuming at the same time its share of payments to American abstractors.

Unless it is desired that arrangements between the Abstract Committee through its chairman, who also happens to be editor of the Pulp & Paper Magazine, should be reported and reviewed by the Executive Committee, it is suggested that the chairman be given power to make such arrangements with the Technical Association as will result in the best abstract service.

It has been suggested that the chairmen mention ways in which the abstracts can be used to the best advantage by members of the Section. After some correspondence it seems to be the general practice by those who have thought the matter out to clip the abstracts and paste them on index cards. The committee several years ago prepared a classification system which covers manufacturing operations and some associated matters. Each abstract in the magazine is supplied by the chairman with a classification letter and number. The cards bearing the same number are therefore easily assembled so that a person wishing to get information on a subject ,for instance, acid-making, will find all the abstracts on this subject filed under E-4. The chairman is advised that the classification for the abstracts has also been extended to other literature so that articles can be cut from magazines, which it is not otherwise desired to keep, and preserved in letter files bearing the appropriate classification symbol. The editor of the Pulp & Paper Magazine, in making up the journal endeavors to have each article that may be of permanent interest appear as a unit so that the pages may be removed with each article entire without breaking into another article which may be also worth while filing. This is accomplished by filling up the balance of the space, in case the article does not complete a page, with items of current interest only. A similar provision is made with regard to abstracts so that they may be clipped without destroying other articles that may be of permanent interest.

The annual index for 1918, of which copies can be had by any who wish them, contains a key to the classification. The index for 1919 is practically complete and the editor wishes to be advised whether there is enough desire for as complete an index as appeared last year to warrant the trouble of preparing it in that form. It will be recalled that both the main articles and abstracts were indexed separately by authors, the reading articles also alphabetically, while the abstracts were indexed according to subject under the appropriate headings.

It should be mentioned that in placing the classification number on the abstract, in case the article abstracted covers several different subjects, the several appropriate classification numbers are all given so that

cross-indexing of the files is easily accomplished by inserting a reference card to guide the searcher to the place where the abstract will be found.

Respectfully submitted,

J. N. STEPHENSON,
Chairman.

Report of Committee on Testing Moisture in Pulp.

The Committee are confining themselves to the testing of dry pulp made into bales.

At the present time there are three well known methods of testing pulp, made into bales.

1. *Strip Method.*—This is specially applicable at the mills where pulp is manufactured. As the bales are being made, the tester takes six sheets from the bale and cuts a three-inch strip from said sheets, the full width of the sheet. This sample is used for the test of that bale.

2. *Disc Method*—As adopted by the American Wood Pulp Importers Association, of which details are given hereafter.

3. Rules adopted by the Scandinavian and English Wood Pulp Association, details of which are given later. There are, of course, modifications applicable to any of the methods.

The Committee would be pleased to have the members of the Technical Section send their views as regards the methods as to which is more suitable to be adopted.

Signed on behalf of the Committee,

E. B. SLACK, Chairman.

Report of Committee from the American Paper and Pulp Association, and the American Wood Pulp Importers Association, concerning methods of sampling and testing pulp:—

Instructions for Sampling and Testing Pulp.

All tests must be made by a chemist duly authorized and approved by the Joint Committee representing the Association of American Wood Pulp Importers, and the American Paper & Pulp Association, and must be made strictly in accordance with the following instructions—otherwise the Committee reserves the right to withdraw the approval of any chemist at any time.

Before proceeding to the weighing and sampling, the chemist must ascertain that not less than one-half of the parcel in question is available.

Number: Not less than 5 per cent nor more than 10 per cent of the entire shipment, but not less than 10 bales shall be sampled. Samples to be drawn only from sound and intact bales, from different sections of the entire shipment and analyst shall be careful to observe that no unusual conditions prevail in the selection of the bales. The accurate weight of all bales sampled by sworn weigher before sampling, or, wherever sworn weigher is not available, by a competent person who must make sworn affidavit that weights are correct, and no other bales than those weighed to be sampled, and whenever bales are numbered the number is to be given in addition to the weight.

Method of Sampling.

Depth of Boring: The sample shall be taken by boring into a bale the depth of three inches (7.62 centimeters) with a special auger which cuts a disc about 4 inches (10.16 centimeters) in diameter.

Selections of Disc: The discs shall be removed and ten of them taken as a sample, these to be selected as follows:

1 disc 2nd sheet from the wrapper.
2 " 1 in. (2.5 centimeters) deep
3 " 2 in. (5.05 centimeters) deep.
4 " 3 in. (7.62 centimeters) deep

Location of Borings: The holes to be bored shall be so located in five successive bales they will represent a portion that extending diagonally across the bale. Each bale to be bored but once. The first hole to be bored at the corner, the edges of the cut being at a distance

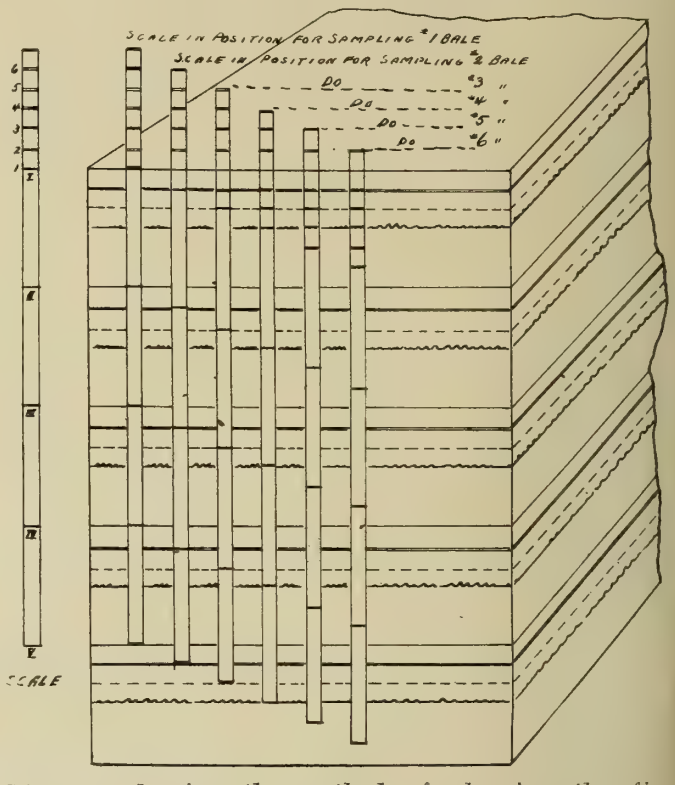


Diagram showing the method of choosing the five sheets from the bales for moisture testing.
(Method No. 3.)

Instructions: Take a scale (or strip of dry pulp) of the same length as the bale is high, and divide this scale into five equal parts. Number them 1, 2, 3, 4, and 5. Divide part 1 into six equal parts, and number them 1, 2, 3, 4, 5, and 6 (see sketch.)

When sampling from the first bale the scale is placed with No. 1 even at the top of the bale, while a mark is made with blue chalk at I, II, III, IV, and V.

When sampling the second bale point No. 2 is placed even with the top of the bale and points I, II, III, IV, and V, are marked as before. This procedure is followed out for all the bales to be tested.

The five (5) sheets in the first bale are marked in the diagram by a single line.

The five (5) sheets in the second bale are marked in the diagram by a double line.

The five (5) sheets in the third bale are marked in the diagram by a dash line.

The five (5) sheets in the four bale are marked in the diagram by a wavy line.

The sheets in the fifth and sixth bales have not been marked in the diagram, so that it might not be too complicated.

As the bales vary in height, it is impossible to use the same scale for all sampling. Small variations in the same shipment are of little importance, but a scale that marks a 20 in. high bale cannot be used for a bale that is 24 in. high or more.

of one inch from the edge of the bale. The second cut shall then be made half way between the location of the first cut and the centre of the bale, the third bale shall be cut at the centre, the fourth bale half between the centre and corner and the fifth bale in the opposite corner in a position corresponding to the first.

All samples must be either weighed immediately after being drawn from the bales by *accurate scales* or, where this is impracticable, must be put into air-tight vessels, made of metal or glass with ground glass or metal stoppers, and due care must be used in the transportation of such samples until they can be properly weighed at the laboratory of the chemists. The entire bulk of samples selected from the bales must be dried out for the test. The temperature in the drying oven shall be as near to 212 deg. F. as possible, but shall not exceed 220 deg. F., nor be less than 204 deg. F.

Chemists must have proper and adequate equipment for weighing and sampling the bales and for the weighing and drying of samples.

All sampling of pulp must be done by or supervised by the approved chemist personally or by his competent bona fide assistants who will do the sampling such list to have the approval of the Committee. The chemist will be held responsible for the correct sampling by his approved assistants. The Committee shall at any time have the privilege of investigating the sampling done by chemists or their assistants.

American Paper & Pulp Association:

Herbert W. Mason.
Joseph B. Woodruff.
E. B. Murray.

American Wood Pulp Importers Association:

Leon Gottheil.
S. Goldman.
James Rosenberg.

Rules Adopted by the Scandinavian and English Wood Pulp and Paper Associations for Testing Moisture in Chemical and Mechanical Pulp.

1. Analysis to be valid must be made not later than ten days after complaints about moisture in pulp have been made, and the chemist must have access to at least half of the total lot for sampling.

2. The sample of any lot must be taken out of a number of bales, equivalent to not less than 3 per cent nor more than 5 per cent of the total number, but, in any case, from not less than six bales.

The chemist has the right, within three days after the first sample is taken, and before the parties get the results of this first test, to again sample and test 3 per cent of the bales. The bales from which samples are taken must be in perfect condition, and shall be accurately weighed on a perfectly adjusted scale before sampling.

3. A record of the weighed bales, giving number and weight, is to be signed by the chemist in charge and by the representatives of both parties, if present.

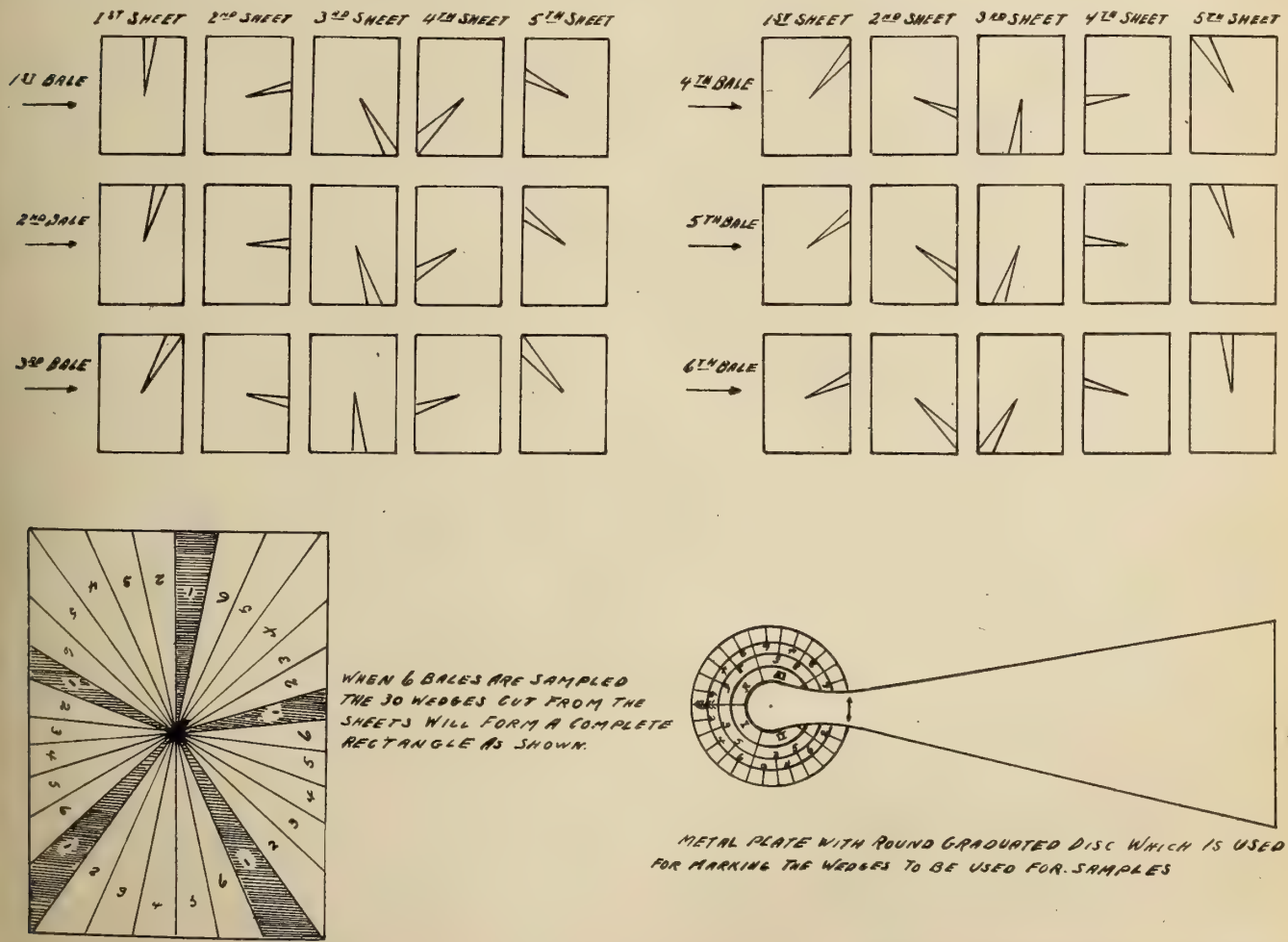


Diagram showing tenplate used for cutting wedges, the sequence of positions, and appearance of the sheets that have been cut.

4. The method to be followed in sampling is to be as much like the English wedge or triangle system as possible.

The wedges or triangles are to be cut from the centre of the bale out to the edge of the sheet in angles of twelve or twenty-four degrees depending on the size of the sheet. Metal sheets stamped by the Associations shall be used for regulating the size of the wedges and attention must be paid to the necessity of having the edges of the samples cut sharp and clean.

The sheets are considered to be divided into 15 or 30 wedges, and these wedges must be cut out as directed, following numbers given on metal plate and in accordance with the instructions given.

5. The temperature in the drying oven shall not be over 100 deg. Centigrade.

6. The buyer and the seller, or their representatives, have the right to be present at the sampling and testing.

Report of the Committee on Mechanical Standards.

Please be informed that investigations have been carried out on the flow resistance in pipe lines of paper stock of various consistencies. The tests made so far are not conclusive as it has been found difficult to measure accurately when stock densities were in excess of 2.2 per cent. New devices for measuring have been designed which will be available shortly when tests will be resumed.

The work on acid-resisting bronze and bearing metals has been chiefly in the nature of going over previous investigations made by various parties. Translations have been requested of articles which appeared in some European journals. These have been received in part. The Committee is pleased to add that one of the paper companies has submitted copies of tests on different compositions of acid-resisting bronze. These data should be very valuable for purposes of comparison with information to be obtained at a later date.

Before closing, however, I desire to remark that as yet several of the mills have not returned the questionnaire sent out last January. Some of them have replied that they are too busy at the present time, but will do so at a later date. Tabulation of the answers to the questionnaire will be held up for a few months, and if the questionnaires are not received within that period the committee will be obliged to draw a conclusion from a relatively small number of mills, and we therefore would urge the members of respective mills who have as yet not replied, to use the strongest effort to have the questionnaire returned, if not in its entirety at least part of same.

Respectfully submitted,

J. STADLER,
Chairman, Mechanical Standards Committee.

The Text Books.

Mr. Carruthers was called on to report for the Text Book committee, but he "passed the buck" to Mr. Stephenson, who replied as follows:

I have now on hand the manuscript for the Elementary Electricity and as soon as I can get about fifty problems together to add to that, for the students to work on, it will be ready to go.

I have also the section on physics, in manuscript form. If any of you are interested in any of these matters I have the Electricity and Physics manuscripts with me. The one on Mechanics and Hydraulics is due this month.

We have been fortunate in securing the services of two men who have been working for the past twenty-five years on the correspondence text-book work and have the preparation of matter for the correspondent student so well in hand that a man can get the point without having to write two or three letters asking questions about things which should have been explained in the first place. We are endeavoring in this case to answer the questions before the student needs to ask them.

The other sections on manufacturing operations are coming along nicely. Those that are not already in hand are well under way. There are several in the room who are still working on their sections and they have told us of some of their activities and we can see that they simply had to steal time to put on this work.

I may say that if it was simply a matter of reading manuscript as received, and passing that on it would be quite a saving in time but the sending out of the manuscripts that we have received to those who have wider experience in this work has brought so many good suggestions, and we have caught so many points that might have been mis-interpreted, that it seems worth while to sacrifice a little speed and obtain accuracy.

A number in the industry are lending very great assistance in checking up and adding good ideas and that is very greatly appreciated. It is a bit unfortunate perhaps that we have had to bring this matter pretty largely before the public for a considerable time. Ordinarily you do not hear much about a book until it is about ready for publication; on the other hand, this has been so widely talked about that some people are beginning to get a little bit impatient. Their patience, however, has got to be exercised a little longer before they really see the manufacturing sections although I am sure some of these will be ready the coming fall or the coming winter.

The elementary sections will certainly be ready for school during the fall term.

THREE CHINESE PAPERS IN NEW YORK.

Very few people know it, but New York supports three weekly papers printed in Chinese, writes Napier Moore to the Montreal Star. We didn't know it ourselves till we read it in a local paper. There is always something fascinating about Chinese reading matter. There's nothing narrow about it. We have frequently seen Chinese characters two inches wide which merely meant "Three collars." Finding out how a Chinese paper is printed, therefore, is an interesting research. Chinese printers must first qualify as Marathon runners. There are nearly 3,000 distinct types necessary to print in the Chinese system of writing, which embodies that number of separate word symbols. And it takes a "case" almost thirty feet long to hold them. The type is set by hand, the typesetter walking back and forth, diving into different sections which are subdivided and re-subdivided and indexed according to a part of the symbol known as the "root." With several good, fast walkers on the composing room staff, an eight or ten page paper can be set up in two days.

Not dreadnoughts and fortified canals, but what our children are, will make our future nation.

British Trade News

(From Our London Correspondent).

London, July 6, 1920.

W. E. Haskell, vice-president of the International Paper Company, contributes an article to the Special American supplement of the London "Times" on "Print Paper" and the U. S. A. situation. He has a good deal to say about Canada in the course of his write-up and dwells at some length on the question of forestry. He mentions that a few of the larger paper companies of the States, notably the International Paper Company with a production of 1,800 tons per day and the Great Northern Paper Company with a production of over 700 tons a day own extensive forests, and, in spite of their very large annual requirements of pulpwood, are in a position to carry on their business for many years with but small importations of wood to supplement that which they cut from their own reserves. Mr. Haskell goes on to say that it is gratifying to note that the United States has at last awakened to the necessity of conserving its existing forest and reforesting its cut over and devastated lands. He also points out that Canada supplied 1,000,000 cords of pulpwood out of the 5,500,000 cords used for all branches last year.

Hard on Americans.

"It has to be frankly admitted," writes Mr. Haskell, "that the people of the United States have been prodigal in the use of most of their natural resources. They made the buffalo extinct, and the beaver nearly so; and before they awakened to a realization of a menaced shortage, had almost destroyed their birthright in the forests of the land." It is quite evident that is why there is such enthusiasm in America today for support for the Underwood Resolution, which, Mr. Haskell explains, far sighted men hope, will establish a permanent entente between the Canadians and the United States and bring about a lasting reciprocity that will be of advantage to both. Mr. Haskell tells us that Canadian manufacturers are naturally not concerned at all at the high cost of pulpwood to American mills. Under the Underwood Resolution, which provides for a commission to negotiate with the Provincial Governments of Ontario, Quebec, and New Brunswick, for the removal of the present export restrictions of pulpwood cut on Crown lands Mr. Haskell says it is argued that under proper and modern scientific lumbering regulations, the annual growth of timber on the Crown lands of Quebec alone would yield a yearly harvest of 25,000,000 cords of pulpwood without impairing the original forest asset and that if this Province should lift the present embargoes, great benefit would follow from the activity that would ensue in forest operations and from the increased receipts for ground rentals and stumpage fees. Mr. Haskell places the American view of the Underwood Resolution very concisely before the British public and it is quite evident Americans are leaving nothing undone to secure Canadian pulpwood, to take the place of what has been destroyed in the past over the border. The Underwood Resolution certainly has received a fine advertisement here from Mr. Haskell's pen.

Late A. E. Reed's Successor.

The late Mr. Albert E. Reed's successor to the presidency of A. E. Reed and Co., Ltd., the well-known pulp and paper people, is Mr. A. Ralph Reed. His election is due to a remarkable coincidence. In the great firm which his highly respected and revered father established, Mr. A. Ralph Reed has a twin brother working with him, Mr. E. Percy Reed. Both are directors of the firm, but through a "stroke of good fortune", as the witty Irishman says, Mr. A. Ralph Reed made his entry into the world a few minutes before his brother, and by virtue has accordingly been placed in the chair which his late father so ably filled. The late Mr. Reed had two valuable helpers in his twin sons and he was naturally very proud of them.

Paper Market Dull.

There is a dullness in the paper market at present. It is due to the holiday season and the fact that consumers are well supplied for some weeks to come. Six months have now elapsed and so far as I can judge, the British people have not had to face the shortage experienced in America and Canadian provinces. Only this week I have read an announcement from a prominent Yorkshire firm stating that they would enlarge their weekly paper. Looking around the other daily and weekly newspapers there is no sign of a reduction in size and everyone seems well supplied with newsprint and paper of fine printing quality. Of course, London is the dumping ground of all the foreign mills and for this reason there is always a stock lying up in some corner of the city to pick and choose from. Consumers, however, are still putting up their prices for their newspapers and trade journals and these are announced in cases where new contracts are being entered into.

Bamboo.

There is a Timber Trades Exhibition here in London. It was opened by the Duke of Connaught's son and I saw a fine exhibit of bamboo from East Africa for manufacture of pulp. Later on we are to be shown samples of paper made from this particular bamboo. Many hundreds of square miles in the East Africa Protectorate are covered with this raw material and the Imperial Institute for Technical Trials is making arrangements for experiments to determine the suitability of the bamboo for paper-making. Mr. W. A. Raitt, of India, is here at present and no doubt he will have something to say on the quality of the East Africa raw material. There is one thing certain, bamboo and peat pulp will never compete with groundwood and that is the opinion of some of the biggest buyers today in England.

U. S. A. Newsprint.

We are told that America could consume another 100,000 tons of newsprint in the year; we are also told that across the border they want more newsprint and more pulpwood to keep down the "sufferings" of the small publishers. In fact as one reads the newspaper reports and the trade journal reports in England one would come to the conclusion that the States could not even sell an ounce of newsprint to the British consumer. But the States newsprint seller is "Ca-Canny," as the Scotsman says. The London American Consul caused consternation this week by making the following announcement from an American firm: "Will you kindly give us a list of the larger news-paper dealers in England and approach them in our name or let us know who they are, with

the purpose of buying and selling newsprint and other papers made in the U. S. A. and England. We possess very good mill connections and can supply "news" and book papers in "quantity". Firms here would like to know what is up with the American market? Now if the Underwood Resolution became an agreed compact between Canada and America, the States would make paper from Canadian pulpwood and compete with Canadians in the British market for papers and probably oversell them. They certainly could beat Canada in quicker deliveries. But let it not be said there is a shortage of newsprint in the States when "large dealers" can be supplied in England by the real American (?) article!

EXPERIMENT WITH PEAT AS A SUBSTITUTE FOR WOOD PULP.

(From Our London Correspondent).

London, July 1, 1920.

The Bog of Allen and other famous bogs in Ireland are notable for a plentiful supply of peat (which is really a decayed vegetable substance resembling turf and used as a fuel by Irish homesteads) which is at present under trial and being experimented upon as a substitute for wood pulp. At a gathering of paper men yesterday in the Manchester School of Technology it was proved by a demonstration that peat was capable of being used in the manufacture of paper when reduced to a pulp, but to enter into competition with wood pulp, such as Canadian, is at the moment a problem beyond the dreams of avarice. I can, however, state that I have seen a specimen of the paper from peat pulp as its raw material, and there is no doubt it is a marketable product. Should it come to pass that peat eventually enters into the paper mill as a pulp I have no hesitation in saying from my experience travelling through Ireland that there is at least 50 years supply, provided that the "turf rights" can be secured from the ground landlords and the Crown authorities who own extensive areas in the country.

An Explanation.

The party of paper men who accepted invitations to attend the demonstration in the College was small. The person responsible for the experiments was Mr. A. L .Burlin, the inventor of the process for reducing the peat to pulp; he is ably assisted by W. T. Cheetham Brooks, a manufacturer of dyes, colors, etc., in Manchester.

Before the demonstration commenced Mr. J. Huebner, M. Sc. Tech., F.I.C., (the chief director of the dye-house of the College, explained that the College itself was playing no part in the test, except that of provding th necessary facilities under a regulation which allows such use to be made of the machinery only when the test cannot be made elsewhere in the ordinary course of business.

After the explanation of the College's part in the test, Mr. Burlin produced the peat pulp and the College papermaking machine and attendants did the rest of the work. A bleached paper was produced and handed around to the practical men to examine. It was regarded as a paper of which the market could make good use and one or two sellers said they could freely dispose of a number of tons of it without delay. The only fault to be found with the paper was the appearance of dark specks in it, but Mr. Burlin said these could be eliminated by using a sieve!

English Peat Versus Irish Peat.

Mr. Burlin exhibited to the company specimens of the peat he used and also showed the peat reduced to pulp. He said that the specimens he had just used came from the Fens Bank, on the borders of Shropshire and Cheshire, in England, and was not at all the best for pulp. Irish peat was infinitely better because of the superiority of its fibre. His aim was to produce a substitute for wood pulp used in the making of newsprint. In this connection he claimed that his invention, if practically applied on a sufficiently large scale, would prove of enormous national importance in view of the great scarcity and ever-increasing demand for wood pulp.

Past Experiments a Failure.

Commenting on previous tests by other scientists, Mr. Burlin explained that attempts had been made before to produce a satisfactory pulp, but the mistake had been made of destroying the fibre instead of preserving the fibre and its properties. His process, he said, was so simple that large quantities of pulp could be produced without any moving machinery. Provided with the necessary apparatus, he could turn out within a month at least 50 tons of unbleached pulp, and within another month 50 tons of bleached pulp in addition. He added that from the tough roots extracted from the peat a trade in brushes could be developed and that a London firm had already offered to pay £12 aton for the liquid extracted from the peat.

Peat Pulp Can Help Wood Pulp.

Mr. T. Cheetham Brooks expressed a hope that sufficient financial help would be forthcoming to enable the process to be applied in England instead of allowing foreigners outside the Empire to take advantage of it. In view of the great shortage and high price of wood pulp, the invention would be of value even if it permitted the manufacture of nothing but of brown paper, for the demand on wood pulp for that purpose would be relieved. It had already been demonstrated that wall-papers, paper board, and a host of other things could be produced from peat pulp; and any maker of newsprint must admit that even if he could get not just the quality he wanted fro mthe peat pulp it would be very valuable if the result could be obtained, say, by mixing 50 per cent of peat pulp with an equal quantity of wood pulp.

To handle the invention adequately it is estimated that about £250,000 will be required and if that sum can be raised it is anticipated that in 18 mouths Mr. Burlin's invention of reducing peat to pulp will pay capitalists back the money. Of course, I do not know whether this £250,000 would include the purchase of rights to cut peat. In Ireland, peat being the staple fuel, there might be a difficulty in securing those rights; if they could be obtained there is half a century's pulp from peat for the paper mills.

The whole success of the invention now depends on the support of the capitalist.

PULP CO. CHANGES NAME.

The Western Pulp and Lumber Trading Company, Ltd., of Vancouver, B. C., announces that its name has been changed and that hereafter the business of the company will be carried on under the name of the Canadian Commercial Company, Limited.

Financing Industrials Easier

B. K. S. in the Journal of Commerce.

The feeling of the financial community in regard to the outlook for 1920 in Canada has become much more confident in the weeks just past. The chief factor in the change is the knowledge that there will be no government loan during the year. This means that the year's accretion's of wealth will be available for the needs of ordinary current business, and that much necessary financing for industry and commerce will be possible which could not have been carried out if another half billion, or even half of that amount, had been abstracted from the funds of private capital for governmental purposes.

The summer should see the banks greatly relieved of their present burden of loans and strengthened in cash resources. A good deal of bank money has had to be used during the last two or three years for the carrying on of business operations which ought to have been financed by bond or stock issues, and the withdrawal of the Government from the money market will make possible the selling of large amounts of such securities and the cutting down of bank loans out of their proceeds. The promoters of the British Empire steel merger appear also to have abandoned their idea of raising any large proportion of their new capital in this country, which is a further sentimental relief to the local money market, as a matter of twenty-five to fifty millions of dollars for a single industry is still a fairly large order in this Dominion.

Interests Rates High but Stocks will be Restored

The rate of interest or dividend which will have to be paid for new capital will undoubtedly be high; but if there had been a large Government loan the rate on private offerings might have become almost prohibitive. Most of the new securities will probably take the form of eight per cent preferred stocks, but in order that the industry may not be perpetually burdened with this rate of interest there will be provisions for the retirement of the stock at a substantial premium after a few years. The new issues when in the form of bonds will probably be almost entirely short-term, unless the market becomes clogged with that class of maturity and it becomes necessary to add ten or fifteen years to the life of the bond as an extra inducement, in which case the same retirement device may be adopted in order to limit the possible profit of the bondholder in case of a heavy drop in the rate of interest.

Money Will be More Available

It must be admitted that expectation of a substantial drop in the rate of interest after a period of three or four years seems not unreasonable. The shortage of capital is the result of an unprecedented consumption of that article by all the governments of the world. The process of government borrowing is drawing to an end everywhere. If the shortage of borrowing is accompanied by any serious effort to reduce government indebtedness, it will mean the handing back to private owners of vast sums of capital year after year for reinvestment in private enterprise; and these sums of capital will consist of funds compulsorily saved by the community out of its current income under the pressure of taxation. Some people maintain that this pressure of taxation will tend to diminish ordinary voluntary thrift, but there does not seem to be much danger of that catastrophe occurring in a country like Canada, possessing great natural resources and a keenly ambitious and intelligent population, or for that matter in the United States either, where the rate of interest for this continent will doubtless continue to be set.

Movement of English Capital to Canada

The rate of exchange will doubtless continue to be adverse to Canada in the United States as long as it is adverse to Great Britain, and this together with the unprecedented volume of tourist traffic from the Republic will tend to promote an ever-increasing flow of American capital in this direction. As soon as sterling becomes normal there will be a resumption, on a moderate scale at first, perhaps, but with ever-increasing pressure, of the movement of British funds to this country. This movement will be on new lines, differing from those on which British capital was brought to Canada before the war; for it will consist largely in investment in the senior securities of our industrial concerns, accompanied probably by a moderate amount of participation in their control and management, whereas in past years British capital has sought investment chiefly in public and public-utility bonds. Thus, great as the requirements of Canadian development for new capital will be, there seems to be a good prospect of their being met with an adequate supply and the difference between the rate of interest demanded for corresponding classes of investment in Canada and the United States ought to be materially less after the war than it was before.

GAS MASKS IN PULP AND PAPER MILLS.

Gas masks of a nose-breathing type with canisters containing special chemicals are used in the digester house of the U. S. Forest Products Laboratory to give protection against sulphur dioxide. These masks enable the operator to make repairs under conditions otherwise unbearable and soon pay for themselves in time saved. Masks of this type are reported by the Bureau of Mines to hold up against a 5 per cent. concentration of sulphur dioxide for about 15 minutes. When it is realized that 5 parts of sulphur dioxide to one million parts of air can readily be detected, and that at a concentration of 150 parts of sulphur dioxide to one million parts of air the air becomes unbreathable, some idea can be gained of the life of a canister even under adverse mill conditions.



In addition to their use in the sulphite mill, these masks are of great assistance in the bleach room, where they are worn continuously during the mixing of the bleach liquor. Aside from monetary considerations, the increased comfort and safety of the workmen is sufficient argument in favor of the addition of gas masks to the regular mill equipment.

The picture of courtesy Racquette River Paper Co.

MOON HEADS SYRACUSE FORESTRY SCHOOL.

Syracuse, N.Y.—Franklin Moon has been elected Dean of the New York State College of Forestry at Syracuse by the Board of Trustees, the election to be immediately effective. By this action of the Trustees one of the earliest members of the College of Forestry faculty becomes Dean of the College, for Dean Moon became Professor of Forest Engineering in 1912, a few months after the college was founded.

Dean Moon was graduated from Amherst College in 1901 with degree of Bachelor of Arts. From 1902 to 1904 he was engaged in graduate study at Harvard and was for several years in business life in New York City before he decided to take up forestry, and in 1909 secured the degree of Master of Forestry at Yale. During 1908 and 1909 he was engaged in forest reconnaissance in Connecticut and for the Federal Forest Service in Kentucky. For the next two years forester for the New York State Forest, Fish and Game Commission under Commissioner Whipple, having charge of the Highlands of the Hudson Forest Reservation, the nucleus of what is now the Palisades Interstate Park, the world's greatest park. Prior to coming to Syracuse, Dean Moon investigated forest conditions and forestry practice in France, Germany and Switzerland. He has written two noteworthy forestry books, one a text-book for forestry students and the other a forestry book for boys. He is one of the Executive Committee of the New York State Forestry Association, which has its headquarters in Syracuse.

MANUFACTURE OF PAPER PULP FROM PAPYRUS IN SOUTH AFRICA.

(Vice-Consul Charles J. Piscar, Cape Town, March 15, 1920.)

Arrangements for the manufacture of paper pulp from papyrus grass in Zululand are now in progress. A Norwegian company (Walmer Papyrus Pulp Co.) has secured a concession over several hundred square miles from which to reap all reeds and papyrus grass, which are considered to be excellent raw materials for manufacture of paper pulp. The company is capitalized at £160,000 ($779,000). A factory capable of turning out 6,000 tons of pulp a year is now being erected at Umfolosi. Most of the machinery and equipment was obtained in the United States.

The company intends at first only to manufacture paper pulp. It is estimated that it will take fully 40,000 tons of raw material to produce the 6,000 tons of pulp, but as the growth of this grass is perennial, and the area where it is found is so extensive, an abundance of raw material is assured each year. The papyrus has to be cut by hand, in the same way as sugar cane. The grass is dried, passed through a cutting machine, and then pressed and limewashed. An abundance of cheap colored labor is available. Later on the company intends to extend its operations to the manufacture of paper, textiles, and bags.

PAPER CRISIS IN HOLLAND.

The Nieuwe Rotterdam Courant states that last week the Association of Newspaper Directors held a meeting in connection with the serious situation in the newspaper industry caused by the abnormal rise of paper prices.

At the meeting many paper men stated that the cost of paper for their journal exceeded the net selling price considerably. It was alleged that without taking drastic measures many papers would be ruined.

It was decided unanimously to take joint action in the matter probably resulting in a restriction on the paper consumption and an increase of rates for subscription and advertisements.

WHY NEWS PRINT PRICES MAY GO HIGHER.

The publishers of newsprint are probably as keenly interested in the rainfalls as any other class of people, says the Fourth Estate.

We particularly refer to the rainfall covering the areas that supply the rivers, and which, in turn, through their hydraulic development are creating day by day, the ground wood pulp which represents from 75 to 80 per cent. of the stock in all news print paper.

Those who carefully follow the rainfall records covering the pulp making belt, know the rivers are exceptionally low, and hence a very great shortage in ground wood at this time.

Under normal conditions, stocks of ground wood would be accumulated during high water period which would make up the deficiency during the low water period, but these normal conditions do not today maintain, for two principal reasons:

First. The mills, not normally news print mills, that have gone onto news print on account of the extreme high prices, are not equipped with their own ground wood plants, have, to a considerable extent, absorbed the spring surplus through the high prices they have been offering and paying.

In this connection it is well to bear in mind that the mills of this type have been turning out news print paper at the rate of, approximately, 125,000 to 150,000 tons per year, which enables the reader to appreciate what their invasion of the ground wood surplus means.

Second. Some of the largest operators in London in ground wood pulp and sulphite have been scouring the Canadian market to secure ground wood pulp for British mills, and if reports be true they have practically made a clean-up of the surplus stocks in Canada, which ordinarily would be drawn upon by American mills to cover the low water period.

In contemplating the probable conditions for the balance of this year, or at least until we have the big fall rains, publishers will better understand the basis on which **The Fourth Estate** has expressed the belief that the news print situation, before the year 1920 is finished, will probably be more acute than it has been at any prior time.

It is to be hoped that we shall not see a run-away market, but, instead, find publishers practicing still more rigid economy than even now is being practiced, and thereby meet this situation which seems probable. Or, we might all pray for rain in great abundance, and in that way, if our prayers are answered, take care of what we might otherwise be a trying situation.

COMBINED BAG AND ENVELOPE.

Bemis Bro. Bag Co. of St. Louis have devised a combined bag and envelope for use in making parcel post shipments. The envelope is of high grade bond paper. 3 5-8 x 6 3-4 inches, open at the end. The closed end is sewed to a stout cotton bag whose size varies from 1½ x 2 to about 8 x 15 inches. Separate spaces are provided for letter postage, parcel post postage and for the address, on the envelope.

DOMESTIC CHINA CLAY IN U.S.A.

Possibly the known deposits of china clay or kaolin the world over are more numerous and extensive than is generally realized. China clay in Cornwall and Devon is of paramount importance, both in quantity and quality, so far as present operations exist. China clay deposits are, however, being worked or are easily accessible to the miner in many parts of the world other than Devon and Cornwall.

Deposits have been located in Brazil, South Africa, Ceylon, and Russia; and kaolin is produced actively in Sweden, Denmark, France, Germany, Canada, and United States of America.

The china clay industry of England holds its own firstly because its quality for many purposes has not been beaten. Many causes, however, contribute towards the successful operations. Geographical position for easy and ready transit, and the supply of necessary ships, is all in favor of the English industry. It may be well though to observe what others are doing in kaolin production outside Devon and Cornwall. The United States of America accounts today for an approximate production of 300,000 tons. Among the States in which active operations are in progress may be mentioned Delaware, Virginia, North Carolina, South Carolina, Georgia, and Florida. The product naturally serves essentially the American market. The deposits are mainly sedementary, carried in geological ages great distances from granite formations and spread over enormous areas in varying depths of from forty to a hundred feet. The percentage of kaolin to impurities is extraordinarily high. This has the effect of rendering "washing," even hydraulically, practically impossible. The clay has to be broken out mechanically, and sometimes blasting is resorted to. In solid form the material is conveyed to the surface of a pit and transferred to breakers and blungers. From here it then goes through an inferior adaptation of the English system of water washing and mica drag refinement to settling pits. It is then passed through filter presses and conveyed to rather temporary looking sheds and laid on racks. These sheds are fitted with a multitude of small bore pipes passing under the racks and conveying the exhaust steam from engine boilers. The final product is then frequently packed in large bags made of a strong paper and loaded into rail cars or wagons of about 40 tons capacity.

The clay is certainly free from an excess of moisture but is usually of an unkind, dry nature, lacking that fatty fineness of the English product. Although the Devon and Cornwall clays have preference, the American consumer has been driven to use unwillingly the domestic clays in larger and larger quantities during the unsettled and limited conditions of shipping. As these conditions improve, so presumably will the American consumer revert to English clays with which to hold his own in the world's competition of his paper, pottery and other manufacturers. It is, however, essential for the Englishman to give careful attention to quality, fineness, moisture, and cost of production. —China Clay Trade Review.

EDMONTON NEWSPAPER INCREASES PRICE.

The price of the Edmonton Morning or Evening Bulletin delivered by carrier is now 25 cents per week, instead of 15 cents as heretofore. The subscription rate by mail is increased from July 1 to $8 per year, and by carrier to $12 per year.

THE BELGO PAPER COMPANY LIMITED.

Among recent incorporations that will interest the paper industry is that of the Belgo Paper Company, Ltd., with head office in Montreal and capital stock of $20,000,000. This company will supersede the Belgo Canadian Pulp and Paper Company, Limited, which was established at Shawinigan Falls on the St. Maurice River eighteen years ago. The company has grown from a two story building with 24 eighteen inch grinders, thirteen wet machines and two drying machines with a production of eighty tons of dry groundwood per day to an extensive plant producing 177 tons of ground wood, 90 tons of sulphite, 206 tons of newsprint and employing about 1200 men. The company is now erecting an extension and installing four magazine grinders which will increase the capacity of the ground wood mill by eighty tons. The additional tonnage will eventually be converted into paper when two additional paper mills are installed.

TUCK GOES TO DAYTON.

Mr. L. S. Tuck, a member of the Technical Section of the Canadian Pulp and Paper Association has migrated from Kenogami, Quebec, where for some years he has been engineer for the firm of Price Brothers and Company, Limited, to Dayton, Ohio. His new connection is with the Management, Engineering and Development Company which is at present engaged in a number of engineering and constructing projects for pulp and paper mills. This company handled the large proposition recently carried out in connection with the extension of the Espanola plant of the Spanish River Pulp and Paper Mills Ltd. One of the features of this extension is a machine room roof of gypsum blocks for which the roof trusses were designed by the Management, Engineering and Development Company. This type of roof is not only entirely free from corrosion but is an excellent nonconductor of heat, is light in weight and suitable reinforcement can be laid for nine foot spans. Because of its composition it does not require painting to give a fine ceiling to the machine room and needs only to be protected above from weathering and damage by chipping.

BIG POSTAL LOSS ON NEWSPAPERS.

Last week in Ottawa the amendments to the Postal Act, Senator Proudfoot urged that the parcel post rates be increased, but the newspaper postal rates remain as they are. He claimed the parcel post service was costing the country millions, and was benefitting the mail order houses at the expense of the country merchant. It was also demoralizing the mail service, and was drawing the wealth of the country to the large centres. The proposed measures would tax newspapers for the benefit of the mail order houses. Parcel post rates should be at least equal express rates.

Hon. Pierre Blondin replied that the parcel post system more than paid its way, and the newspaper postage rate caused a loss of over five million dollars annually. The parcel post system had been introduced to reduce the cost of living. To protect local merchants the zone system was established. The immense deficit in the Post Office Department was due to the rural mail routes. These were now being conducted at a large loss, and no new routes were being organized, nor would be, until better conditions prevailed. This loss was due to the immense increase in the cost of rural carriers' wages, etc.

Technical Section

REVIEW OF RECENT LITERATURE.

B-2. Successful tree growing on prairies. Norman Ross. Can. For. J. March, 1920, p. 102. See also p. 119.—C.L.

B-2. A guide to Ontario tree planters. F. S. Newman, Ontario Forestry Branch Can. For. J., February, 1920, page 77.—C.L.

B-2. Working for posterity. Allan Donnell. Can. For. J., October, 1919, p. 391. Forest planting by Laurentide Company, Riordon Pulp and Paper Company, Abitibi Power and Paper Co., etc.—C.L.

B-2. Rate of growth of British Columbia's forests. R. D. Craig. Pacific Coast Lumberman, April, 1920, p. 47. Answers an editorial in the March issue, bearing on the statement that the growth of new timber is five times the annual cut. There is sufficient forest land on which to grow about five times the amount annually cut but that the realization of this increment is contingent upon the protection of the young growth from fire.—C.L.

B-2. Reforestation now necessary. Ellwood Wilson. Can. For. J., October, 1919, p. 420. Cutting arranged to rotate over replanted areas; seaplanes for surveys and fire protection; plans of the Laurentide Company, Ltd.—C.L.

B-2. Big companies try out forestry methods. Can. For. J., October, 1919, p. 408. Forest research work of Laurentide Company, Quebec Forest Service, Bathurst Lumber Company, Commission of Conservation, New Brunswick Forest Service, Dominion Entomological Branch of Riordon Pulp and Paper Co.—C.L.

B-2. Wantonly wasting many growing forests. Frank I. Ritchie. Can. Lumberman & Woodworker, February, 1920, p. 55. Discusses articles on reforestation published in the Financial Post of September 27, 1919. Analyzes costs of forest planting; bogus settlers; prohibition of the exportation of pulpwood; better forest protection, closer utilization.—C.L.

B-3. Forest fires in Alberta. Can. Lumberman & Woodworker, February 15, 1920, p. 66. A summary of the situation in 1919.—C.L.

B-3. Fire protection on Dominion crown lands. D. R. Cameron. Can. For. J., October, 1919, p. 395.—C.L.

B-3. The airplane in forest patrol. Milton R. Klepper. Can. For. J., October, 1919, p. 415. See also p. 416.—C.L.

B-3. Aircraft and timberlands. Stuart Graham, Manager Aviation Department, St. Maurice Forest Protective Association. Can. For. J., November 1919, p. 435. See also pages 438 and 441. See also article by Mr. Graham in the January, 1920 issue at page 14. —C.L.

B-3. What starts the forest fires?. Can. For. J., October, 1919, p. 411. Dry weather and dry electrical storms given as the chief causes.—C.L.

B-3. Wind and fire damage to forests. Frank J. D. Barnjum, Can. For. J. March, 1920, p. 127. The damage caused by enemies of the forest is greater than the annual growth.—C.L.

B-3. Can lumbermen afford to burn debris? Can. For. J. February 1920, p. 83. Costs of slash disposal, as reported at the Montreal meeting of the Quebec Forest Productive Assn., and the annual meeting of the Canadian Society of Forest Engineers. See also p. 86.—C.L.

B-3. Protecting British Columbia's Forests. W. Turnbull, Pacific Coast Lumberman, February, 1920, p. 30. Discusses the forest fire situation in 1919. The season was one of exceptional hazard. Campaign of educational propaganda; enforcement of legislation; increased forest protection tax; portable forest fire pump; expenditures on forest protection.—C.L.

B-2. Abitibi Company prepares to handle its forest constructively. Can. For. J., Nov. 1919, p. 458. Appointment of H. G. Schanche as forester to the Company; forest planting program; fire protection; control of damage by insect and fungi; regulation of cutting methods.—C.L.

B-2. New Brunswick's timber regulations. Can. For. J., Nov. 1919, p. 459. Diameter limits, stump height, trimming allowance, size of tops; protection of young growth, etc. —C.L.

B-2. Quebec logging slash a great menace...Henry Sorgius. Can. For. J., Nov. 1919, p. 460. The presence of logging slash adds very greatly to the difficulty of preventing and controlling forest fires.—C.L.

B-2. Forest sample plots at Petawawa. Can. For. J., Nov. 1919, p. 469. Research work by the Dominion Forestry Branch on the Petawawa Military reservation, Ontario.—C.L.

B-2. Putting back a new forest. Ellwood Wilson, Can. For. J., Nov. 1919, p. 470. Discusses the problems relating to the conservation of eastern Canada forests; the hardwood problem; fire protecting forest planting. —C.L.

B-9. Canada's Timber—What she is doing with it. Can. Lumberman & Woodworker. March 15, 1920, p. 56. A summary of the report of the Committee on Forests, Commission of Conservation, prepared by Clyde Leavitt, Chief Forester, for presentation at the annual meeting of the Commission. Discusses the situation in each of the several provinces. Value of Canada's timber trade: elimination of waste in logging work of the Quebec Forest Protective Association: need for Provincial Forester in Nova Scotia; Tribute to Dr. B. E. Fernow; Survey of Ontario's forest resources; Slash burning; aerial patrol; spruce budworm, etc.—C.L.

..B-9. Plain statements on Canada's forests. Frank J. D. Barnjum. Can. For. J., January 1919, p. 27. A discussion of the limitations of the Nation's wood supply with a sugestion as to remedies. Campaign of education, increased fire protection, reforestation, slash burning, closer supervision of woods operations, and an embargo or export duty on raw material taken from fee lands; or the annual purchase of the fee land wood by a combination of all the Canadian mills.—C.L.

B-9. The forestry problem in Ontario. E. J. Zavitz. Provincial Forester. Can. For. J. March, 1920, p. 122. How the Province can take highest profits from 50 million acres of forest lands: need for demonstration forests; forest planting; woodlot forests in southern Ontario.—C.L.

B-9. Senate requests report on lumber industry. Amer. Lumberman, February, 28, 1920, p. 1. Resolution by Senator Capper of Kansas, directing the Secretary of Agriculture to report to the Senate the facts as to the depletion of timber, pulpwood and other forest resources in the United States; relation to high cost of materials, and to permanence of domestic industries.—C.L.

B-9. Canada's forests as a crop. Clyde Leavitt. Can. For. J. Oct. 1919, p. 387. Essential supplies for industries not maintained under present methods of woods management. Economic importance of Canada's forests; the problem of hardwood utilization in the mixed forests; cutting regulations; forest revenues of the eastern provinces.—C.L.

B-9. Forestry legislation in Canada during 1919. F. W. H. Jacombe. Can. For. J., January, 1920, p. 33. A resume of forestry legislation concerning Dominion and provincial forest lands in 1919.—C.L.

B-9. An "Insurance policy" on Canada's Great Paper Industry. Geo. Chahoon, President Laurentide Company, Ltd. Can. For. J., January, 1920, p. 34. Need of scientific system in operating woodlands; reforestation work of pulp and paper companies; forest research; proper management of forests.—C.L.

B-9. Fundamental common places in forestry. Dr. B. E. Fernow. Can. For. J., January, 1920, p. 36. Forestry is the growing of wood crops as a business. It requires a large amount of capital and a long time for its products to mature; requires large areas of non-agricultural soils; foregoing present revenue for the sake of future greater revenue. In general, forestry as a business can be successfully applied only or mainly by the community, municipality, or state, though large long-lived corporations, such as pulp and paper companies, may be an exception.—C.L.

B-9. America's big job ahead...Filibert Roth, Prof. of Forestry, Univ. of Michigan. Can. For. J., January 1920, p. 39. To secure timber it will be necessary to start at once a National forest policy.—C.L.

B-9. Sweden's scheme for growing forests. H. C. Wallin. Can. For. J., February 1920, p. 51.

B-9. Keeping Coast forests productive. Hon. T. D. Pattullo, Can. For. J., February 1920, p. 67. Fire prevention; estimate of supply; natural regeneration; insect damage; development of the pulp and paper industry; need for forest research; provincial revenue.—C.L.

B-9. Conditions in Prairie Province forests...H. C. Wallin, Dominion Forestry Branch. Can For. J., Feb. 1920, p. 75. A summary of reconnaissance surveys by the Forestry Branch in Manitoba, Saskatchewan and Alberta.—C.L.

PULP SCREENING PATENT.

Anton J. Haug, Nashua, N. H., assignor to Improved Paper Machinery Company, Nashua, N. H., a corporation of Maine. Filed Jan. 28, 1918. Serial No. 214,088. 13 Claims. (Cl. 92—35.) U. S. Patent, 1,319,705. Claim No. 1. In an apparatus for screening pulp, the combination with a tank, of a submerged screen drum, an inlet for feeding stock to the interior of the drum, said inlet being below the level of submergence, an outlet communicating with the tank for withdrawing the screened stock, whereby said stock advances progressively through said drum from the inlet toward the outlet, a tailings outlet for said drum, and means for vibrating the drum.

T. A. P. P. I. TO MEET AT SARATOGA.

On September 1 to 3, 1920, the Fall Meeting of the Technical Association of the Pulp and Paper Industry will take place at Saratoga Springs, N. Y., with headquarters at the Grand Union Hotel. The program gives assurance of a most interesting and instructive meeting.

The business session will open on Wednesday morning September 1, at 9.30 o'clock, in the Casino. Officers and committee reports will be presented, followed by papers on special subjects, an especially important one being on the Washing of Felts. In the evening members and guests will be entertained at dinner by the paper manufacturers of the Hudson River Valley and vicinity. The speakers thus far selected include Mr. C. R. McMillen, of the Union Bag and Paper Corporation, who will act as toastmaster; Mr. Phillip T. Dodge, of the International Paper Company, and Colonel C. H. L. Jones, of the Spanish River Pulp and Paper Mills, Limited.

Thursday, September 2, will be given up to mill visitations, followed by a steamboat excursion on Lake George in the evening. It has been arranged to pa ya visits of inspection during the day to the plants of the International Paper Company, Finch, Pruyn and Co., Union Bag and Paper Corporation, Standard Wall Paper Company and Sandy Hill Iron and Brass Works. Automobiles will be provided to convey the members to and from the places visited.

On Friday the members of the T.A.P.P.I. and their guests wil be taken to the works of the General Electric Company, at Schenectady, where the machinery and electrical apparatus used in pulp and paper mills will be shown in the making. The visitors will subsequently be the guests of the General Electric Company at luncheon. In the afternoon it is planned to visit the felt mills of F. C. Huyck and Sons and the Albany Felt Company.

T.A.P.P.I. asks the pulp and paper manufacturers who are represented by membership in the association to take a broad and generous view of this gathering of the technical men of the industry and arrange for a good attendance on the part of members connected with their mills, or of prospective members. The stated meetings of T.A.P.P.I. afford valuable opportunities for the discussion of common problems, new developments, methods and processes, and it is hoped that mill executives will appreciate the advantages to be derived from their technical advisers coming in personal contact with the engineers and chemists of other mills in the way made possible by the Fall Meeting of T.A.P.P.I. at Saratoga Springs, N. Y., Sept., 1—3, 1920.

Respectfully,
Thomas G. Keenan,
SECRETARY.

GAS MASKS FOR FOREST RANGERS.

Necessity taught the English and Americans the use of gas masks. Now these same accessories of war have been put to use in fighting attacks of the destroyer in nature.

At the Centennial Exposition in Portland, Me., last week, the S. D. Warren Company had a novel booth. An old-fashioned plant was shown, in which one girl dipped shuts on a hand mould, another dried them, while a boy printed them on an old Franklin press. It was very popular and instructive.

U. S. PAPER STOCKS ON HAND.

Stocks of all grades except newsprint, felts and building, and specialties, decreased during the month. Stocks of all grades reported by manufacturers at the end of May amounted to 182,543 tons, including the stocks at terminal and delivery points. In addition to these stocks, jobbers and publishers reported newsprint stocks and tonnage in transit aggregating 176,843 tons.

Comparing the stocks on hand at the domestic mills on May 31st, with their average daily production based upon the combined production for the years 1917, 1918 and 1919, the figures show that:

Newsprint paper mill stocks equal slightly more than 5 days' average output.

Book paper mill stocks equal slightly less than 8 days' average output.

Paper board mill stocks equal slightly less than 7 days' average output.

Wrapping paper mill stocks equal slightly more than 11 days' average output.

Bag Paper mill stocks equal slightly less than 6 days' average output.

Fine paper mill stocks equal slightly less than 26 days' average output.

Tissue paper mill stocks equal slightly less than 13 days' average output.

Hanging paper mill stocks equal slightly more than 3 days' average output.

Felts and building paper mill stocks equal slightly more than 11 days' average output.

Miscellaneous paper mill stocks equal slightly more than 23 days' average output.

Total paper mill stocks of all grades equal slightly more than 9 days' average output.

Imports and Exports.

The imports and exports of all grades of paper for April 1920 compared with April 1919, as shown by the records of the Department of Commerce were as follows:

	April 1920	April 1919	
Imports:	Value	Pounds	Value
Newsprint	$4,959,478	88,853,841	$3,060,366
Book Paper	71,260	11,432	6,393
Wrapping	48,309	246,974	20,578
Hanging	29,749	.....	16,673
All other grades*	148,030	.....	187,726
Exports:			
Newsprint	381,215	16,587,909	747,328
Book Paper	1,028,546	12,885,975	1,360,690
Paperboard	335,839	5,802,781	420,417
Wrapping	708,957	6,467,193	595,522
Bag	147,733	782,031	91,307
Fine	623,575	7,205,107	1,161,139
Tissue	315,458	697,246	124,222
Hanging	99,783	1,119,969	129,658
All other grades*	779,919	5,512,515	731,857
Total Imports	$5,256,826	.....	$3,291,736
Total Exports	4,421,025	57,060,726	5,362,640

*Includes some paper already converted into commercial articles.

Newsprint is the only grade of which the United States is a heavy importer. Practically all of this tonnage, the value of which amounted to $4,959,478 for April 1920 is imported from Canada. The value of the exports of newsprint in April 1920 amounted to $381,215 which is slightly less than 8 per cent. of the newsprint imported.

Book paper, Wrapping paper, Fine paper, Newsprint and Paperboard were the principal grades exported, the combined value amounting to $3,078,132 for April 1920.

The value of the total imports for all grades was almost 8 per cent. greater than for March 1920 and more than 59 per cent. greater than for April 1919. The value of the total exports for April 1920 was $941,615 less than the value of the exports for April 1919, and was $835,801 less than the value of the imports for April 1920.

In May 1919, 1,147 paper machines lost 197,550 hours. In May 1920, the time lost by 439 machines was only 61,823 hours, and of that, only 592 hours was due to lack of coal. Transportation troubles are not recorded separately, but would certainly be an important factor.—Feredal Trade Commission.

PRICES OF WALL PAPER IN THE U. S.

The following is a tabulation of the high, low and average prices paid by wall paper concerns for stock during May, 1920.

Grade				
No. 2 White Hanging:				
High	Low	Average	F. O. B.	
$10.00	$3.50	$4.97	Mill	Contract
12.00	6.00	9.05	Mill	Current
Special Papers:				
10.00	4.20	6.48	Mill	Contract
13.00	6.00	9.00	Mill	Current

Under special papers are included all papers not classified as No. 2 White Hanging Paper. In some instances the low price may be even less than for No. 2 White Hanging in view of the fact that some of the paper thus classified may be of a cheaper grade than No. 2.

The stocks of hanging paper in the paper mills decreased 176 tons during May 1920. The stocks of hanging paper held by the wall paper concerns increased 7,012 tons, and the special papers held by the wall paper concerns increased 580 tons. Stocks of finished will paper held by wall paper concerns decreased 2,159 tons. The total stocks of hanging paper, special papers and finished wall paper reported by the paper mills and the wall paper concerns on May 31 amounted to 19,001 tons. In addition to these stocks 1,350 tons of hanging and special papers were reported in transit.—Federal Trade Commission.

TIMBER ESTIMATING HOUSE OPENS WASHINGTON OFFICE.

Mr. James W. Sewall of Old Town, Maine, has made arrangements to open an office for the conduct of timber estimating and mapping work throughout the Southern and Central states. The well known Lumberman's Bureau, Munsey Building, Washington, D.C. will act as Mr. Sewall's representative for that territory.

This expansion has become necessary because of the continued increased demands for reliable work such as the Sewall organization accomplishes, and so that Southern and Central clients can get as good quick service as the Northern ones. Mr. Sewall will be in active personal touch with both offices.

PULP AND PAPER NEWS

To manufacture, export and deal in paper, pulp and pulpwood and all ingredients used in the manufacture of paper, H. G. Craig & Company, Limited, have been granted a charter by the Dominion Government. The headquarters of the company will be at Montreal, and the capital stock is fixed at $5,000. Montreal lawyers are named as the incorporators.

For the purpose of taking over the business of R. S. Hooper, publisher of Ottawa, the Photogelatine Engraving Company, Limited, has been organized, and has been granted a charter, the capital stock being $50,000. Among the incorporators are R. S. Hooper, publisher; A. W. Barker, printer; A. E. Corrigan, insurance manager, all of Ottawa.

The Ontario Engraving Company, Limited, has been formed at Hamilton and has secured a charter authorizing them to engage in engraving and publishing with a capital stock of $40,000. Among the incorporators are: C. R. McCullough and G. H. Curtiss, manufacturers, and W. C. Thompson, commercial traveller, of Hamilton.

The Fraser Company, Ltd., of Chatham, N.B., which recently secured the plant formerly owned by the Dominion Pulp Co. of New Brunswick, is making a number of changes, which, when completed, will put the plant in first class condition and will slightly increase the production. The changes include alterations in the boiler house, remodelling of the wood room and the installation of two additional American barking drums which have been bought within the past two weeks.

The Toronto office of the Canadian Barking Drum Co., reports the following sales through their Toronto and Chicago offices: The Hinckley Fibre Co., of Hinckley, N.Y.; A. E. Reid & Co., Bishop Falls, Newfoundland; Spanish River Pulp and Paper Mills, Ltd., Sturgeon Falls; Groveton Paper Co., Groveton, N.H.; Northern Paper Mills, Green Bay, Wis.; and two drums to the Fraser Co., Ltd., Chatham, N.B.

The Kennedy Carliner and Bag Company, Limited, an American firm which is establishing its manufacturing headquarters for Canada in Woodstock, Ont., is about ready to commence operations. The company has purchased the plant of William Stone, Limited, which has been undergoing extensive repairs. Linings and coverings for grain cars, paper bags, etc., will be manufactured.

Dropping from the skies into an unknown lake and wandering for five days in the woods about forty miles north of Webbwood, was the experience of the pilot and mechanic who were flying the new hydro-aeroplane being used by the Spanish River Pulp and Paper Mills, Ltd. The fliers ran out of gas, and had to land in an unknown region where they spent five days endeavoring to find their way back to civilization. They finally arrived at Sault Ste. Marie, little the worse for their experience.

Mr. John Mather, formerly sales manager of the Wayagamack Paper Co., and latterly with the Canadian Export Company at Montreal, has reached Vancouver, and taken over the management of sales of Pulp and Paper Co., Ltd.

A visitor to Toronto this week was Mr. J. J. G. Kerry, President of the Canada Paper Box Company, Limited, which has taken the place of the Canada Box Board Company, Ltd., and which has just been granted a federal charter, with an authorized capital of $5,000,000. Mr. Kerry stated that the head office of the company would be located in Toronto, but that nothing definite had as yet been arranged as to the location of the new box board mill to be erected either at Toronto or Frankfort. The company is putting up a ground wood plant at Frankfort, which, it is expected will be in operation in September. The building will be of concrete and will be equipped with four grinders and four wet machines. It is proposed to take out the small pulpwood plant at Frankfort and another machine will be added there, which will increase the capacity to 60 tons of box board. At the company's three plants the output is now 100 tons of box board. Further prospective expansion is being provided for in Montreal, where the company has purchased the McDougall property, adjoining the mill in that city. Mr. David F. Robertson, formerly of the Campbellford mill of the Northumberland Paper and Electric Co. is the general manager of the company.

The Fred. W. Halls Co., Ltd., paper dealers, Toronto, have purchased the Toronto Hat Company's building at 257 Adelaide Street, West for $80,000, which will be used by the purchasers as a warehouse.

Mr. Alex. Buntin, of Buntin Reid Company, Ltd., Toronto, has gone on a month's holiday trip to Murray Bay.

Mr. F. L. Ratcliffe, head of the Ratcliffe Paper Co., Ltd., has returned from a 2500-mile motor trip through the White Mountains, which trip he took following his attendance at the Rotary Convention at Atlantic City.

Mr. P. L. Colbert, manager of the Valleyfield Coated Paper Co., spent a few days in Toronto this week.

Lieut. Loren L. Brown, the newly appointed B.C. Lumber Commissioner for the East, has arrived in Toronto, and has opened an office at No. 1 Adelaide Street, East. Mr. Brown reports the outlook for the expansion of the pulp and paper industry in the West as being very bright.

Mr. George Erskine, Toronto representative of the George H. Mead Co., Dayton, Ohio, was in Montreal this week attending a meeting of the board section of the Canadian Pulp and Paper Association.

Mr. Charles H. Green of the Osborne Engineering Co., of Clevelend, was in Toronto this week enquiring into the prospects of opening an office in Toronto as a branch of his firm. A thorough investigation was made of the building prospects of the pulp plants in Ontario.

Some people, knowing themselves at fault, still make frantic efforts to shift the blame on others.

PROVINCIAL PAPER BUYS UP PORT ARTHUR.

Toronto July 11.—Port Arthur will be the scene of important developments in paper manufacture when the plans are completed of the Provincial Paper Mills, Limited, who have just acquired ownership of the Port Arthur Pulp and Paper Co., of which they had control for some time previously.

About $1,500,000 is involved in the transfer, and it is intended to expend about $2,500,000 in the erection of a paper mill. Preliminary work has been in progress for the past six months, but delay in the delivery of machinery, owing to the overcrowded condition of paper machinery factories, has made definite plans for completion impossible.

The plant, which occupies 140 acres in the city of Port Arthur, has turned out about $2,000,000 of sulphite annually, which has been sold in the United States, chiefly in Wisconsin and Minnesota.

It is now intended to complete the product into paper on this side, with a mill to turn out 40 tons a day. Later in the present year it is likely the Provincial Paper Mills will do some financing for the new plant, probably in the way of a bond issue, secured by the company's four properties, the other mills being at Georgetown, Thorold and Mille Roches.

MANUFACTURING COTTON HULL PULP.

Actual production has been started by the Stamsocott company, incorporated, at Hopewell, Va., manufacturers of paper pulp from second grade cotton and fibre from cotton hulls, obtained from oil mills.

Three large cotton oil companies are interested in the new project, and the source of raw material will be derived from oil mills, principally in the southeast.

J. W. Stull, president of the company, stated that production now is small, but that the company hopes in a short time to produce about 300 tons of the material daily, or about 2,500 car loads monthly, if the demands for the product warrant such an output.

The concern is now capitalized for $45,000, but they will shortly increase their capital to several millions of dollars. The plant, when it is completed, will embrace 101 acres in what is known as "B" operating area of the DuPont plant, and will have about 40 buildings.

About 1,000 men will be employed by the company, when it is producing as is hoped for, both white and colored. There will be three large digester buildings, and their powerplant will produce about 10,000 boiler horsepower. Various kinds of pulp will be made to be manufactured into several kinds of paper.

Besides Mr. Stull, other officers of the company are George W. Haskell, Vice-president, and L. F. Palmer, secretary and treasurer.

PULPWOOD $12 CORD.

Regina, Sask., July 6.—An offer for pulp wood at a price of $12 per cord f.o.b. cars, Fort Frances, has been received by the Bureau of Labor and Industries. An inquiry will now be instituted as to the freight rates, points of shipment and other features with a view to finding a market, if possible, for the great quantities of this wood being cleared from the settlers' holdings in the northern part of the Province. At present this wood is being destroyed and a market would prove a source of revenue for settlers during the years the land is being cleared and before a crop can be secured.

SODIUM SULPHATE IN SASKATCHEWAN.

A lake of solid glauber salts, which is one mile long and 1,000 yards across, and estimated to contain 2,000,000 tons of sodium sulphate has been discovered near Fusilier, Saskatchewan. A syndicate has been formed under the name of Soda Deposits, Ltd., for the purpose of exploiting this lake. There is a great demand for this mineral in the pulp manufacturing industry and there is no doubt of a ready market.

HIGHER STUMPAGE RATE IN N. B.

Frederickon, N. B., July 7.—On or before August 1st next, the stumpage rates for the following year for lumber cut upon the crown lands of New Brunswick must be fixed. Premier Foster this afternoon said he was not certain whether the stumpage question would be settled by the Government this week or would have to stand over until a special meeting. He said, however, that it was on the order paper. During the last session of the Legislature, it was intimated that an advance from $3.50, the present figure per thousand on spruce, up to $5 at least might be anticipated. It was also stated this morning that the Hydro-Electric Commission to carry on the development of the water powers of New Brunswick would be appointed during this meeting of the Cabinet.

FLEISHACKERS NOT BUYING WHALEN'S.

A special communication from the Vancouver office of the Pulp & Paper Magazine quotes a telegram from Wm. Pierce Johnson, president of the Crown-Willamette Paper Co., regarding an article recently published by the Vancouver "Sun." Mr. Johnson states emphatically that neither he, Mortimer Fleishacker, Herbert Fleishacker nor the Crown-Williamette Paper Co. own or hold any interest whatever in the Whalen Company or properties, and do not contemplate doing so.

Possibly someone else connected with the California company bought some Whalen stock and this may have formed the basis of the story in the "Sun."

J. F. Ellis, president of the Barber-Ellis Company, Toronto, and former president of the Canadian Paper Trade Association, who was one of the founders and until recently treasurer of the Canadian Manufacturers Association, which held its recent annual convention in Vancouver, has been signally honored by being elected a life member of the C.M.A.

Two of the employees of the Brompton Pulp and Paper Company at the Bromptonville plant, M. M. Gingras and M. F. Sinnott, were injured by being struck on the head. They were taken to the hospital at Sherbrooke.

During his stay in Eastern Canda, Mr. A. E. Bryan, Trade Commissioner to Japan, visited Bathurst, N.B. and made a careful inspection of the pulp and paper mill.

The consolidation is announced of Westinghouse, Church, Kerr & Co., Inc., and Dwight P. Robinson & Co., Inc., under the name of Dwight P. Robinson and Company, incorporated, engineers and constructors, with general offices at 125 East 46th Street, and downtown office at 61 Broadway, New York. The firm has branch offices in Chicago, Cleveland, Pittsburgh and Dallas.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, July 17.—The Canadian pulp and paper industry continues to expand in consonance with the general prosperity of the trade and rising securities on the stock markets. The latest pulp proposition about to take form is a good-sized mill to be erected by the Spruce Falls Pulp & Paper Co. (re-incorporated), of Bradford, Pa., at Kapuskasing, the scene of the former settlement for soldiers, and around which there has raged so much discussion in Ontario Government and returned soldier circles. Details of the proposition have not yet been announced, but Premier Drury stated this week, following the visit to him of a deputation that waited on him, that the mill to be established would be larger than was originally expected and that the Government would make a detailed statement as soon as arraangements are completed. This proposition, together with several that are under way for the Port Arthur district, the proposed straw paper mill in Saskatchewan and the proposed pulp mill at Kenora indicate that the middle west is about to undergo somewhat of a boom in pulp manufacture, which should ultimately have its effect upon the Canadian end of the industry. Whether these and similar propositions in the east, will be ready in time to share in the general prosperity that is marking the industry in Canada, is a matter for speculation, but the numerous pulp and paper enterprises that are being floated would indicate considerable faith in the permanency of the trade and its probable continued prosperity.

Pulp and Paper.

The scarcity of both chemical and mechanical pulp, the shortage of coal supplies and the high prices the mills have to pay for ingredients are reflected in still higher prices for some lines of paper which went into effect this week as noted below. The experience of one big mill, however, is that coal can be had, but at a very high figure, several cars having beeen offered during the week. Most mills, however, are experiencing difficulty in getting their supplies, and very few of the pulp mills have any of their product for anyone outside of their regular contract customers. Canadian mills can get the benefit of the high rate of exchange on Canadian money and when quotations for pulp sales are made they are in American funds, although some mills are making the practice of splitting the fifteen per cent exchange with their customers. Sales of groundwood pulp have been made this week at $145 a ton, plus American exchange, which means that the commodity is selling at from $150 to $165 a ton. News-grade sulphite is selling at $175 and bleached sulphite contracts are being made at from $190 to $200 in American funds. Sheet news is selling for as high as 14c in the open market and the representative of one big producer said that while they had made no contracts for sheets, the contract price, when arranged by them and their customers would be from 7¼c to 10c a pound. News rolls are being delivered under contract at prices up to 6c a pound. Kraft pulp is selling at from $140 to $160 a ton, and bleaching powder is being paid for by the pulp mills at the rate of 6c a pound.

Book Papers.

Generally speaking, the market for book papers remains firm with a slight falling off in the demand, but not enough to allow the mills to get caught up with their orders. Jobbers are still experiencing difficulty in getting adequate supplies and stocks are very low, with indications of higher prices to come. Prices quoted by the most conservative mills are only a partial guide to what is being paid by some houses. One mill, which claims to be selling cheaper than most of the manufacturers, quotes No. 1 S.C. book at 16c; No. 2 at 15c and No. 3 at 14¾c, with half a cent less for machine finish. No. 1 coated is selling at 17c and No. 2 at 16c with colored at 18c a pound. Sulphite bonds are quoted at 17½c, while the cheapest writing papers bring 15c per pound. Canadian dealers in imported American cover papers were notified this week of a withdrawal of all price lists by United States paper houses and invoices being received now show a substantial increase in prices over those prevailing in the past few weeks. These prices apply to the higher grades of cover stock which are brought in from across the border. Imported board stock also shows a slight advance and it seems to be the consensus of opinion among the dealers in book papers that lines for which they are paying 16c a pound now, will cost 20c within about a month's time, an increase that is liable to come owing to the high prices prevailing for pulp and other ingredients and increased cost of manufacturing generally.

Kraft Paper.

The situation in regard to kraft paper has not eased up any and the big demand for the product keeps up, with last week's quotation unchanged. The difficulty in getting supplies of this grade is not ascribed so much to the shortage of raw material which characterizes other lines, as to lessened production in other countries and the greater use of kraft which is far more widely used than formerly. There has also been a widespread and successful effort to educate the consuming public to the value of kraft, which, although higher in prices, is really cheaper as a wrapping paper by reason of its strength and durability. There is a tremendous demand for this variety of paper and the Wayagamack people, who turn out this line alone, say that they are booked for a considerable period ahead. The price for kraft paper remains at 12c with 12½c for No. 1 manila.

Paper Bags.

Paper bags underwent another advance this week, the old gross price list having been advanced about fifty per cent and with the following discounts prevailing under the new list: Manila 35, 10 and 5 per cent; kraft, 50 and 5 per cent, and white confectionery, 20, and 20 per cent. The new discounts represent an advance of about twenty-five per cent on the prices immediately preceding and are for carload shipments.

Wrapping Papers.

Wrapping paper prices remain unchanged and supplies are hard to get and the jobber who lands a carload even occasionally considers himself lucky. Several of the firms are refusing to book any more orders and one jobber said that it would require receipts of four cars a week for some time to come in order to get caught up with arrearages of orders.

Toilet Papers.

The week saw another advance in toilet papers, the old list price being boosted by about fifty per cent. The discount is advanced to fifteen per cent off the list price from thirty-three and a third per cent, the price being about the same. The discounts on carload lots now run 33 1-3, 20 and 10 per cent, the former discounts being 15, 20 and 10 per cent. There is a big demand for all classes of toilets and tissues and both commodities are hard to get. Manufacturers are experiencing great difficulty in getting raw materials, and the cost of manufacture continues to rise. The increased output by the Interlake Tissue Mills, Ltd., which has put up a new mill and is installing a new machine, has not yet commenced, but another month or six weeks should see the new equipment in operation.

Rag and Paper Stocks.

Rag and paper stock dealers report a slight falling off in the demand, especially in news and mixed papers, although the prices have been affected but little as yet—probably not more than one to two dollars a ton. Roofing stock is considerably easier, and there is not the keen demand for it as formerly, although it is reported that some of the mills are quietly buying considerable quantities. Some of it has been bought for 3¼c a pound, but dealers are reported to be getting a slightly lower price than that at the present time.

NEW YORK MARKETS.

The railroad tie-up, which at first, was thought to be a temporary affair, now assumes ominous proportions. Since the beginning of the difficult movement of freight, quite a time has elapsed and no perceptible improvement has made itself manifest. While, from some quarters, a sight betterment of the situation is reported, most people in the trade continue to complain about the absolutely inadequate transportation facilities locally. It appears that freight is coming through from distant points and that longer hauls are a little better than they were. Though embargoes have been lifted in many cases local hauls are still unsatisfactory. There continues to be a deplorable shortage of box cars; and paper mills find it difficult to get raw materials for manufacture, as well as to ship their finished product.

It is hinted that, due to the coal shortage, many mills are falling behind in fuel supplies, and that if this situation keeps up some of them may, temporarily have to cease operations.

Throughout the market paper prices generally display a firm tone, with the exception of roofing rags, for which practically no demand exists; in fact no one seems to want them, which consequently has caused them to decline in value. Expectations for a good business, however, for the fall season are expressed on all sides.

Business on spot newsprint is very quiet and the market is reported to be in a weak state. As a general rule the small out of town publishers continue to refrain from buying in the open market. They believe that prices will recede to the extent of three or four cents a pound and express their faith in this belief by not making any purchase, except for immediate needs.

In view of the car shortage, scarcity of raw materials etc., jobers, however, do not see how a decline in the price of newsprint is possible. Large quantities of spot supplies are not obtainable for the main reason that apathy on the part if buyers has caused the jobbers to persue a cautious policy, rather than to accumulate large stocks which do not seem to move so readily.

Sheet news continues active. A good demand prevails, and prices are quoted about 13.50 to 14 cents. The larger mills are backed up with orders on contract and are making every effort to fill them and to get the paper to the consumers.

The fine paper market remains firm. Jobbers seem to place orders for immediate requirements at prevailing prices without much hesitation, but they do not display alacrity in making purchases for stock accumulation. The usual shipping drawback greatly hinder such a course even if it were contemplated.

Newspapers and magazines consume so much pulp that it is difficult to obtain large tonnages for fine papers and this has helped to maintain their price.

Conditions in the book paper market are about the same. The demand appears to be larger this week than ever and the supply is insufficient to meet the present requirements. The supplies of the local jobber are short and the market is too active to allow any great accumulation. A firm tone is shown in this market with no price changes reported.

Tissue prices have not changed during the interval. The market remains firm. From some quarters it is said that most offerings are taken up, while a fair demand is reported. Jobbers' stocks are said to be low, although most of their purchasing is made against immediate requirements. A slight let-up is expected in August, but optimistic views are expressed for a good fall business.

The demand for paper boards continues good while the supply in the local market does not seem sufficient for requirements. Freight congestion and poor coal shipments are serious draw backs to business in this field. The price of binders' board has eased off during the past week, but otherwise the market shows a firm tone.

Practically no increased tendency to speculate exists in the coarse paper market, even though it displays a decided firmness. The demand seems brisk for local supplies, which are low. Big buyers hesitate to commit themselves very far ahead, although the general tone of the market indicates higher prices. A very good fall business is anticipated, however, in most quarters.

GROUND WOOD—A scarcity of spot ground wood is generally reported and when immediate goods are offered rather high prices are asked. Very high prices such as $140 to $150 for dry pulp are the exception and not the rule. When a mill needs ground wood these prices may be paid, but quotations around $130 to $140 are regarded as nearer acceptable by consumers when they are making regular purchases. The supply of this kind of pulp is curtailed somewhat in the United States due to the fact that the dry season now prevails, and many mills that were turning out large



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quantities are forced to close down for a time, while the users of this output are forced to go elsewhere for their requirements.

CHEMICAL PULP—The chemical pulp market remains very firm, and in some quarters, higher prices are said to be coming. Some mills are experiencing great difficulty in getting sufficient amounts of coal, which might necessitate a temporary shut-down if this situation fails to ease up shortly.

Kraft has eased up slightly, for it seems that most mills have quantities on hand to last them for a while, and have even turned down offerings around 7 cents. BLEACHED SULPHITE—Bleached sulphite is extremely difficult to obtain, and while some small lots are available at high prices, it is said that large tonnages for spot goods could easily be sold for several cents above the quoted prices. Very large quantities of foreign pulp are not being imported, while most of the stuff coming over seems to be against contracts. As a big buying factor in the Scandinavian market, England looms up very large.

OLD RAGS—A period of dullness is reported in the rag market. Most buyers display positive indifference to offerings. The yards of many plants are filled with carloads of this material which come at one time, is the general explanation for this plate of affairs. At the request of some consuming mills, the dealers are even holding up further shipments bought some time ago. For roofing rags, buyers cannot be found. In a short time, it is thought prices will be firmer. Abroad, rags continue firm, but in the domestic market, trading is rather slow.

OLD ROPE—The market continues very inactive. Buyers are comparatively scarce, and prices are rather weak.

WASTE PAPER—Most grades of waste paper are in fair demand. Due to a weakness in mixed papers, prices have eased off, but otherwise quotations remain firm.

TWINES—Twine enjoys a good demand, while the supply is said to be short. The jute crop gives indications of being short again this year, so no immediate relief is expected. Firm prices continue.

KELLOGG WENT WEST.

R. S. Kellogg, secretary of the Newsprint Service Bureau is out on the Pacific coast visiting newsprint mills in the coast states and British Columbia. Here's hoping he has as good a time as the editor did. He can't do better. Mr. Kellogg expects to return the middle of August.

WILL ALSO MAKE HYDRAULIC MACHINERY.

About four months ago the Dominion Bridge Company, Limited, announced the organization of their subsidiary Company to take over the manufacture of paper making machinery. This Company was to be known as the Dominion Engineering and Machinery Company, Limited. An investigation of the possibilities of the new plant has revealed the admirable position it is in to manufacture hydraulic as well as paper machinery. With this extension of output in view, the Dominion Engineering and Machinery Company has been re-organized and from now on will be known as the Dominion Engineering Works, Limited.

Arrangements have been made by the new Company with the William Cramp & Sons Ship and Engine Building Company, of Philadelphia, (the I. P. Morris Department) for the exclusive use in Canada and the British Empire of its designs for water turbines and other hydraulic machinery. New equipment has been purchased and is being installed in the shops at Lachine, Quebec, which will make possible the manufacture of the largest turbines and paper machines.

The various paper mill specialties formerly made by the Paper Machinery Department of the Dominion Bridge Company, Limited, and by the Dominion Engineering & Machinery Company, Limited, will henceforth be manufactured by Dominion Engineering Works, Limited.

PAPER GOES FAST BY CANAL.

Albany, N. Y.—Two cargoes of newsprint reached New York last week from Three Rivers, Que., making the state canal journey of 452 miles in less than six days. Under ordinary conditions the shipment would take from seven to nine days by rail, but with the present traffic congestion, a transit period of six weeks might be expected.

WOODWARD SAYS PULP WOOD MENACES NAVIGATION.

C. C. Woodward, American consul at Campbellton, N.B., has sent a report to the Department of Commerce stating that drifting pulp wood in the St. Lawrence River and gulf has become a menace to navigation. The location is near Flat Point on the northern coast of Nova Scotia and well inside the gulf.

It is reported that owing to the breaking of booms at Murray, C.B., pulp wood valued at half a million dollars was swept out to sea from the North River, and it is presumed to be the pulp wood reported drifting in the mouth of the St. Lawrence.

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Pulp and Paper Magazine of Canada

ROUMANIAN PAPER REQUIREMENTS.

(Note.—The following group of trade inquiries emanate from the chief paper users of Roumania. This kingdom is turning to Canada in search of new buying markets to replace her former European sources of supply, and a complete re-stock must take place before her paper-using industries can resume their peace status. A considerable series of articles upon Roumanian trade prospects is appearing in the "Weekly Bulletin," from L. D. Wilgress, Canadian Trade Commissioner at Bucharest.)

1265. **Paper.**—A newspaper in Roumania desires to receive samples and quotations from Canadian firms in a position to export newsprint paper.

1266. **Paper.**—A newspaper in Roumania desires to receive samples and quotations from Canadian firms in a position to export newsprint paper.

1267. **Paper.**—A newspaper is Roumania desires to receive samples and quotations from Canadian firms in a position to export newsprint paper as well as any other kind of book paper.

1268. **Paper.**—A book printing firm in Roumania desire to receive samples and quotations from Canadian firms in a position to export newsprint as well as any kind of cheap and fine paper.

1269. **Paper.**—A printing firm in Roumania desire to receive samples and quotations from Canadian firms in a position to export all kinds of paper in general.

1270 **Paper.**—A printing firm in Roumania desire to receive samples and quotations from Canadian firms in a position to export all kinds of paper.

1271 **Paper.**—A firm in Roumania for sale of books and stationery in general desire to receive samples and quotations from Canadian firms in a position to export all kinds of paper.

1272. **Paper.**—A firm in Roumania for printing and sale of books and stationery in general desire to receive samples and quotations from Canadian firms in a position to export all kinds of paper.

1273 **Paper.**—A firm in Roumania desire to receive quotations and other particulars from Canadian firms in a position to export all kinds of paper in general.

Mr. Marshall, the new manager of the Pulp and Chemical Department of Messrs. Ralph. Darven & Pearce, of London, has now returned from his business journey to Scandinavia. As the result of an agreement arrived at with a prominent Swedish firm controlling several pulp mills, Messrs. Ralph, Darwen & Pearce will in future be in a favorable position to supply various brands of pulp.

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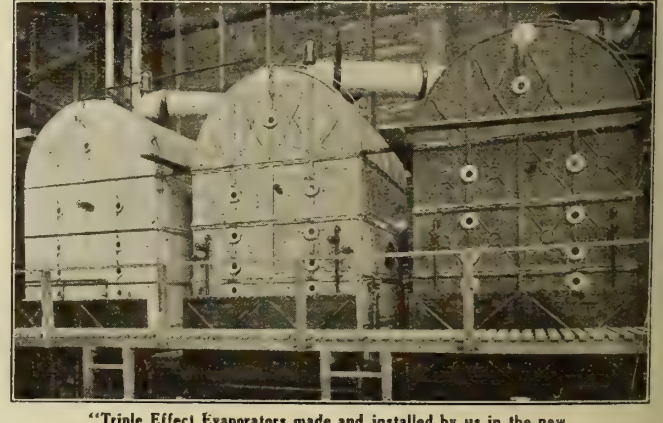
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que., July 29, 1920. No. 31

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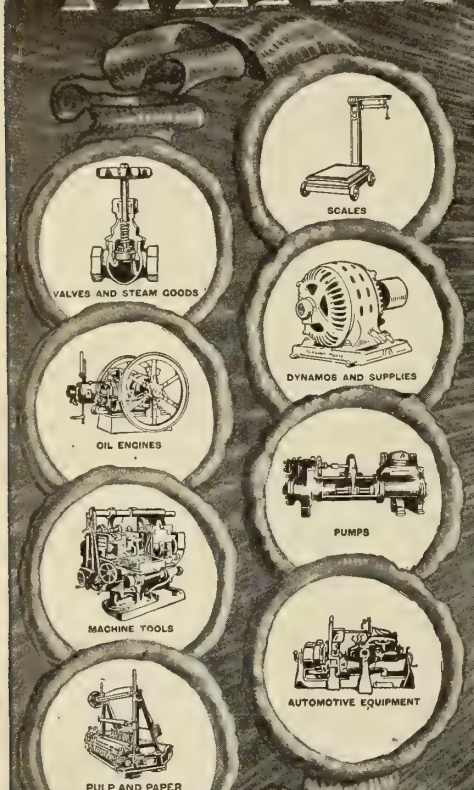
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EDITORIAL

DISTINGUISHED VISITORS.

Canada is honored just now by the presence of many delegates to the Imperial Press Association. They are all welcome and we wish there were more. By a curious coincidence, the Imperial Forestry Conference was held this month in London—the growers of pulpwood in England and the users of paper in Canada! Scripture says the eye is not filled with seeing, but there will be some saturated retinas if our honored guests see all they look at in Canada.

The Pulp and Paper Magazine is particularly glad that the journalists of the Empire have chosen the Dominion for their meeting place. Some of them will some day want Canadian paper and they will now have a chance to meet a number of paper makers in a way that will bring friendship before business connections. Surely an ideal beginning.

We wish them all fair weather and a happy and profitable visit and conference.

TIME HE QUIT.

It seems that there is in the United States a propaganda of deliberate misrepresentation of facts regarding the relation of the publishers of that country and the forests of Canada. Speeches and newspaper articles, even contributions to the English press, endeavor to create the impression that the purpose and effect of the terms of lease of Crown timber lands is to starve the American paper mill, kill the pulp industry and eventually make the American publisher eat out of Jack Canuck's hand. The gentleman responsible for most of this misinformation is still talking, spreading dissension and stirring up ill feeling between two countries who have been at peace for a hundred and six years. It is time he quit. We are convinced that his premise is false and his deductions are inaccurate.

How can anyone dare to state that the restriction on the use of Crown land wood is the cause of paper shortage in the United States when the Federal Trade Commission finds American mills consistently producing from 15 to 20 per cent. more paper each month than the average for the past three years? It is absolutely ridiculous to say that manufacturing Crown land wood into pulp or paper before it is exported has the slightest influence on the amount of paper available to the American publisher. The intelligent, independent thinking, see-for-yourself publishers know this and are not to be fooled into any delusion that they will get more or cheaper paper by shouting for the provinces to let down the bars. They know that every mill is pulling out its deckles and pushing up its speed—and in most cases, its quality also—and that when the demand is less and the costs of production are less, there will be more and cheaper paper.

This ranting is not reliable, but it must be taken seriously. It starts with some true statements and then twists or mis-applies the meaning. It quotes Canadian foresters as to what could be produced by proper methods when the ranter knows well that only the smallest beginning of elementary forestry is practised here. This, of course, is done in the interest of a paper company, not of the publishers. That they would not fare any better if all wood went freely to the States is indicated by the fact that Canadian prices have been consistently less than American, as shown by reports of the Federal Trade Commission. Perhaps, where real forestry methods are in force, and the annual growth (net) will warrant it, a change in regulations may be made.

American mills now get annually from Canada about one sixth of the pulpwood consumed, besides the thousands of tons of pulp which they convert. A considerable amount of the wood imported is poplar, which can be grown in a few years almost in the back yard of the mill, since every state has great areas of waste land suitable for forest growth only.

It is quite useless to point out what might be done on the other side. It is hard enough to get things started on this side, but they **are** started. The great fact is, that the American publisher has never been short of a reasonable supply of paper and the forest policy of the eastern provinces is not a danger to him nor to the American paper mill. We venture to predict that this very policy, which is now so thoroughly berated across the line, will one day prove the salvation of the press and paper industry alike on this continent. To make such an outcome most effective and beneficial, we need the co-operation and mutual understanding which is now the plea of President Sisson of the American Pulp and Paper Association. Canadian paper makers don't want to tell their neighbors "where to get off," but to show them how to get on.

The steady and healthy growth of the Technical Section is evidence of the ever increasing appreciation of the value of co-operation and of the place of the technical men in the industry.

THE JUDGE COMES BACK.

Some time ago we missed "C.F.M."—not Canadian Fairbanks-Morse,, but Judge Charles F. Moore—from the editorial pages of Paper. But our good friend and occasional opponent, editorially, has come back, and "C.F.M." is reincarnate (or something like that) in the columns of the United States Paper Maker as contributing editor. Welcome home, Judge!

Among the remarks he makes in commenting on the candidates for the Presidency of the United States, Judge Moore makes the following statement which can well be taken to heart by every reader of the Pulp and Paper Magazine:

"To my mind there is entirely too much talk about rights and privileges. Labor is demanding its right, and capital asserts its privileges with no less vehemence. Men are so busy exercising privileges and clamoring for rights that they have little time to commune with duties and obligations; yet it is the observance of the latter to which we must look for our continued well-being. This country is preserved not as much by the men who make our laws as it is by the men who keep them. Four years hence, I still believe, the United States will be the best country in the world, no matter whether the next President is Harding or Cox. Neither one of them is big enough to save the country, if the people determine to go wrong; nor big enough to destroy it, if the people stand for the right.

If I am right in this view, there is no need to waste the summer dreading the future and begging for votes. Every man should have his political conviction and should not hesitate to express it at the polls and elsewhere; but the best way to support the constitution, and the family, is to keep on doing an honest day's work every twenty-four hours. There is little to be gained discussing politics on the street corner or in the barber shop."

ALL OUR OWN.

In talking with a reader of the Pulp and Paper Magazine the other day, he referred to a certain editorial and told me (the editor) he could tell me who wrote it. It was evident he thought it had been contributed, and was very confident as to the author. The man he mentioned had not even furnished me an idea. I told him the story of the editorial and he gave me some interesting information.

The point here is, that some other readers may be under the misapprehension that editorials are occasionally contributed. There have been, perhaps half a dozen in the last three and a half years, outside of those written by Mr. Ross during my western trip two years ago. All of them, I believe were duly credited.

Let it be understood, then, that, unless they be indicated as contributions, the editorial pages are the work of the editor, and whether or not they have merit, they are written with the purpose of encouraging righteousness and progress.

The United States exported 180 tons of newsprint to Canada during May 1920. My goodness!

WHO DID IT?

There is such a thing as being too accommodating. For instance, we loaned the 1913 bound volume of the Pulp and Paper Magazine to a friend in need and he hasn't returned it. Please, Mr. Friend, come across with that book. Some one else wants some information from it.

THE BABY.

The editor's friends frequently ask how the baby is getting on. Well, he was a year old on Monday, is 30 inches tall or long (that is approximate, as he wriggles), weighs 20½ pounds and is happy all the time. We didn't dare print his picture again (see Dec. 25, 1919) for fear of arousing too much jealousy. His favorite plaything is a piece of paper!

COBWEBS.

We had a very interesting visit the other day at the Dominion Engineering Works. There will be more about it soon.

We have just had another good laugh at the blotters sent out by Canadian Steel Foundries, Ltd., giving the "bear" facts of the business of getting good castings.

That is a beautiful picture of Niagara Falls, on the cover of "The Beater" for July, in which the Valley Iron Works describe their new Niagara beater. We are very sorry to learn, from the same issue, that Mr. A. I. Peterson, vice-president of the company has died.

We noticed a picture in the Literary Digest of Governor Cox's house. It this is in any way typical of the poverty of American publishers, there is little for them to complain of.

Read the letter on another page which Secretary Baker has sent to members of the American Pulp and Paper Association on The Coal Situation. It applies also to Canada.

The Canadian Forestry Journal published the statement that dry weather is a prominent cause of forest fires. That is not so. It is merely a condition that aids the starting and spreading of the fire. You can't have a fire without a light. The real cause of the fire is the agent that brings a spark to inflammable material. The agent is usually a human being and is a criminal who should be severely punished.

NEW THEORY OF COLOR.

In Ireland a mixture of green and orange makes black and blue. —Greenville (S.C.)Piedmont.

Increased Production Through Correct Lubrication

By A. H. Pritchard.

Lubrication of paper mills is a factor in their operation that is seldom given the consideration it should have. When it is brought to the attention of mill owners and superintendents, they are inclined to regard it as being of minor importance. The reason for this is that the item—cost of lubricants—is a small figure when compared with the cost of raw material, labor, maintenance and coal. Yet the quality of lubricants and their method of application have a large influence on all of these large cost items. Each will be taken up later in this article, and we will show what influence correct lubrication has on each item mentioned.

Correct lubrication is necessarily based on two factors—quality and suitability of the lubricant, and the method of its application. In dealing with lubricants it is important to go back to their origin or the crude oil. Correct selection of the crude is absolutely essential if we desire to manufacture a real lubricating oil.

In addition to the correct selection of crude, correct methods of manufacture must be carried out in order to secure the very best results in terms of high quality of lubricants. During the process of manufacture, certain physical characteristics of oil are used to check up their uniformity. These are known as gravity, pour test, flash point, fire point, viscosity and color. Some purchasers of lubricating oil have endeavored to use these analyses to cover a standardization of lubricants for their use. For some time past, users of lubricants have discovered that this is not a true basis on which to base the selection of lubricating oil.

Lubrication engineers have been working on the problems of selection of lubricants for a number of years, and one of the results of their work is that they have definitely determined the fact that the correct selection of lubricants must be based on an analysis of operating conditions plus a full knowledge of the lubricant to be used. This full knowledge of lubricants to be used should be based as heretofore stated, on the kind of crude used, the methods applied in its manufacture, and a full knowledge based on field experience with these oils in use under a group of operating conditions. Following is a table used for the selection of oil for the lubrication of steam cylinders, which has proven its worth and stood without a change for over two years.

Gargoyle Oils for Lubricating Steam Cylinders.

Operating Conditions (Steam under 100 lbs. press. and less is considered "wet".)	Kind of Oil
Large stroke—over 24"	T.S.W.Q.
Small stroke—24" or less	T.S.N.V.X.
High speed—over 125 R.P.M.	T.S.W.Q.V.R.X.
Slow speed—125 R.P.M.	T.S.W.Q.V.R.X.
Load—over 75 per cent.	T.S.N.W.V.R.
Load—75 to 25 per cent.	W.Q.V.R.X.
Load—under 25 per cent.	Q.R.
Steam Press.—over 100 lbs. sq. in.	T.S.N.W.Q.V.X.
Steam Press.—100 lbs. or less	N.V.R.X.
Wet steam—under all conditions	N.W.V.R.X.
Dry steam and superheated to 600 deg. F. (Total heat)	S.Q.
Superheated steam over 600 deg. F.	T.Q.

Note:—Where operating conditions demand, a straight mineral oil of the same grade should be recommended.

T.=cylinder oil extra Hecla; S.=cylinder oil 600 W; N.=Valve oil; W.=Valve oil; Q.=Valve oil Navy; V, R, and X.=Cylinder oil Rarus.

The outstanding factors of stroke, speed, load, steam pressure and steam conditions are the five vital factors which must be known by the lubrication engineer before he can make a correct selection. "Stroke" is an influence in that it is a guide toward the volume or steam used per stroke. "Speed" is a factor in that it indicates how frequently a charge of steam is taken by the engine. "Load" is a factor from the standpoint of both volume and velocity flow.

An engine working on a high load will require a different oil in that the velocity of steam will better atomize an oil of certain characteristics than if this velocity is lower; with a lower velocity it is therefore necessary to recommend a different oil to meet these requirements of atomization. Atomization is positively necessary if we desire correct cylinder lubrication.

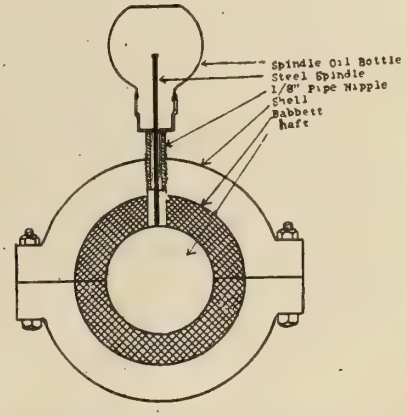


Fig. 1.
Sectional View of Bottle Oiling Device

Steam pressure is used as an indication of steam temperature only. It is obvious that steam temperature could not be used, and "steam pressure" is another way of expressing it. The quality of steam, whether wet, dry or super-heated, needs little discussion, in that a wet steam requires an oil of different characteristics from dry steam, or either of these conditions would require an oil of different characteristics than such as would be necessary to meet the superheated steam conditions.

This table is based on the practical field experience of a large number of lubrication engineers. The factors, size, speed, load, steam pressure and quality, are the selection of these men in conference, based on world-wide experience, as well as the application of the brands of oil given to meet a group of operating conditions.

The selection of oils for lubrication of bearings has been worked out in the same way. The factors and the application of the brands of oil have been handled in just the same way as the cylinder oil problem.

Gargoyle Bearing Oil Recommendations.

Oiling Systems	Kind of Oil.
1. Oil bath	A.E.K.
2. Circulation (no water)	A.C.E.T.
" (water)	A.J.K.
3. Splash (no water)	C.E.H.J.
" (water)	A.J.K.
4. Ring oiled (except turbines)	A.C.D.E.J.
(turbines)	A.C.K.
5. Drop feed (no water)	A.B.C.E.J.
(water)	B.H.J.
6. Hand oiled	A.B.C.E.

Bearing Factors.	
1. Size: Under 1" diameter	C.D.E.
from 1" to 3" diameter	A.B.C.D.E.H.J.K.
over 3" diameter	A.B.C.D.E.H.J.K.
2. Speed: under 50 R.P.M.	A.B.C.
from 50—300 R.P.M.	A.B.C.D.E.H.J.K.
over 300 R.P.M.	AB.C.D.E.H.J.K.
3. Pressure—moderate	A.B.C.D.E.H.J.K.
Excess—weight, pull, thrust	A.B.C.D.E.H.J.K.
4. Temperature—moderate	A.B.C.D.E.H.J.K.
Temperature over 140 deg. F.,— deficient radiation	A.B.C.D.E.H.J.
Temperature over 140 deg. F.,— induced heat	A.C.H.

Note:—Correct oil is determined by the analysis of the service conditions in terms of the oiling system in use and of the four bearing factors.

A.=Steam cylinder oil; B.=No. 1 marine engine oil; C.=Extra engine oil; D.=Rochester engine oil; E.=Arctic machine oil; H.=Extra heavy D.T.E. oil; J.=Heavy D.T.E. oil; K.=D.T.E. oil.

There are six methods of application, each of which has an influence on the selection of lubricants for bearing. Size, speed, pressure and temperature are also factors which should be known by a lubrication engineer if he is to make a correct recommendation.

Correct Application Important.

Next in importance to the recommendation of the correct oil is the correct application of the lubricant. Many devices have been invented and are on the market which aim to feed oil in the right amount. Those which eliminate the human factor or those which do not depend upon the judgment of the operator as to the amount necessary are best adapted to feed the correct oil. In the case of steam cylinder oil this rate of feed is controlled by the operator, but the correct design of lubricator is operated in unison with the speed of the engine, and in the case of a variable speed engine, such as is used to drive the paper machine, the rate of feed is increased dependent on the speed of the engine.

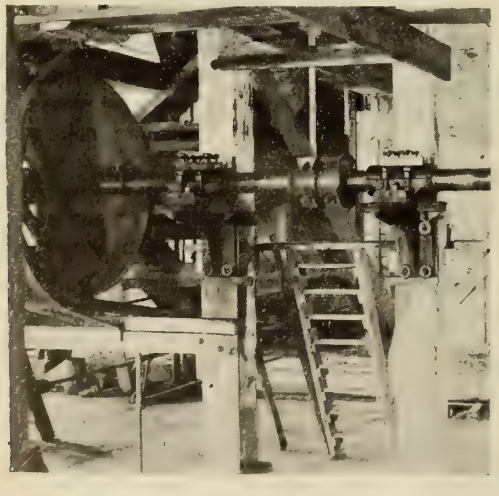


Fig. 2.

A device well adapted to feed oil to bearings in a paper mill is shown in Fig. 1. It contains 4 ounces of oil and under ordinary operating conditions this amount of oil will last three or four weeks. This device is entirely automatic. It feeds just a certain amount of oil, and in cases of larger bearings more oilers can be applied. It does not feed when the shaft is idle. It always puts the oil where it will do its work, i.e., between the shaft and the bearing. It eliminates waste and drippage from the bearings. In the case of large bearings where many oilers are used they afford many points of distribution.

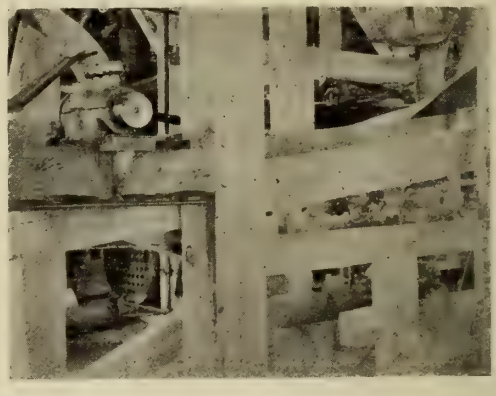


Fig. 3.

In Fig. 2 is shown a 6" shaft in a wood room. The pulley shown is the main drive from the engine. Shaft speed is 290 R.P.M. Bearings are plain, 18" long. On the bearings shown there are four oilers supplied, while on the bearing beside main drive pulley five oilers are required. Previous to the installation of these devices these bearings were oiled by hand every fifteen minutes with an ordinary grade of machine oil, requiring 60 to 70 ounces of oil per day.

A high grade oil correctly selected was used later in the devices as pictured, and 52 ounces of oil were sufficient for 26 days' run.

Fig. 3 shows other installations of these devices in a wood room. The number of oilers is determined by conditions of service. These devices have real value in themselves but the lubrication engineer must have a full knowledge of the kind of oil suitable to both bearing and the oiler. Moreover, because of the very small amount of oil fed it must necessarily be of high quality and correctly manufactured.

The real result of correct lubrication of machinery is the saving in power. Lubrication is not often associated with friction losses, yet that is our reason for applying a lubricant. If it is true that some ordinary oil will save a ton of coal, it is equally true that the same quantity of high grade oil will save more. As a practical result of suggestions based on many years' experience with high grade lubricants, it has been proved possible in many paper mills, by the use of such oils, to reduce the total expenditure of power by from 5 to 18 per cent. In a few rare cases it ran higher, showing a maximum saving of 34 per cent.

Following is a summary of a test which ran through a period of twenty-six days. This machine room was motor driven, and accurate hourly readings were made by the plant officials during the lapse of time with one oil in use. Another oil was installed and after two weeks' service a record of twenty-six days' run was also kept by the plant officials. In this case no change was made in the method of application, however, application being the same with both oils.

	B. Oil	A. Oil	Difference
Average K.W.H. per lb. of paper	.0512	.0434	.0078
Average production per K.W.H. in lbs.	19.5	23.0	3.5
Average feet per K. W. input	165.0	174.0	9.0
Average K.W.H. demand per hour	164.9	148.1	16.8
Average production per hour in lbs.	3321.0	3413.0	192.0
Total hours of operation B Oil	.485		
Total hours of operation A. Oil	.494		
Net K.W.H. saving for test period	7.299		
Net K.W.H. saving per year	120.9		
Net saving in power demand of	10.2p.c.		

Many other tests have shown a greater percentage of savings than the above. Tests have also been run where the machine room is driven by a steam engine, in which case many indicator cards are taken and an average of these has shown a reduction in I.H.P. to do the same amount of work.

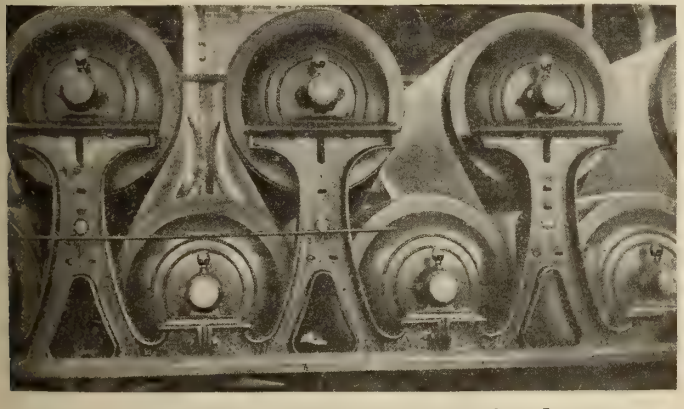


Fig. 4. Bottle oilers on paper machine dryers.

Reducing Broke at Calenders.

As an illustration of what correct lubrication means we can cite increased production which always follows such when put into effect on calender stacks. When stacks are hand oiled they speed up when oil is applied, thereby causing a certain amount of "broke". This is especially true on mills making news print and other light papers. Speed increase is due to better bearing lubrication which immediately follows hand application. When the correct high quality oil is applied in the proper manner the speed of the stack will be constant, thereby avoiding the large percentage of "broke" and because of greater ease in bearings, requiring less power for driving the rolls.

Earlier in this article we mentioned the fact that lubrication was linked with the larger cost items of raw material, labor, maintenance and coal. The cost of raw material is reduced in the instance of eliminating a large percentage of "broke" in the correct lubrication of stacks. While all such "broke" is returned and used again, there is some loss of raw material; however, there is surely an increase in production, which is a big item in itself.

The cost of labor is less when oiling is eliminated and automatic devices used. The entire cost of oiling cannot be eliminated but a part of the time of such labor can be applied to other departments.

With less friction in the bearings there is naturally a smaller amount of maintenance necessary, which is an additional item on labor cost. Belt cost, Babbitt cost and renewal of machinery are among the cost items that are reduced as well as labor cost.

The power saving, which follows the correct oil, rightly applied, has an effect on the saving of steam, which in turn has an effect on the amount of coal necessary to make such steam.

In this day of conservation it behooves all of us to conserve our resources from whatever angle, and correct lubrication offers us an opportunity to add to the dwindling profits of the employer. He cannot increase his selling price without a large amount of criticism, neither can he reduce his cost of labor by reduction of wages, without a considerable hazard. He can, however, make the savings mentioned in this article without any difficulty from either sources.

Note: Tables 1 and 2 are based on charts copyrighted by the Vacuum Oil Co.—Ed.

PULP AND PAPER ASSOCIATION WELCOMES EMPIRE'S FOURTH ESTATE.

Readers of the Pulp and Paper Magazine will be interested in the radiogram received from Viscount Burnham, Chairman of Imperial Press Conference, in reply to the message sent by the Canadian Pulp and Paper Association on July 21st. The message reads:

"Lord Burnham, on board steamer Victorian, en route to Halifax. The Canadian Pulp and Paper Association extends cordial greetings to Imperial Press Conference delegates en route to Canada, with best wishes for a successful meeting and mutually beneficial results from their first hand study of the Dominion."

Lord Burnham's reply is as follows:

"Canadian Pulp and Paper Association via radio from S.S. Victorian, via Cape Race. Delegates to Imperial Press Conference sincerely thank you for your cordial greetings and join with you in hoping that good results will ensue."

A later telegram has been received by the Association, extending an invitation for a short address before the Imperial Press Conference in Ottawa on the morning of August 5th, on the Pulp and Paper Situation. Mr. Dawe, Secretary of the Association, will present the address.

NEW STEAMSHIP LINE FOR SOUTH AMERICA.

The Pacific Motor Ships Corporation is inaugurating regular sailings from Vancouver, Seattle, and San Francisco for South America. Mr Edmund Cunningham will be Vancouver agent. The S.S. Boolyalla will be the first ship Southbound leaving about August 1st.

FEDERAL TRADE COMMISSION'S NEWSPRINT REPORT.

The following is a review of the reports received from domestic manufacturers of newsprint paper, from jobbers buying and selling newsprint paper and from leading publishers using newsprint paper in the United States. Import and export statistics of the Department of Commerce are also included in the review.

The average or normal production of total print and standard news based upon the total combined production for the years 1917, 1918, and 1919, amounted to 112,736 tons of total print and 101,400 tons of standard news for a period corresponding to June. The actual production amounted to 130,380 tons of total print in June 1920 and 119,061 tons of standard news, an increase in the case of total print of less than 16 per cent. over the average for the three-year period and an increase in the case of standard news of more than 17 per cent. over the average.

The increase in the production of newsprint in June 1920 over June 1919 amounted to more than 13 per cent. for total print and less than 18 per cent. for standard news.

Mill stocks of both total print and standard news increased during June, 1920.

The imports of newsprint for May 1920 were 6,209 tons more than for May 1919. The exports for May 1920 were 12,336 tons less than for May 1919.

The imports of mechanically ground wood pulp for May 1920 were 2,357 tons more than for May 1919. The exports of domestic wood pulp were 1,968 tons less than for May 1919.

The imports of Chemical Wood Pulp (total) for May 1920 were 26,090 tons, greater than for May 1919.

Stocks of rolls in the hands of jobbers at the end of June were 558 tons more than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 184 tons more at the end of June than at the beginning of the month. The net increase in the total stocks of newsprint in the hands of jobbers at the end of June amounted to 742 tons.

Commitments to sell roll news were 2,797 tons greater than commitments to buy. Commitments to sell sheets news were 1,434 tons less than commitments to buy. Total commitments to sell both rolls and sheets were 1,363 tons greater than commitments to buy.

Publishers' stock increased 17,964 tons during the month. The average daily tonnage used during June was slightly more than the average used in May.

Publishers' stocks and transit tonnage on June 30, represented slightly less than 40 days' supply at the existing rate of consumption.

Sixty-nine publishing concerns held about 56 per cent. of the tonnage on hand at the end of the month.

The domestic consumption of standard news by metropolitan dailies using between one-half and three-fourths of a million tons annually increased more than 2 per cent. for June, 1920, over June, 1919, and more than 19 per cent. for June, 1920 over June 1918.

Loss of Production.

Reports from 91 mills operating 195 machines running full or partial time on newsprint paper showed the following loss of time during the month of June, 1920. Lack of labor, 209 hours; repairs, 945 hours; other reasons, 200 hours; lack of coal and pulp, 73 hours.

The total time the machines were idle was 576 hours less than that shown in May. No lost time due to lack of orders was reported by newsprint mills.

Average Prices Paid by Publishers.

The weighted average price of contract deliveries from domestic mills to publishers during June, 1920, f.o.b. mill in carload lots for standard news in rolls, was $4,752 per 100 pounds. This weighted average is based upon June deliveries of approximately 51,000 tons on contract involving a total tonnage of approximately one-half million tons of undelivered paper manufactured in the United States.

The weighted average contract price based on deliveries from Canadian mills of more than 25,000 tons of standard roll news in carload lots, f.o.b. mill in June, 1920, was $4,550 per 100 pounds. This weighted average is based upon the June deliveries on contracts involving more than 200,000 tons of undelivered Canadian paper. The greater number of these are short-term contracts covering the year 1920.

The weighted average market price for June of standard roll news in carload lots f.o.b. mill based upon domestic purchases totaling more than 7,000 tons was $10,072 per 100 pounds. This weighted average may be less than market quotations on account of contract relations, quantity discounts, mill stock ownership and other causes unknown to the Commission.

VETERAN EXPLORER PRAISES AIRPLANE

The recent successful 850 miles exploration flight over the northern woods in the Laurentide hydroplane has been the basis of much comment in lumbering circles, particularly the ease and speed with which it is possible to obtain information in regard to timber that it often requires months of arduous travel on foot and by canoe to secure.

The trip was made the week before last, and Lt. Stuart Graham, the pilot, had besides his mechanician, M. Kahre, Mr. M. C. Small, chief of the logging division, C. R. Townsend, aerial photographer, and Phillipe Charland, one of the explorers of the company.

A letter to Mr. Chahoon from Philippe Charland, one of the oldest and best known of the company's explorers, praises the airplane reconnaissance work very highly. It follows:

"Dear Mr. Chahoon:

"It is impossible for me to have flown over the 1,800 sq. miles I had already prospected partly on foot without telling you my impressions as to that modern method of exploration. We flew very low, from two to 3,000 feet high, and I was able to recognize all the lakes and rivers that I had already visited by canoe. We spent eight weeks of heavy work for that exploration, and our aerial flight allowed us to check all that work in less than three hours in a manner that proved to be most effective.

"May I express to you, Mr. Chahoon, my gratitude for having sent the airplane here to verify my work.

(Signed) PHILIPPE CHARLAND."

LAURENTIDE'S NEW GRINDER UNIT ON WAY.

The first of the new grinder units which will soon be installed in the groundwood department, as well as the motor to drive it, is expected to arrive shortly, as word has been received that it is on the way. Two additional units will be shipped in the near future, and when the three are in operating order, the potential capacity of the groundwood department will be increased to an output of about 40 tons daily.

The Coal Situation

Under this title, Hugh P. Baker, secretary-treasurer of the American Paper and Pulp Association, sent out last week the bulletin which follows. The recent priority order which gives preference to coal trains and also places Canada in the same class as the American North-West, should greatly relieve the situation and should be appreciated by Canadians with sincere gratitude:

To the Members of the Association—

The present chaotic coal situation seems to be due to the following causes:

1—Unequal distribution of coal.

2—Inadequate transportation facilities.

3—Panicky attitude of people toward the coal situation.

The unequal distribution of present supplies of coal has caused a real shortage in New England and the North-West. In other sections of the country the shortage is local rather than general. That this shortage is the result of unequal distribution is evidenced by the fact that a serious effort is being made by railroad executives and bituminous coal operators to bring about concerted action in getting cars to the mines in sufficient quantities. That is, the basis of the present difficult coal situation seems to be inadequate transportation facilities rather than actual shortage in coal.

Production of Coal Normal.

The production of coal for the first half of 1920 is only 0.3 of 1 per cent below the average production for the first half of each of the past 8 years. At no time during the last 7 full years have the production figures for the first 6 months equalled 50 per cent of the year's output of bituminous coal. According to the Geological Survey, the actual figures are as follows:

Year.	Tonnage 1st 6 Mos.	Per Cent.	Total Production.
1913.....	225,748	47,18	478,435
1915.....	193,175	43.64	442,622
1917.....	272,953	49,47	551,789
1919.....	213,537	46.62	458,063
1920.....	254,987	47,22	*540,000

* Estimated.

Ellery B. Gordon of the National Retail Coal Merchants' Association of Philadelphia, in a letter to your Secretary dated July 16th, says in part:

"I might say that in my opinion there is not an actual shortage of production of bituminous coal. There is a shortage as compared with the demand. . . . During a period of adjustment following a strike of the miners, and during a period when the railroads were under the most difficult handicap as regards labor, *prior* to the really serious attempt to improve transportation of coal, and during the period which in past years has always been one of sub-normal production as compared with the last half of the year, we have gotten out practically 50 per cent of our estimated requirements."

There has been a slow but constant upward curve in the production of bituminous coal since April. There seems to be a general tendency toward improvement in car service. Production is limited only by the supply of cars. From the production standpoint there is no reason for industries to be panicky over the coal situation.

The inadequate transportation facilities, rather than lack of production, are causing serious coal conditions. There is apparently an honest effort being made toward co-operative action between railroads and mines, and there has also been pressure by the Interstate Commerce Commission. This has resulted in maximum use of coal equipment, prompt unloading and rapid utilization of new storage facilities—if the industries co-operate effectively in these three factors in the situation, there must be increased production of coal. Although manufacturers of railroad equipment have received orders for 28,000 freight cars and 600 locomotives, the delivery of this equipment cannot be made in time to relieve the present situation.

Export of Coal not Responsible for Shortage.

There has been some effort to blame the present difficult coal situation onto the way in which coal has been exported. A careful analysis of this situation seems to show that the export of coal is having but little effect on the present situation, other than to increase the price. Foreign buyers and exporters are outbidding consumers in order to avoid excessive demurrage in securing cargo for their ships. This is probably a legitimate activity which in normal times would have but little influence on the regularity of the coal supply throughout the country.

A Coal Shortage Propaganda.

It would appear that there is a definite "shortage propaganda" being carried on throughout the country by the radical element, which is hoping thereby to bring about nationalization of coal mines and railroads. This propaganda, while not producing the results desired by those back of it, is causing unreasonable and unnecessary demand for coal by industries.

The U.S. Chamber of Commerce on the Coal Situation.

The U.S. Chamber of Commerce is keeping the Association in constant contact with developments at Washington. Below is quotation in part from telegram and letter from the Chamber, under date of July 14th:

From Telegram — "For many months National Chamber has followed coal situation closely. Have lost no opportunity to assist in meeting problems. Interstate Commerce Commission has now extended for thirty days its order respecting the use of coal cars and other measures about to be taken to expedite delivery coal to consignees."

From Letter—"The coal situation has had a very great deal of attention from us not only recently but over a long series of months. At the present time, as in recent months, we have not thought it advisable to issue alarmist statements, instead seeking to have the situation met adequately through such agencies as the Interstate Commerce Commission and the Car Service Commission of the American Railway Association, both of which have definite authority in the premises.

"As you know, considerable public attention is being given to proposals of different kinds which, even if accepted, would give little or no relief of the kind desired."

The Paper Industry and the Present Coal Shortage.

The paper industry may help itself, and other industries, in this situation:

1—By co-operating as effectively as possible in prompt unloading of cars, whether or no there is a penalty for failure to unload in a given period.

2—By more complete utilization of all car equipment through increasing tonnage carried by cars and in other ways.

3—By increasing facilities for storage of coal.

4—By giving moral support, at least, to the railroads in their efforts to give service required by industries. Let the railroads and the papers know your attitude.

5—By joining with other individuals and other industries in combatting radical propaganda through seeing that the public has the facts as to production of coal, the difficulties being experienced by the railroads, and the needs of the industry. Right publicity will go far towards heading off the spread of a panicky feeling, both as to the coal and the railroad situation. Lend your support to the activities of local organizations in this crisis. Associations of manufacturers, chambers of commerce, traffic organizations in different states are very active. Your personal efforts with them will count.

6—By keeping the Association informed as to *your* coal situation and the general condition in your community. A common knowledge of common difficulties dispels fear and creates confidence. It is the business of the Association to help in creating confidence —when there is reasonable ground for it.

Conditions would seem to indicate that there is no need for a panicky feeling as to the coal situation. There is need, however, for constant vigilance and aggressiveness. The situation will not solve itself. Militant co-operation between individuals and industries—with confidence as to the outcome—will keep wheels turning and coal on the way to the mills.

The Association is keeping in close touch with every source of information and authority in the coal situation.

WILSON WILL ADDRESS CONFERENCE.

The New England Forest Conference, to be held at New London, N.H., from August 24 to August 26, will discuss at its business sessions the present newsprint situation, the supply of pulpwood, the Underwood Resolution in the United States Senate, an effort to compel Canada to lift its so-called embargoes on the shipment of pulpwood to the United States, and Mr. Ellwood Wilson, in charge of the Laurentide Forestry Department, has been invited to present the Canadian attitude on the Underwood matter. The Conference is expected to be well attended in view of the extraordinary interests at present in the topics to be discussed.

The Spanish River Pulp and Paper Company, very generously have donated $100 toward the fund of the playground committee of the Local Council of Women, to be used for the supervision of the play of the children during the vacation at Campbell school, at Sault Ste. Marie.

The playground which is open free to children from all parts of the city, is rapidly becoming the mecca of boys and girls, from the wee tots up to the teen aged. In the neighborhood of 150 play there daily.

INSTALLED LAUNDRY EQUIPMENT

The Levi's, one of Toronto's leading rag and waste paper firms, has just completed the installation of a complete laundry equipment at their plant on John Street, Toronto, for the sterilizing of rags. The plant will be in operation next week, when wiping rags will be turned out for use in printing and other establishments where wiping rags are used. The firm recently installed a new baling machine which increased their baling capacity by about thirty per cent.

SEAMAN LEAVING F.P.L. FOR INDIA

The Forest Products Laboratories of Canada, 700 University Street, Montreal, will lose in August the services of Major L. N. Seaman, at present Chief of the Division of Timber Tests, who has accepted the post of Timber Testing Expert with the Forest Research Institute, Dehra Dun, United Provinces, India. This Institute, finding a property of 45 acres too small, has procured a new property of 1,300 acres and is erecting new buildings and has secured the services of Major Seaman to organize and take charge of the timber testing laboratory which is to form part of the new establishment.

L. N. Seaman studied engineering at Acadia University and the Nova Scotia Technical College obtaining degrees of M.A. and B.Sc. and is an associate member of the Engineering Institute of Canada. He entered the services of the Forest Products Laboratories of Canada in 1914 as Assistant Chief of the Division of Timber Tests and co-operated with Mr. R. W. Sterns, B.Sc., then Chief of the Division of Timber Tests, in the organization and in the inauguration of the first comprehensive work in testing native timbers to be undertaken in Canada. His work at the Laboratories was interrupted during the war by active military service as a Captain in the Canadian Artillery and later as a Major in the English Heavy Artillery.

After the war Major Seaman returned to his former post and was shortly promoted to be Chief of the Division of Timber Tests, succeeding Mr. Sterns who accepted a post with the Abitibi Power and Paper Company.

Up to the present time timber testing at these Laboratories has covered the mechanical and physical properties of ten species of Canadian timber, while two additional species have been tested at their Vancouver branch. In addition to this, special tests have been made of Nova Scotia mine timbers and of substitutes for black walnut as gun stocks.

The work of these Laboratories is of a very real value and importance to all the wood-using industries of the country and deserves the most hearty support and co-operation of all such industries.—M.H.

BELGO'S NEW SHIPPING SHED.

The work on the Belgo Paper Company's new shipping shed is proceeding with all speed. The work is in charge of Mr. N. Goodman, construction engineer. The shed is to be of brick on concrete foundations with Barrett specification roof supported on steel trusses. It will be 253 feet long by 72 feet wide covering an area of approximately 18,200 square feet. Double tracks run to the farther end of the shed, where there will be a yard for unloading material to the mill.

On the north end of the shed there will be an unloading platform 72 feet long by 19 feet wide. This platform will be entirely enclosed and with sliding floors along the track side. Part of the basement of the shed will house the wet machine and press room of the new ground wood mill.

The pressed or lapped ground wood will be carried by electrically operated trucks via elevator to the shipping floor. On the main floor of the shed rest room and lavatories will be provided for the men. Over the yard office space is provided for the staff of the order and shipping department. The shed is expected to be in operation by September 15.

A Brief Review of Foreign Trade Conditions

By W. C. POWERS, of W. C. Powers & Co., Ltd. London.

(Contributed to the United States Paper Maker)

The paper industry in Europe during the early part of 1919 shared the general slump in demand, and consequent shading of prices. This was partly due to the widespread theory that the world would speedily return to pre-war conditions, and also to the desire of most business concerns to liquidate their unusually heavy stocks of merchandise.

During the acute shipping difficulties, commencing in 1916, buyers in Great Britain and Continental Europe were forced to carry much heavier stocks than usual. Publishing concerns in England figured that they were not safe unless they had at least twelve months supply of paper; and as their imports were restricted they reduced consumption so as to preserve this ratio of reserve supply.

We saw the same condition to a modified extent in the United States and Canada, and most paper men will remember the slump in buying which set in in November, 1918, and lasted until June, 1919.

Restrictions on the import of paper into England were removed early in 1919, and the British paper manufacturer set up such a yell that the Government reimposed modified restrictions which provided that a consumer might obtain a certain percentage of his purchases from foreign sources. For printing papers this was fixed at 25 per cent. On September 1, 1919, all restrictions against imports were removed. This was done at the behest of the newspaper publishers with a view to widening their purchasing field.

The paper market, which had steadily dropped from the armistice to the end of June, 1919, and was comparatively dull during the months of July and August, commenced to show signs of stiffening in September. By November 1st it was realized that there was not enough paper to go round, and a buying wave swept over the consuming countries, which competed with each other for available supplies. Newsprint, which had dropped to the equivalent of five cents a pound, rose by sudden jumps to 11 cents a pound, and at present writing (June, 1920) it is holding firm at that price. Book papers which had dropped in June, 1919, to 10 cents a pound are now selling at 16 cents, and kraft paper, which was a drug in the market in May and June, 1919 (sales being made at 8½ cents), had reached the dizzy height of 19 cents by March, 1920. Kraft has now dropped to 14 cents. Coated papers had slumped to 15 cents in June, 1919, but are now selling at over 25 cents for the better grades.

The difficult situation created by the pronounced fall of sterling exchange in New York acted as a protective tariff to the English mills and a benefit to those countries whose currency was at a discount in London. This condition, together with the sharp rise in price in Canada and the United States, acted as a bar against the sale of Canadian and American papers. This, combined with the enormous increase in the demand in the United States and Canada, gave the American and Canadian mills an opportunity to market their full product at home, and they have not yet felt the need of European markets. It is hoped that the recent improvement in sterling will coincide with the availability of product and willingness to export it, so that Canada and the United States can regain the opportunity offered them during 1919.

The Swedish, Norwegian and Finnish mills have taken full advantage of the conditions which prevented Canada and American from supplying the European markets. These countries have shown a keen desire to "get all that the market will stand" in the way of price. The feeling of the paper consumers in Great Britain is that the situation has been aggravated unnecessarily and that they have been exploited to the utmost.

The troubles of the mills in England, France and Belgium are not over yet by any means, and they have a few difficulties in the way of coal, labor and vicious taxation, which our American mills have only felt in a modified degree. The task of rebuilding and extending existing plants is being tackled with "vim" and the present prosperity of the paper trade is enabling the British mills to look forward to competition in the future better equipped physically and financially for whatever may come. That they have already regained their pre-war standard of quality is a remarkable fact, and their intention to re-establish themselves in the export field is a feature which mills on the American side should bear in mind.

I have briefly touched on the situation in Great Britain, France, Belgium and Scandinavia. The only other big paper producers before the war were Germany and what is now Czecho-Slovakia. Latest reports from Germany show that manufacturing activities are about 50 per cent of pre-war figures. The mills in Bohemia and Silesia are doing a little better than this, but they are all suffering from lack of raw material, and particularly from the need of mill equipment, felts, canvas, copper, sulphur and other items.

German paper is commencing to figure in the Belgian and Dutch markets, and since January, 1920, considerable printing and coated papers have been imported into Great Britain. There is a general desire throughout the paper trade in England to avoid any paper business with Germany, and it is felt that whatever paper has been bought directly or indirectly from German sources has been to fill orders which could not be placed elsewhere in any circumstances. How long this will last is a question, but most of the paper men to whom I have talked say that they would rather shut up shop than handle German products.

A close study of the financial situation in Europe, leads one to think that we have seen the worst in France, that Italy still has political and financial troubles of the first magnitude ahead of her, but that Great Britain has turned the corner, and will steadily regain her position of world domination in financial matters.

It would be difficult to hazard a guess as to financial conditions in Austria and Germany; at any rate until they stop printing paper money with no value back of it.

In Sweden and Norway, the man in the street will explain to you that "They have all the money in the world, but no food," and certainly costs of living in Stockholm and Christiania discount anything we have heard of so far in Great Britain or the United States.

In conclusion, our Canadian and American mills can look forward to good business in Europe. Mistakes have been made in recent years, but they have

been made by other exporting countries as well, and the feeling of comradeship has taken a deeper hold than is realized on first impression. This should be turned to good account when American mills are again in a position to export.

RIORDON'S TO HARNESS THE GATINEAU.

Ottawa, July 10.—The development of the Gatineau Valley by the Riordon Company, Limited, which has absorbed the Gilmour and Hughson and W. C. Edwards Company interests, will proceed soon. Notices have been received by the residents of Chelsea Island, a few miles from Ottawa and opposite Chelsea, Que., to quit their cottages by September 30 next in view of the proposed developments. The cottages are rented from Gilmour and Hughson interests, and have been used for many years as summer residences.

It is stated that the big power dam at Chelsea, which will raise the level of the river over twenty feet, will be started this fall or early next spring. This dam will create an enormous amount of power, and will raise the river as far up as the Cascades, that is, seven miles. Chelsea Island will be several feet under water when the river is finally raised by the dam.

It is said, moreover, that the river will be so high, once the dam is built that the road up the Gatineau, and also the railway tracks in the neighborhood of Kirks Ferry, will be flooded by the new level, and will either have to be elevated or rebuilt on higher ground.

The seven miles of still river which this dam will create, will be used as a reservoir for pulp wood.

WHALEN PULP CO.'S SUCCESSFUL YEAR.

Predictions of a favorable showing by Whalen Pulp and Paper Mills, Ltd., were verified this week by the annual statement which outlined the financial standing of the company for the last fiscal year closing February 29, 1920. According to the report earnings have largely increased and consequently there is a favorable balance on hand as compared with a deficit at the close of the previous year's operations. The gross earnings for the last period were $4,619,734 as against $4,065,207 a year ago, and net earnings reached a total of $875,549 as against $112,315. After allowing for all expenses there is a profit for the past year of $323,757, compared with a deficit of $337,729 for the previous period.

The success attending the operations is due to efficient management and to the enormous demand for pulp and paper products throughout the year. The company, is, as a result, established upon a sounder basis, and indications point to a continuation of this development. Despite the improved position, however, there is as yet no talk of a resumption of dividends, the management adopting a conservative policy and preparing for a possible price decline in the future.

In his report, George Bury, president, points out that the expenses for the year amounted to 80 per cent. of earnings as compared with 97 per cent. of the previous year. The fact that a profit was shown was particularly gratifying, in view of the fact that one of the plants was closed for six weeks through lack of orders following the signing of the peace treaty. The directors, while optimistic as to the future, recognize mounting material and labor costs, and a conservative policy in connection with financing has been decided upon, looking to possible falling markets.

Capital appropriation were authorized during the year to a total of $560,000 for the purchase of equipment. At the end of February the Grand Trunk Pacific completed a car ferry barge, and railway cars are now ferried between Swanson Bay plant and Prince Rupert, thereby cheapening transportation.

The number of tons of pulp produced in 1918 stands at 47,962; in 1919, 41,814.

The fixed assets of the company, including land, buildings, etc., is valued at $16,117,317, as against $15,455,074 last year. Investments total $87,741, as compared with $20,000. Current assets have increased from $1,152,747 to $1,655,019, while deferred charges now stand at $560,753, as against $190,786. Current liabilities are down to $1,012,890 from $2,184,424 for the previous period. The surplus account stands at $355,440, as against $31,683 at the close of the previous year's operations.

Conserve Timber Revenues.

An innovation during the year was the installation of barkers, the management recognizing the need of conserving the timber resources of British Columbia. Barkers are used for small wood operations to supplement the larger operations. The following is a comparative table showing the distribution during the past two years:

	1920	1919
Gross earnings	$4,619,735	$4,065,207
Expenses	3,741,185	3,952,892
Net earnings	878,549	112,315
Taxes	56,181	60,104
Fixed Charges	498,610	389,940
Profit	$323,757	*$337,729

*Deficit for 1919.

SALVAGING PULP WOOD FROM LAKE SUPERIOR

The salvaging of 6,000 cords of pulp wood lost in the storm of September 24, 1919, is being accomplished along a 100-mile front on the south shore of Lake Superior from Copper Harbor on Keweenaw peninsula to Ontonagon and further west. This raft, invoiced at $34,000 when lost, is probably worth more now on account of pulp wood scarcity. It was a choice lot of four-foot wood from Nipigon Bay, Ont., in tow of the Canadian tug Traveler, and was bound for Ashland to be shipped by rail to the Wisconsin paper mill by its owner the Pulpwood Company of Appleton.

Search this spring showed that the raft had beached itself over such a wide teritory of coast as to make salvage difficult. Quantities were found along the coast west of the Porcupine mountains near Union Bay, west of Ontonagon. Fifty miles up the coast the life savers at the mouth of the Portage canal had piled up some of the wood and were using it as fuel.

The largest quantities, were found between Eagle River and Copper Harbor and at the latter place headquarters were established by Kingston, agent of the pulp wood company and with a fleet of gasoline boats the wood is being made into a raft and secured by a boom of logs towed from Ashland by the tug Saugatuck of Milwaukee.

A considerable quantity has already been taken care of and it is estimated that of the 6,000 cords lost in the storm, 4,000 cords may be towed to Ashland within a few weeks.

Canada's Exports of Pulp and Paper

Reprinted from the International Number Pulp & Paper Magazine

Canada both imports and exports pulp and paper. The exports, however, greatly exceed the imports, and constitute a most important contribution to the Dominion's foreign trade account. The development of this branch for export trade has been most remarkable. In 1890 Canada''s pulp and paper exports were valued at $122; for the calendar year 1919, they amounted in value to $97,166,715, and were made up as follows:

1919	Paper, Etc	Chemical Pulp	Mechanical Pulp	Total
January	$4,582,687	$2,193,194	$362,322	$7,138,203
February	5,231,878	1,916,828	217,421	7,366,127
March	5,970,598	2,041,884	226,554	8 239,036
April	3,630,238	1,120,990	217,711	4,968,939
May	5,138,420	2,315,276	356,905	7,810,601
June	4,124,526	1,813,018	619,981	6,557,525
July	4,639,225	2,654,333	436,604	7,730,162
August	4,999,258	2,873,186	475,735	8,348,179
September	4,587,579	3,231,576	511,402	8,330,557
October	5,954,916	3,965,946	1,942,716	11,863,578
November	4,911,514	3,108,514	997,408	9,017,436
December	6,212,430	2,766,250	817,692	9,796,372
Totals	$59,983,269	$30,000,995	$7,182,541	$97,166,715

The Dominion's total export trade for the fiscal year amounted to $1,207,613,806, of which the pulp and paper industry accounted for $83,872,566 or 6.9 per cent. Of the total value of the pulp and paper exported, $70,341,355 or 84 per cent., represents exports to the United States.

The significance of the figures is emphasized by the fact that throughout the year in question, American "exchange" in Canada was at a premium, ranging from 3 to over 5 per cent. (It has since reached much higher figures). These exports, therefore, in addition to swelling Canada's foreign trade, performed the useful function of creating "exchange" at the rate of approximately $240,000 a day for every working day in the year, thereby offsetting to that extent Canadian obligations in the way of interest payments and payments that had to be met for raw material imported.

The principal countries of export were:

	United Kingdom	United States	Japan	Other Countries
Paper and mfs of	$1,171,810	$39,666,535	.....	$8,327,450
Woodpulp, Chemical	611,399	26,256,265	2,775,485	583,706
Woodpulp, Mechanical	3,033	4,418,555	.....	58,327
Totals	$1,786,242	$70,341,355	$2,775,485	$8,969,483

A classification of the larger items of exports of paper and paper products for the year shows:

Printing paper (13,248,542 cwt.)	$40,718,021
Wrapping paper (325,792 cwt.)	2,452,296
Paper boards	3,037,279
Films for photographers' use	1,302,886
Wall paper (3,859,108 rolls)	360,567
Felt and roofing paper	310,778
Stationery	218,791
Miscellaneous grades of paper	983,968

During the war period Canada's exports of unbleached and bleached chemical pulp were stimulated to a marked extent by reason of the exclusion from the American markets of Scandinavian and European products. In 1910 the United States imported 58,325 tons of unbleached chemical pulp from Germany, 57,798 tons from Sweden, 35,903 tons from Canada and 30,730 tons from Norway, a total of 202,081 tons. The following year Sweden sent 84,378 tons, Germany 50,357 and Canada 29,372 tons. In 1912, American imports were: Sweden, 107,884 tons; Canada, 47,052. In 1913 Canada exported 62,733 tons to the United States, in 1914, 97,541 and in 1915, 135,445, Sweden's exports that year amounting to 140,655 tons. In 1916, United States imports of unbleached pulp from Canada for the first time exceeded those from any other country, the figures for the year being: Canada, 194,116 tons; Sweden, 159,551. In 1917 the Canadian exports were 214,313 tons; Swedish 126,453. In 1918 they were, Canada, 366,536 tons; Sweden, 672; Norway, 4,406.

In bleached chemical pulp, the United States imported from Germany in 1910, 22,962 tons; Norway, 38,100 tons; Sweden, 4,943 tons; Canada, 6,376 tons, a total of 76,845 tons. In 1914, the figures were, Germany, 23,249 tons; Norway, 63,030 tons; Sweden, 25,344; Canada, 11,602.

Since the war ended Scandinavian pulp has again found its way to the American market, but not in sufficient quantities to interfere materially with the demand for Canadian pulp in that market. Furthermore, a shortage of pulp in all European countries gives the Scandinavian producers a market nearer at home and one in which they enjoy decided advantages.

Figures are available showing the value of Canada's exportations of paper and pulp for the full year of the post-war period from November 1, 1918, to October 31, 1919. They show that Canada exported during this period products of this kind valued at $91,936,090, as compared with $73,462,901 for the corresponding months of the final year of the war, a gain for the post-war period of $18,473,189.

The latest trade returns show that in addition to the United States, which continues to be our best market, we are now exporting pulp and paper products to the United Kingdom, the Argentine Republic, Australia, Brazil, British South Africa, China, Cuba, France, New Zealand, Peru and some other countries.

During the months immediately following the armistice, Canada enjoyed a slight advantage over the other countries in the British markets, being exempted from certain import restrictions imposed by the British authorities. This, however, proved a somewhat dubious benefit on account of the difficulty encountered in securing shipping space on ships going to British ports. It has since been obviated by the opening of the British markets to all countries on the same basis.

The following tables show in detail the character, destination, quantity and value of all Canadian ex-

ports of paper and paper products for the fiscal year ending March 31, 1919:

Woodpulp, Chemically Prepared.

Exported to:	Cwt.	$
United Kingdom	140,364	611,399
British Africa, South	.....	.....
British East Indies	.....	.....
India	.....	.....
British Oceania	.....	.....
Australia	36,938	121,411
New Zealand	6,031	25,989
Argentine Republic	20,420	85,896
Brazil	18,774	72,210
China	.....	.....
France	.....	.....
Italy	54,809	273,900
Japan	639,997	2,775,486
United States	7,414,825	26,256,265
Total	8,332,930	30,226,856

Woodpulp, Mechanically Ground.

Exported to:	Cwt.	$
United Kingdom	2,528	3,033
British Oceania	.....	.....
Australia	1,731	3,029
Argentine Republic	8,000	8,800
Brazil	43,318	46,498
Cuba	.....	.....
France	.....	.....
Mexico	.....	.....
Spain	.....	.....
United States	3,453,149	4,418,555
Total	3,508,726	4,479,915

Printing Papers.

Exported to:	Cwt.	$
United Kingdom	9,310	38,484
Bermuda	855	3,667
British Africa, South	105,818	406,401
British East Indies	.....	.....
India	1,936	9,251
British Guiana	8	116
British Honduras	.....	.....
British Oceania	.....	.....
Australia	643,101	2,081,911
Fiji	301	1,185
New Zealand	242,336	862,402
British West Indies	.....	.....
Barbados	498	1,779
Jamaica	239	816
Trinidad and Tobago	1,540	7,593
Newfoundland	28	209
Argentine Republic	215,754	781,587
Bolivia	.....	.....
Brazil	28,101	105,130
Chile	13,361	29,927
China	19,824	58,484
Colombia	4,008	16,717
Costa Rica	970	2,833
Cuba	8,055	27,528
Ecuador	148	523
France	29,528	100,676
Greece	947	3,218
Guatemala	.....	.....
Honduras	523	2,448
Italy	10,335	33,076
Japan	3,207	15,193
Mexico	1,740	6,361
Netherlands	.....	.....
Dutch East Indies	768	2,699
Dutch Guiana	.....	.....
Dutch West Indies	26	111
Nicaragua	.....	.....
Panama	4335	14,316
Peru	11,523	39,655
Portugal	.....	.....
Portuguese Africa	.....	.....
Russia	586	2,022
Salvador	486	2,885
San Domingo	75	324
United States	11,880,069	36,031,358
Alaska	806	1,740
Hawaii	483	1,015
Philippine Islands	.....	.....
Porto Rico	817	3,014
Uruguay	4,177	14,072
Venezuela	1,920	7,294
Total	13,248,542	40,718,021

Wrapping Papers.

Exported to:	Lbs.	$
United Kingdom	505,900	30,649
Bermuda	56,800	2,768
British Africa, South	6,148,700	512,977
British East Indies	.....	.....
Ceylon	21,600	1,947
India	36,800	2,758
Straits Settlements	4,500	357
Other	.....	.....
British Guiana	5,000	389
British Oceania	.....	.....
Australia	6,938,500	473,119
Fiji	1,300	91
New Zealand	851,600	61,751
British West Indies	.....	.....
Barbados	700	73
Jamaica	21,600	1,812
Trinidad and Tobago	40,200	2,529
Other	67,300	5,983
Hong Kong	.....	.....
Newfoundland	91,400	5,398
Argentine Republic	3,700	297
Brazil	720,600	55,230
Chile	394,500	33,630
China	141,100	12,150
Colombia	56,000	4,442
Cuba	2,500	447
France	457,700	30,977
St. Pierre and Miquelon	6,000	339
Japan	8,285,900	751,575
Mexico	.....	.....
Netherlands	.....	.....
Dutch East Indies	7,500	401
Nicaragua	1,900	96
Panama	.....	.....
Peru	15,500	1,324
Russia	58,000	4,059
United States	7,621,900	454,377
Philippine Islands	1,800	134
Uruguay	.....	.....
Venezuela	2,700	217
Total	32,579,200	2,452,296

Wall Paper.

Exported to:	Roll	$
United Kingdom	.....	.....
Bermuda	....	.....
British Africa, South	255,701	22,030
British Guiana	32,030	2,123
British Oceania	.....	.....
Australia	1,255,427	122,519
Fiji	140	22
New Zealand	716,784	83,106
British West Indies	.....	.....
Barbados	....	.....
Jamaica	1,825	183
Trinidad and Tobago	26,534	1,231
Other	1,365	68
Newfoundland	791,772	62,421
Argentine Republic	10,889	1,850
Bolivia	8,652	942
Chile	488,778	40,520
Colombia	13,757	1,877
France	.....	.....
St. Pierre and Miquelon	982	142
Italy	.....	.....
Netherlands	.....	.....
Dutch Guiana	300	21
Panama	2,050	219
Paraguay	.....	.....
Peru	117,626	8,940
United States	134,084	12,245
Uruguay	412	108
Total	3,859,108	360,557

Felt and Roofing Paper.

Exported to:	1919.
United Kingdom	$ 95,717
Bermuda	60
British Africa, South	5,690
British Africa, West	138
British East Indies	.....
Ceylon	435
India	1,594
British Guiana	2,363
British Oceania	.....
Australia	3,516
New Zealand	10,636
British West Indies	.....
Barbados	.....
Jamaica	.....
Trinidad and Tobago	994
Other	27
Newfoundland	61,608
Colombia	.....
France	.....
St. Pierre and Miquelon	257
Italy	.....
Netherlands	.....
Dutch East Indies	430
United States	127,313
Porto Rico	.....
Total	$310,778

Paper Board.

Exported to:	1919.
United Kingdom	$ 873,331
British Africa, South	114,030
British East Indies	.....
India	87,192
British Oceania	.....
Australia	2,483
Fiji	.....
New Zealand	837
British West Indies	.....
Jamaica	571
Egypt and Sudan	5,842
Newfoundland	6,510
Argentine Republic	2,670
China	53,971
France	.....
St. Pierre and Miquelon	20
Portuguese Africa	2,433
United States	1,887,389
Total	$3,037,279

*Films for Photographers' Use and for Moving Pictures.**

Exported to:	1919.
United Kingdom	$ 130,953
Bermuda	.....
British Africa, East	1,638
British Africa, South	732
British Africa, West	349
British East Indies	.....
Ceylon	2,075
India	19,616
Straits Settlements	475
British Oceania	.....
Australia	.....
New Zealand	.....
Egypt and Sudan	48,604
Malta	2,016
Newfoundland	148
Argentine Republic	.....
Denmark	.....
Greenland, Iceland, etc.	555
France	370
St. Pierre and Miquelon	14
Germany	.....
Italy	.....
Mexico	.....
Morocco	90
Russia	50
Siam	177
Spain	46,586
Sweden	3,168
United States	1,045,270
Alaska	.....
Total	$1,302,886

* Films are no longer classed as Paper Exports in the Trade of Canada Reports, but appear as "Scientific and Educational Equipment."

Other Paper, N.O.P.

Exported to:	1919.
United Kingdom	$ 2,676
Bermuda	5,379
British Africa, South	191,743
British East Indies	.....
India	.....
Other	.....
British Guiana	1,535
British Oceania	.....
Australia	280,323

Fiji	1,416
New Zealand	165,897
British West Indies	.....
Barbados	1,473
Jamaica	1,383
Trinidad and Tobago	7,382
Other	4,525
Hong Kong	25
Newfoundland	53,728
Argentine Republic	5,921
China	2,481
Cuba	13,211
France	6,961
St. Pierre and Miquelon	665
Italy	.....
Japan	106,164
Mexico	.....
Norway	20,872
Russia	1,625
Switzerland	.....
United States	108,583
Total	$983,968

Total Paper.

Exported to:	1919.
United Kingdom	$1,171,810
Bermuda	11,874
British Africa, East	1,638
British Africa, South	1,253,603
British Africa, West	487
British East Indies	.....
Ceylon	4,457
India	120,411
Strait Settlements	832
Other	.....
British Guiana	6,526
British Honduras	.....
Australia	2,963,871
Fiji	2,714
New Zealand	1,184629
British West Indies	.....
Barbados	3,325
Jamaica	4,765
Trinidad and Tobago	19,729
Other	10,603
Egypt and Sudan	54,446
Hong Kong	25
Malta	2,016
Newfoundland	190,022
Argentine Republic	792,325
Bolivia	942
Brazil	160,360
Chile	104,077
China	127,086
Colombia	23,036
Costa Rica	2,833
Cuba	41,186
Denmark	.....
Greenland, Iceland, etc.	555
Ecuador	523
France	138,984
St. Pierre and Miquelon	1,437
Germany	
Greece	3,218
Guatemala	.....
Honduras	2,448
Italy	33,076
Japan	872,932
Mexico	6,361
Morocco	90
Netherlands	.....
Dutch East Indies	3,530
Dutch Guiana	21
Dutch West Indies	111
Nicaragua	96
Norway	20,872
Panama	14,535
Paraguay	.....
Peru	49,919
Portugal	.....
Portuguese Africa	2,433
Russia	7,756
Salvador	2,886
San Domingo	324
Siam	177
Spain	46,586
Sweden	3,168
Switzerland	.....
United States	39,666,535
Alaska	1,740
Hawaii	1,015
Philippine Islands	134
Porto Rico	3,014
Uruguay	14,180
Venezuela	7,511
Total	$49,165,795

PAPER PRODUCTS MADE IN CANADA.

The following is but an incomplete list of the pulp, paper and allied products made in Canada:

Bags, blanks (plain white, coated, and colored), blotting, bond, book, boxboards, bristol builders' boards, boards, building paper.

Calendar, carpet felt (plain and pleated), cartridge, catalogue, chipboard, coated boards, covers and crepe papers.

Drug, dry, dryproof, duplex waterproof.

Envelope papers.

Fibres, fibre boards, flat gummed, folding board, French folio.

Glassine, greaseproof, greys, groundwood pulp.

Hardware, hosiery.

Insulating paper.

Jute board.

Kraft pulp, kraft paper (wrapping and tissue).

Leather boards, ledger and lithograph papers.

Manila rope, mill boards, mimeograph, M.F. and S.C. coated.

News board, newsprint paper.

Parchment (genuine and imitation), pasted, poster, program.

Roofing papers.

Sulphate pulp, sulphite fibre.

Tag manila, ticket board, tissue, tympan manila.

Wood boards (pure and filled), waxed and writing papers.

Paper Products.

Bags, boxes.

Cardboards, cartons for butter, eggs, meat, corrugated boxes, cores, cups.

Gummed sealing tapes.

Indurated fibreware (pails, scrub-boards, tubs).

Labels.

Napkins.

Roofing.

Sheathing, shirt-front boards, shoe-making boards, stair pads, suit and skirt boxes.

PULP AND PAPER IN NEWFOUNDLAND.

St. John's.—From the budget speech of the Hon. Henry Brownrigg, Minister of Finance, it is evident that the government of Newfoundland is ready to co-operate with outside capital in an endeavor to exploit the pulp and timber resources of the Island Colony. Speaking on the subject in the Newfoundland legislatures, Mr. Brownrigg said:

"It is my firm conviction that it is the bounden duty of the Government of this country to do all in its power to encourage the investment of capital in our forest areas and not place vexatious restraints upon capital that may aid in the development of the dormant resources of this Colony in any direction, provided always that the interests of the people are safeguarded in all respects."

There are now in operation on the island two large pulp and paper mills, the Anglo-Newfoundland Development Company's mills, owned by the Harmsworth interests, which are located at Grand Falls, and A. E. Reed Company's mills at Bishop's. Last year these two companies exported 22,819 tons of paper, valued at $1,545,344; 3,128 tons of pulp valued at $43,265 and 4,023 tons of sulphite valued at $431,913. Two other mills will be exporting during the coming year. A steady growth in the development of the pulp and paper industry on the island is now anticipated, and on this subject the minister said:

Prior to 1909 the manufacture of paper in the country was regarded as impracticable and the failure of such an undertaking was confidently predicted by men of wide experience in the business. These opinions and predictions were based on erroneous information relative to the climatic conditions in this country.

The Harmsworth after thorough investigation erected a $6,000,000 plant, and have since then practically duplicated their original outlay at Grand Falls.

Supply Northcliffe Papers.

From these mills they are supplying the complete requirements of the extensive line of Northcliffe publications in England, and disposing of all the surplus stock they can turn out and ship to United States and other markets. Last year they shipped to the Associated Newspapers of the United States some 50,000 tons of paper and also sent a considerable quantity to Australia.

Brazil, Argentina and Chili have also placed orders for the Grand Falls paper during the past two years, and there is a likelihood of South America becoming a purchaser of Newfoundland paper on a large scale if the market is properly attended to. Before the war Germany supplied a large percentage of South America's paper requirements. The highest testimonials as to the superior quality of Newfoundland paper have come from those who have used it abroad.

The operation of the Anglo-Newfoundland Development Company, and the A. E. Reed Co. have only demonstrated to the world the value of Newfoundland forests as a base of supply for pulp and newsprint. These operations have been a world-wide advertisement for this country's timber areas and it is bearing good fruit."

FLAX STRAW PULP MILL PROJECTED.

A report from Regina says:—

Regina, July 21.—Plans are now under way for the establishments of a million dollar paper mill in Southern Saskatchewan. Large financial interests in Toronto are behind the scheme. It is proposed to utilize the thousands of tons of waste straw in this province for the manufacture of paper.

Close proximity of cheap coal is one of the essentials in the location of such a plant, and it is believed by the men behind the scheme the lignite fields of Southern Saskatchewan offer the necessary fuel requirements.

A preliminary survey of the territory is now being made by W. R. Phillips, a former mayor of Trenton, Ont., who made the announcement today regarding the proposed establishment of the new industry.

According to Mr. Phillips there is no question about the possibility of manufacturing paper from straw. There are several plants on the American continent which are being successfully operated, one being in Eastern Canada. It has been found from experience that from two tons of straw and two tons of coal there can be manufactured one ton of paper.

FIRE PREVENTION ON BLOCK PILE

Following a recent visit of Mr. T. J. Hoxie, a special Investigator of the Mutual Insurrance Company, and an expert on the fungi that attack pulp wood in storage, Laurentide Company is making experiments with spraying the block pile to prevent fire. This spraying is now being done continuously to avoid any fire that a chance spark might start in little piles of sawdust, bark, or chips that accumulate. Fire protection apparatus is now available in the block pile yard which is believed can cope with any ordinary fire that might become ignited, but the spraying system now in use will probably give little chance for its employment.

Aside from the value of preventing any small fires, the continuous wetting of the block fire prevents the formation of fungus which attacks and destroys pulpwood.

It will be recalled that Mr. Hoxie read a valuable paper on Fires in Block Piles at the Technical Section meeting. (See Pulp and Paper, Jan 29, 1920).

FORT WILLIAM CO.'S TIMBER LIMITS.

The pulpwood limits acquired by the Fort William Pulp and Paper Co. comprise one-thousand square miles of limits on the Grand Trunk Pacific between Fort William and Sioux Lookout, known as the Farlinger-MacDonald limits. Lease runs twenty years with privilege of renewing for two further periods of 25 years each.

It is estimated half a million dollars yearly in freight rates will accrue to the Dominion government from the transport of pulp logs from the limits to the mills here, and in addition the government pulp-cutting dues.

Relph, Darwen and Pearce, have issued the announcement that the management of their Woodpulp and Chemical Department has now been taken over by Mr. Robert Marshall in succession to Mr. Fred Fielding. Mr. Marshall has had many years' practical and commercial experience in the pulp and paper trade in Scandinavia. During the War he served as British Vice-Consul at Stockholm and at Haparanda.

Some people don't believe in putting off till tomorrow the trouble they can make to-day.

ADD FOREST ENGINEER TO STAFF.

Pulp and Paper Accessories, Limited, Shaughnessy Building, Montreal, have added forestry work to their facilities for serving the industry. Their letter advising us of this step has some good "dope" so we reprint it in full:—

Of late several prominent Canadian lumbermen and foresters have repeatedly pointed out that the Canadian forests, the source of raw material for our lumber and pulp wood industries, do not receive the care and attention they should get. As a consequence, the lumber supply of this country is gradually being depleted, and the time may not be very far away when the above mentioned industries, which are bound to increase in importance by the ever increasing shortage of timber and pulpwood in the United States, may find themselves in a precarious position. It has therefore become of paramount interest to the owners of our forests to take steps to prevent waste and to increase the production of their timberlands to meet their present and future needs.

This can be done by scientific methods only, and our firm has for some time considered if and how it might be able to assist owners of timberlands in the care of their forests. We have come to the conclusion that the best service we could render the Canadian forests would be by placing a forestry engineer of indisputable theoretical and practical knowledge of modern forestry science at their service.

Our attention has for a long time been directed towards Sweden, which country, with only a fraction of the timber area of Canada; has maintained its position on the world's market as one of the most important timber producing countries.

One of our representatives, when recently visiting Sweden, succeeded in engaging the services of a prominent Swedish Forester, a graduate of the Royal Forest Institute, Stockholm, with extensive practical experience as Chief Forester for one of the largest lumber concerns of Sweden. This concern furnishes a striking example of what results can be obtained by the forestry methods referred to above. Its holdings are 150 English square miles of which only 96 square miles are productive timberland.

The yearly growth of these timberlands is enough for an annual production of 40,000,000 s. feet sawn lumber and 40,000 tons of chemical pulp. How much would not the forests of Canada yield if handled in the same manner?

When the arrival of the above mentioned Swedish Forester we are starting a new department of our firm, through which all the experience of the Swedish forestry, already proved as practical and economical, is at the service of Canadian industry.

We shall always be pleased to give information and advise regarding forestry work and methods, and we are prepared to make estimates of growing timber, make maps of timberlands and to undertake any kind of forestry work, applying the most economical, modern and scientific methods.

Yours very truly,
PULP & PAPER MILL ACCESSORIES LTD.

WILL MAKE REMADE PULP.

Buffalo.—The Economy Pulp Products Company has acquired the plant on Goose Island, Tonawanda, forerly occupied by a vinegar manufacturing firm, and will at once begin the creation of a de-inking plant. The firm will manufacture pulp from both magazine paper and newsprint, using a new process which Rev. Louis A. Saeger, a Buffalo minister, claims he has perfected. It is claimed the process is the most satisfactory yet perfected.

Officers of the firm are Buffalo paper men, including H. J. Simon, president; J. F. Fisher, vice-president; C. P. Chrisgau, treasurer; J. C. Stockman, secretary, and G. A. Peterson, sales manager.

HOW RAILWAY OPERATING COSTS MOUNT

The Railway Association makes an appeal for the full utilization of space in freight cars.

"Ho Bill! That'll hold her! Slam her shut! Call it a car! Hey, there, you checker! Jam your blinkin' seal on that door! . . . . . Couple on and yank her out! Us guys is quick workers. We got two more to load tonight! Call it a car!"

Such is the good-natured formula—or approximately the formula by which something like $18,000,000 may be said to have been added unnecessarily to the past twelve months' cost of operating the Canadian railways. It is the jocular touch of an indifferent hand—by which the "safety margin" of car supply over car demand in Canada was, and still is, being cut down every day in spite of the railways. It is the little episode—repeated thousands of times a day at thousands of loading points—which added 500,000 unnecessary car trips to the Canadian transportation program in the last year—each trip averaging 243 miles under load and 89 miles empty and wasting 14 car days.

Thus the constant service of 10,000 freight cars was devoted to unnecessary work instead of remaining in reserve to meet emergencies. Thus 4,000 unnecessary trains were moved. Thus 8,000 unnecesary engines were employed instead of being in reserve. Thus 79 miles of precious track room were occupied instead of being free to preserve the elasticity of terminal and passing track capacity, thus reducing the margin between any easy car movement—and possible congestion, with embargoes. Thus 100,000 times 17 tons of tare weight (the weight of the car alone) was added to the constant burden of the railways the whole year through—or 170,000 extra tons. Thus 6,000,000 tons of coal were taken from the available supply. Thus all movement was slower. Thus the entire machinery of Canadian business was slowed up! Depressing, subtly, but surely, the volume of business in your factories and warehouses! Cutting down the rate of turnover! Running up the overhead per unit of sale! Thinning your profits!

When shippers were on their toes during the war, average load per car rose to 27.05 tons. Now it is averaging 22.69! The loss is almost five tons per car! This loss is almost wholly explainable by reference to the relaxed attitude of the shipper. His employees have a tendency to "let down" and to adopt something like the formula quoted at the top of this appeal. It is good business for **you,** for the country, and for your railway service to banish that attitude and substitute for it: "Ho, Bill! Call **that** a car? Not on your life! Open her up again! We'll cram her till the axles bust!" But they won't "bust." Try!

People seem not to see that their opinion of the world is also a confession of character.—Emerson.

Be sure you replace all guards when through repairing a machine. Think about the other fellow.

Technical Section

NEW MEMBERS IN TECHNICAL SECTION.

The secretary of the Technical Section of the Canadian Pulp and Paper Association announces the election of F. P. Mathews, Dryden Pulp and Paper Co., as full member; P. Taylor, Bathurst Lumber Co., as associate member; E. P. Cameron, Forest Products Laboratories of Canada and A. E. McLean, Bathurst Lumber Co., as junior members.

Mr. R. M. Decew, Price Bros. & Co.,, Kenogami, Que., has been elected to junior membership in the Technical Section of the Canadian Pulp and Paper Association.

OUTLINE OF SECTION ON SULPHITE PULP.

This section for the Text Book on Pulp and Paper Manufacture is nearing completion and readers who have suggestions are asked to send them in at once. If you think of something that may be overlooked, please say so.

Introductory.

1. History.
2. General description of various processes.
   Direct and indirect cooking.
3. Wood used for sulphite pulp.

Acid Making.

1. General outline of various systems.
2. Burning of sulphur.
   Types of burners and operation.
3. Burning of pyrites.
   Types of burners and operation.
4. Combustion.
   Temperature and air regulation.
5. Cooling of gases and removal of impurities.
   Types of gas coolers.
6. System of gas absorption.
   (a) Milk of lime system.
   Three tank system (intermittent).
   Barker system (continuous).
   (b) Tower system.
   Construction and operation .
7. Reclamation of acid.
   Description of various methods, especially the reclaiming tower.
8. Chart showing operations of acid making including reclaiming.
9. Testing and control in connection with acid making.
   (a) Tables showing composition of various grades of sulphur, pyrites, limestone.
   (b) Burner gas, temperature, draft, chemical tests, including automatic testing.
   (c) Acid control.
   Specific gravity tests and chemical analyses.
   Crandon's acid regulator.

Digesters.

1. Various types.
   Horizontal and vertical types.
2. Lining.
3. Fitting.
4. Capacity. (table)

Cooking.

1. Filling of digester.
2. Theories of cooking.
3. Practice of cooking including reclaiming of acid.
4. Manipulation of cooking for obtaining different grades as strong, news, easy bleaching, etc.
5. Effect of variables.
6. Blowing and blow pit.
7. Washing.
8. Yield of pulp.
9. Recovery of by-products.
10. Other sulphite processes, Mitscherlich, etc.
11. Testing and control in connection with cooking processes.
    (a) Testing moisture of chips.
    (b) Testing raw acid.
    (c) Steam regulation maintaining even load or boiler plant.
    (d) Temperature recorder.
    (e) Pressure recorder.
    (f) Testing of liquor during cooking—hot test, cold test, Mitscherlich test.
    Pulp test; smell and color of liquor.

REVIEW OF RECENT PATENTS.

K-8. Dyeing treatment for paper yarn pulp. D.R.P. No. 312,867, Meister, Lucius & Brunning, Papierzeitung, 1919, p. 1742; Color Trade J.; Paper, **26**, 52, (1920). The most serviceable results are obtained in the dyeing of paper yarns by the use of sulfo-acids produced by acting on raw xylol, or solvent naphtha, or on the resinous condensation product of this carbohydrate and formaldehyde, with sulfonating agents. The method of preparing them is outlined. The pulp is treated by first adding the rosin size, then the dyestuff solution, and finally, after mixing for ½ hr., Al sulfate is added. If it is desired that the stuff become warm through prolonged beating, the alum is added shortly before emptying.—A.P.-C.

K-10. New process of sizing paper. D.R.P. No. 317-948. Max Muller, Finkenstein. Papierfab., 1920, p. 44; Paper **26**, 52, (1920). The invention consists in the precipitation of the sizing substances of the mixture of solution of colloid matter with water-glass solutions, by the addition of acids or acid salts, especially Al_2O_3 combinations or mixtures of the same, partially or entirely before the addition of the stuff. Further methods of carrying out the new process consist in the simultaneous addition to the sizing materials of substances that increase the durability and at the same time possess precipitant, or sizing properties or both. Moreover, loading, color, or other material, in the form of emulsions, can be added to the mixing medium during its preparation—A.P.-C.

The law of nature is, that a certain quantity of work is necessary to produce a certain quantity of good of any kind whatever. If you want knowledge, you must toil for it; if food, you must toil for it; and if pleasure, you must toil for it.—Ruskin.

UNITED STATES NOTES

The Beckett Paper Company of Hamilton, Ohio, which has just filed notice of an increase of its capital from $400,000 to $1,000,000, has under consideration extensive improvements to its plant at Hamilton.These extensions are necessitated by the increasing demands for the Company's product of writing, bond and book paper which are being marketed in all parts of the country. The Beckett Paper Company is one of the oldest concerns of its kind in the United States. Thomas Beckett, president, comes from an old and influential family and is regarded as one of Hamilton's most enterprising citizens. His company was one of the first in the middle West to inaugurate welfare work among its employees.

A serious dearth in paper napkins is facing the country, according to G. H. Sallender, manager of the American Lace Paper Co., of Milwaukee, Wis. Mr. Sallender says that production at present is only a quarter of the demand and that within the next few months if conditions do not change, paper napkins will be but a memory. Underproduction of pulp is blamed.

Beginning January 1, the Whittaker Paper Company, Detroit, will occupy the building which now houses the Detroit branch of the Goodyear Rubber Company. This building has been purchased by the Whittaker people so that they would be enabled to concentrate the work of all their departments under one roof. $275,000 was the consideration figuring in the deal.

Articles of incorporation have been filed with the Secretary of State, Idaho, by the Howard Pulp and Paper Corporation, capitalized at $25,000,000.

The Keyes Fibre Company of Waterville, Me., whose principal product, wood pulp plate and dishes marketed under the trade name "Paprus," has largely superseded the old-fashioned paper plates. is planning the erection of a new 40-ton pulp grinding mill at Waterville. A contract has just been closed with the Shawmut Manufacturing Company of New York for use of the greater part of the power now being developed at Shawmut, Me.

The Southern Newspaper Publishers Association, at its recent convention, held at Asheville, N.C., elected Marcellus R. Foster of Houston, Texas, president for the ensuing year. Other officers chosen are: W. A. Elliott, Jacksonville, "Times-Union, first vice-president; Charles R. Stewart, Lexington, Ky, "Herald," second vice-president, and W. C. Johnson, Chattanooga, Tenn. "News," secretary and treasurer. The wood pulp situation, 5 cent dailies, 10 cent Sunday editions, nine column papers, second class postage, the newsprint supply and labor questions were among the topics discussed.

Oscar C. Merrill, chief engineer of the United States Forest Service, has been appointed executive secretary of the newly created Federal Power Commission, the appointment being made by Secretary of War, Newton D. Baker, who is chairman of the Commission. Mr. Merrill on taking office, made arrangements for an advisory committee to draft regulations under the act, and on this committee the War Department named Gen. Enoch H. Crowder, the Interior Department selected Herman Stabler and the Agricultural Department designated Mr. Merrill to look after its interests. The act gives the commission authority to prescribe regulations for the leasing of waterpower sites on Government land and on all navigable rivers. It is designed to conserve natural resources and afford cheaper power. The first meeting of the commission will be held this week at Washington. More than fifty applications for the leasing of sites await action by the commission. W. S. Murray has been named by the United States Geological Survey as chairman of its engineering staff to make an investigation and report on the feasibility of a super-power zone between New York and Boston.

Fire wrecked the wood barking plant of the St. Regis Paper Company at Deferiet, N.Y., last week, causing damage estimated at $10,000.

According to a report made to the Senate by the Forest Service of the United States Department of Agriculture, the present shortage of newsprint paper in the United States is due to a serious depletion of forests in the Northeastern and Lake States where there is an over-development of the pulp and paper industries. In view of the unfavorable situation in these localities, the report points to the vast undeveloped timber areas of Alaska as the only available source from which a perpetual supply sufficient to meet a substantial part of the newsprint requirements of the United States may be obtained with a proper development of these resources. The report recommends a comprehensive survey to furnish exact information upon the stand and location of suitable timber in the new regions and other needed data..

The Allagash Land Company, organized recently at Bangor, Me., for the purpose of taking over an option on a tract of land on upper St. John waters, has filed a certificate of incorporation at Augusta, Me. The capital stock of the company is $500,000 and the par value shares is $100. E. B. Draper, the pulpwood operator, at present holds the option on the tract, which, though part of the Eaton holdings, was not included in the recent transfer by the latter's managers to the Passamaquoddy Land Company.

Mr. J. Strothard Brooks of the James W. Sewall office, timber estimators and foresters of Old Town, Maine and Washington, D.C., is making a quick examination of a large timber tract in Quebec. He has with him Mr. Joseph D. Lanto of the same organization. Messrs. James W. Sewall and James A. Conners have just returned from a timber valuation trip in Tennessee. They report business exceedingly good, almost to the point of saturation.

NO MORE PULP FOR JAPAN AT PRESENT.

Owing to the unsettled financial conditions, it looks as though there would be no more pulp shipped to Japan from British Columbia until after the first of 1921, when it is hoped the financial situation will be much improved. Just now there is not a pound being shipped.

PULP AND PAPER NEWS

Work has been commenced on the factory which is being established in Ingersoll, Ont., by the Dominion Cone Company, Limited, and Folding Paper Boxes, Limited, of Toronto. The ratepayers recently carried a bylaw granting a loan of $25,000 and other concessions to the firm. The building will be two stories. 49 by 81 feet, with a front of red pressed brick.

Mr. Charles V. Syrett, head of the Victoria Paper and Twine Company, Limited, has purchased a fine new residence at 141 Springhurst Avenue, Toronto, and moved into his new home this week. He formerly lived at Dunn Avenue.

No decision has yet been made by the Ontario Government in respect to the application of the Backus pulp and paper interests for an extensive pulpwood concession along the English river, which, together with the limit they now own to the south, would supply pulpwood for the proposed pulp and paper mill at Kenora. Premier Drury this week made the following official statement concerning the matter; Some time ago complaint was made on behalf of the Canadian daily newspapers that the Fort Frances Pulp and Paper Company was refusing to supply newsprint for use in this country and the Government was asked by the press to use its good offices to induce the company to supply Canadian newspapers. The press was represented at the conference. No assurance was given by the Government that any additional concession would be given Backus. Mr. Peter Heenan, the member for Kenora, was present, not representing Mr. Backus or himself, but as the representative of Kenora. As soon as it was brought to the attention of the Government that Mr. Harding (Crown Counsel on the Riddel-Latchford Timber Commission) was representing the Backus interests he was asked immediately to sever connection with that firm and all other lumber companies.

A supreme Court writ has been issued at St. Catherines at the instance of George Mortimer Elson against the assignee for the Journal Printing Company, claiming $7,212.88. The claim is based on money advanced to J. M. Elson, plaintiff's brother, on behalf of the defunct Journal. In the statement filed G. M. Elson claims that he has been advancing money during a period of six or seven years. When the Journal made an assignment the claimant filed his account but the trustees threw it out.

By a writ issued this week in Toronto the Supreme Court is asked to declare that certain judgments of the Paper Control Tribunal, directing the Fort Frances Pulp and Paper Company, Limited, to make certain refunds to its Canadian customers, are valid, and to direct the payment of these funds. The amount involved is approximately $122,000, the largest claim being that of the Winnipeg Free Press for $52,259.81.

Mrs Arthur Murphy (Janey Canuck) of Edmonton, has been appointed a delegate to the Imperial Press Conference at Ottawa next month. Mrs. Murphy is president of the Canadian Women's Press Club and Honorary Secretary for Canada of the Society of Women Journalists of England.

In connection with the collection of fees on pulpwood and timber cut from Crown lands, it is understood that the Ontario Government is considering the inauguration of a new and more businesslike administration of this service. The whole question of scaling and measurement of logs and timber is under consideration at the present time and investigation is being made at mills and other places with a view to collecting data to assist in arriving at a conclusion regarding the best method to be followed. Hon. Beniah Bowman, Minister of Lands and Forests has been on a trip of inspection to the western part of the province and is giving consideration to the new methods about to be inaugurated.

Mr. George Davidson, Toronto, sales manager of the Howard Smith Paper Co., Ltd., has gone on a motor trip through New Hampshire accompanied by his wife and family.

Mr. A. Hobson, of the Toronto office of the Howard Smith Paper Co., Ltd., is spending his vacation at Sparrow Lake.

To carry on the business of engravers, printers and publishers etc., the Edward Press, Limited, has been granted a charter, with head office at Toronto. The company is capitalized at $40,000.

Additional information to hand concerning the Spruce Falls Company, Limited, which has been granted a charter, indicates that the Kimberley-Clarke, Company, of Neenah, Wis., has become largely interested in the proposition. Officials of the company recently visited Toronto and conferred with Premier Drury and the Minister of Forests and Lands in reference to the taking over of 1740 square miles of pulp wood concessions which were granted to the old company three years ago. George F. Hardy of New York is consulting engineer and the company will go ahead at once with the erection of a 75-ton groundwood plant, and a 75-ton sulphite plant, to be followed later by a newsprint plant of 75-ton capacity. The pulp plant is to be proceeded with at once and is expected to begin manufacturing in the fall of 1921. Mr. F. J. Sensenbrenner, First Vice President of the Kimberley-Clarke Co., is the new President of the Spruce Falls Co. and Mr. S. A. Mundy, of Bradford, Penn. is the Vice-President, with J. C. Kimberley, of Neenah, Wis. as secretary. A Toronto office of the company is being opened at 9 College Street, with Mr., Elihu Stewart, Vice President of the old company, and the only Canadian director in the new organization, in charge. The company will buy large quantities of wood from the settlers in the Kapuskasing district, where the mill will be erected.

Mr. John M. Imrie, Manager of the Canadian Daily Newspaper Association, and family, are spending a few weeks at Bolton, Lake Sincoe.

Mr. R. T. Houck, Sales Manager of the George H. Mead Co., of Dayton, Ohio, was in Toronto this week on business.

The London Paper Co., Limited, has been incorporated to carry on the business of publishers, wholesale and retail stationers, manufacturers of envelopes, paper, hardwood boxes, etc., as well as general lines. The capital stock is $150,000 and headquarters in London. The incorporators of the company are Henry J. Jones and D. H. McDermid, Victor Jackson, Samuel F. Jones and Chas. Tomlin.

A charter has been granted to the Century Bag Holder Co., Limited, with a capital stock of $40,000 and headquarters in Toronto, to manufacture, sell and deal in bag holders, bags, boxes, chests, wrappers, packing devices made of wood, paper, fibre, metal and other materials. Walter F. Wormley, Thomas H. Goldring and others of Toronto, are shareholders in the new enterprise.

The Woman's Century Publishers, with a capital stock of $100,000 and head office in Toronto, have been granted a charter to carry on the business of printing, publishing, book-binding and selling and dealing in paper.

Wm. Southam and Sons, Limited, with a capital of $5,000,000 and head office in Hamilton, have been incorporated to carry on a general publishing and printing business, book-binding, book-selling, stationery, etc. The Southam's, at the head of which is Mr. Wm. Southam, veteran publisher, own the "Hamilton Spectator," the "Ottawa Citizen" and other newspapers in the Dominion, as well as large job printing establishments.

Bird & Son, Limited are erecting a dam at their plant at Port Range, Quebec. Production will be increased 20 to 25 per cent. The contract for construction has been awarded to William P. Bishop, Ltd., Montreal.

Laurentide is again in second position in the standing of the St. Maurice Valley League. On July 25, the Grand Mere boys defeated Three Rivers by fast play in a pitcher's' battle that ended in a 1 to 0 score. The feature was a throw by Brown from centre field, when he returned Major's fly and stopped Dempsey at the plate and spoiled St. Maurice's nearest chance.

The last number of the Spanish River News is largely devoted to the meeting and banquet of the Technical Section. Needless to say, it is a very interesting number, well sprinkled with snapshots taken by the ever-present Coulson. We know who writes the titles for them too!

Application has been made for the admission to the Unlisted Department of the Toronto Stock Exchange of the securities of Western Canada Pulp & Paper Co. Ltd. The company's operations are carried on at Port Mellon, Howe Sound, 25 miles from Vancouver. This company is successor to the Rainy River Pulp and Paper Co., Ltd.

An all rail shipment of 2,200 tons of Nova Scotia coal to a pulp mill 32 miles west of Cochrane on the National Transcontinental cost, including freight, about the same as Pennsylvania coal, plus duty, laid down at the same point. This apparently demonstrates that if the duty on bituminous coal remains, Nova Scotia coal can be shipped to southern Ontario at a profit even by rail, and much more advantageously by water.

A permanent rossing and barking plant is being erected at Agate, Ont., by the Continental Wood Products Co., Ltd. This will be followed by a pulp mill. Engineering as well as construction work is in the hands of the Foundation Co., Ltd. Agate is 180 miles northwest of Sudbury, on the Kapuskasing River. Agate is on the Canadian National Railway, near Kapuskasing Lake.

Harry Buncke, chief mechanical engineer for the Abitibi Company is back at Iroquois Falls, with a bride. That is why he was missed on the Technical Section trip to the Sault. Wonder if he used the Blackford method of selection.

The Safety League of Shawinigan Falls has drawn up a program of action by the town on matters relating to public health and safety. It is not enough to improve mill conditions. It is quite as important that the workman's other 16 hours are spent under safe and healthy conditions.

There is a lot of newspaper opposition in Ontario to the granting of further forest concessions to the Backus interests. A new grant of 2,500 square miles and certain water power rights is asked. Such a grant, together with the lease of 1,860 square miles still undeveloped, would give a reserve of 4,360 square miles. The location of the proposed mill is at Kenora.

An employee at the Hamilton plant of Bird & Son asked how watermelons got the water in them, and was told they are planted in the spring.

Kinleith Paper Mills,, Limited, manufacturers of high-grade book, writing and bond papers, are enlarging the capacity of their mill at St. Catharines by increasing the size of one of their machines.

Not a Spanish River Subsidiary

In an interview with the Pulp and Paper Magazine, Lieut.-Col. Thomas Gibson, one of the officials of the Spanish River Pulp and Paper Mills, Limited, stated that the Fort William Pulp and Paper Co., Ltd., which is now in process of formation, is entirely independent of the Spanish River Co., and that it was incorrect to refer to it as a subsidiary of that organization, although some of the men connected with Spanish River would be in the new company. Col. Gibson is at present time engaged in the organization of the new company, at the head of which will be Mr. John G. Sutherland, of Dayton, Ohio, formerly sales manager of the Spanish River Pulp and Paper Mills, Ltd. It is understood that Col. Gibson will be the Vice-President of the Company, with Mr. Sutherland as President. Although the company has not yet been gazetted, work has already been commenced on the first unit of the enterprise near Fort William. This will be the groundwood plant with a capacity of 125 tons of groundwood pulp a day. It is expected that the mill will be completed in nine months and it will then be followed by other units, including a newsprint mill. The capitalization of the company, said Col. Gibson, had not yet been determined. Arrangements are now being made for timber and pulp limits in the district.

NORTHCLIFFE PAPERS ABSORBENT.

Rumors have occasionally been circulated that the Northcliffe interests were absorbing mills on the North American mainland. A report to that effect is again current and there seems to be an essence of truth in it this time. Associated with the report is the name of the Gulf Pulp and Paper Co., at Clarke City on the north shore of the Gulf of St. Lawrence. Some time ago the Pulp and Paper Magazine referred to this plant as one of the mills which might logically be developed into a newsprint producer. It may be necessary, however, to retain the mill on groundwood for paper mills in England.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, July 24.—While there has been a slight slackening off in the printing trade in consequence of the holiday season, paper dealers report that the demand for most lines of paper is just as strong as ever. The tendency of both retailers and jobbers is to buy wherever possible, for it is generally conceded that there is no prospect of prices coming down. On the other hand, the impression prevails that the market will go still higher before the downward trend sets in and stocks would be added to unstintedly if the goods could be had. The mills, however, are not able to meet the demands being made upon their resources, and deliveries are just as backward as ever. From three to four months would be necessary to catch up with back orders, even if no new business was booked, and while the mills and jobbers are endeavoring to keep their old customers supplied and manage to get a few odd shipments onto the open market, not a few of the jobbers are refusing to take any orders either from old or new customers. The mills are paying on an average of $15 a ton for coal and the shortage is still causing grave concern. Supplies at many of the mills are nearing the vanishing point and they are only enabled to replenish in small quantities. Cost of manufacture is continually rising. The mills are paying long prices for everything that enters into the manufacture of paper and there is a pronounced shortage of raw materials of every sort. In the meantime the public is insistent in its call for paper which it is impossible to supply in sufficient quantities. Warehouse stocks of book, bonds, ledgers wrapping and in short practically all lines of papers, are exceedingly low and shipments from the mills are reshipped within a few hours after receipt from the plants. With these conditions prevailing as to small supplies and big demands, the prediction is pretty general that the present era of prosperity in the paper trade is destined to last indefinitely. Certainly there is no indication that prices will come down within some months to come and the present under-production furnishes sufficient ground upon which to base the prediction that the coming fall and probably the winter will not see any perceptible change in the general situation as to prices, demand and supply. Many in the trade give the paper trade prosperity another year at least to run and some place the lease of prosperous life in the trade as likely to extend until after the Presidential elections in the United States. No one, however, can be found who will utter a warning based on a possible slump during the coming fall.

Newsprint.

Although the publishers are being well looked after as far as their regular supplies of newsprint are concerned, very little of the commodity finds its way into the open market, although there is a great demand for it. As high as 14c. per pound has been paid within the past few days for a carload of flat sheet news and one Toronto jobber considered himself lucky in getting a small lot at 13½c.

Pulp.

The consumption of pulp and the lowness of the available stocks is greater at the present time than at any period since the era of scarcity set in, according to the statement of the sales representatives of one of the big pulp mills. It is stated that hardly any woodpulp has been sold during the past week owing to the scarcity, although some transactions in ground wood have been made at $150 a ton, f.o.b. mill. Bleached sulphite is quoted at from $190 to $200 in American funds and unbleached is being sold in small quantities at $175. All of the paper manufacturers complain of the difficulty in getting pulp supplies and of the high prices they have to pay for the small quantities they succeed in lining up.

Bristol Boards.

Most of the cheaper grades of Bristols, which are obtainable in Canada, are being supplied fairly freely and the jobbing houses do not complain of any great shortage. Imports of the better grades from the States, however, are coming through very slowly, and orders placed last April are only now beginning to come in. According to reports received from the American mills by Toronto jobbers, the scarcity of Bristols in the United States continues and the mills are booked up for some months ahead. The shipments that are coming in now are pretty well all placed and there will be very small surplus stocks, if any, when the orders placed with the American mills three months ago are filled.

Onion Skin.

One Toronto jobber on receipt of an enquiry from a customer concerning the possible early delivery of 150 reams of onion skin, wired a U.S. house and received the reply that the order could not be filled for four months. This, and other lines of import stuff, could be handled with profit by local dealers if it was possible to get delivery, but comparatively little is coming through and as a consequence dealers are losing a lot of profitable business.

Kraft.

Kraft paper and kraft pulp remain unchanged in price and the mills are booked up to October and November, with the result that the jobbers are not taking any orders for kraft paper at the present time. One of the big jobbing houses in Toronto states that they have to be well content with average shipments of about a ton of kraft paper a day, whereas they used to handle any where from five to ten tons a day. It is almost impossible to get the commodity from the mills now and what is obtainable, is coming through in driblets.

Wrapping Papers.

According to Mr. F. L. Ratcliffe, President of the Ratcliffe Paper Co., Ltd., who has just returned from a visit to the Canadian paper mills, there is no easing off in the situation as far as wrapping papers go. The mills are still sold up several months ahead and with low stocks in the jobbing warehouses and deliveries very slow the situation is anything but satisfactory. The slackening off in the retail demand for

wrapping papers, usual at this time of year, has not come this year and the jobbers are receiving many more orders than they can conveniently handle. Increased prices are looked for but in the meantime the prices of the past ten days prevail.

Book Papers.

With 16c. a pound being paid for No. 1 S.C. book and an anticipated price as high as 19c. in the near future, book paper jobbers are doing business under a severe handicap as to shortage of supplies. Coated paper is about the most reasonably priced book paper commodity and this also can be had at 16c. a pound, which, when the operation of coating is considered, is looked upon as a reasonably low price, when compared with the same price for ordinary book. The jobbers say that what shipments of book paper they are able to get are immediately turned over and barely reach the warehouse before they are shipped out to waiting customers. Two big shipments of book paper reached Toronto this week from the Provincial Paper Mills and they were very quickly absorbed by the jobbers and printers.

Box and Mill Boards.

Box board manufacturers are exceedingly busy and are unable to turn out enough of the product to anywhere near meet the demand. The mills are experiencing difficulty in getting the necessary pulp supplies. The prices that have been prevailing during July will, it is expected, hold good during August.

Rag and Paper Stocks.

Dealers in rag and paper stocks report business brisk, although roofing rags are moving slowly and there is comparatively little demand for this commodity. The demand for cotton cuttings is good and prices in this department, and several others, remain firm.

Rag and Paper Stock Prices.

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$19.00—$20.00
No. 1 unbleached cotton cuttings	$16.00—$16.50
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$13.00—$13.50
Bleached shoe clip	$15.00—$15.50
White cotton hosiery cuttings	$16.50—$17.50
Light colored hosiery cuttings	$13.50—$14.00
New light flanellette cuttings	$12.50—$13.00
No. 2 white shirt cuttings	$12.50—$13.00
City thirds and blues (repacked), No. 15	$3.50—$4.00
Flocks and satinettes	$2.00—$2.50
Tailor rags	$2.00—$2.25
Gunny bagging	$2.25—$2.50
Manila rope	$7.00—$8.00
No. 1 white envelope cuttings	$7.50—$7.75
No. 1 soft white shavings	$6.50—$6.75
White blanks	$4.75—$5.25
Heavy ledger stock	$3.75—$4.25
No. 1 magazine	$3.50—$3.60
No. 1 book stock	$2.75—$2.90
No. 1 manilas	$3.50—$3.75
No. 1 print manila	$2.25—$2.50
Folded news	$2.00—$2.25
Over-issue, news	$2.25—$2.50
Kraft	$5.00—$5.50
No. 1 clean and mixed papers	$2.00—$2.15

Spanish mills, to the number of twenty-five, make all kinds of paper and consume about 65,000 tons of various kinds of pulp per annum. It should prove a valuable market for Canadian producers.

NEW YORK MARKETS

New York, July 24.—Seasonal quietness exists in some branches of the paper market and yet there is by far a greater volume of trade activity than usually prevails during mid-summer. Consumers have let up in their buying to an extent, still demand for most grades of paper is running well in excess of available open market supplies, and in no direction with the exception of spot lots of newsprint have prices declined. In fact, the tendency of values continues strongly upward, and such changes as have been recorded lately have been practically in every instance toward higher levels.

Probably the strongest end of the market at present is in book paper. Local jobbers report that it is very nearly a waste of time trying to get prompt shipments of any grade of book paper. About the only orders mills will consider are those making no definite specifications regarding deliveries and at a price basis prevailing at time shipment is made. Magazine publishers frankly admit being short of supplies. There is hardly a periodical in the States that is not obliged to limit the size of editions and the number of copies printed. Publishers are conserving in every possible way, thus indicating that they have come to the firm conclusion that additional supplies of paper are going to be hard to obtain for months to come. Prices on machine finished book range in the neighborhood of 18 to 19 cents per pound, and these prices are mainly nominal. Mills have practically no stock to offer for prompt shipment and about the only prices obtainable are those which manufacturers or jobbers opine paper is worth provided it can be found available. Super book paper is quoted nominally at 20 cents and higher, and there is little doubt that buyers would readily absorb sizable tonnages as the basis if they could get paper.

Fine papers are also in a very strong market position. Mills are operating at maximum or at close to full capacity and are mostly foresold for months to come. Prices are gradually climbing to higher levels. Mills are having to grant increased prices for raw material, while the volume of demand, and the large part of it remaining unfilled, has its influence on market values. Jobbers in New York have virtually no stocks of bonds and ledgers and are finding it next to impossible to augment their holdings, for the reason that as fast as shipments arrive from mills the paper is immediately distributed among anxiously waiting customers.

The newsprint market shows little change. Prices on spot lots of news in standard rolls have eased off a trifle, sales at as low as 11.50 cents a pound having been recorded, but offerings are decidedly limited as regards tonnage and holders are not pressing customers to buy. There is a firm belief in the trade that the fall will witness a tightening up of the spot newsprint market again and those concerns having stocks unsold are mostly content to keep out of view as sellers for the present in the anticipation of receiving in the autumn the top prices recently quoted. There is no reduction of operations at newsprint mills. Manufacturers are producing as large tonnages as their machines will turn out and the great bulk of the output is moving in consistent fashion to contract customers. This is the time of the year when advertising in daily newspapers drops off and consumption of newsprint consequently is lessened, which fact is the reason for the quieter demand for print paper in the open market.



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INQUIRIES SOLICITED.

Wrappings of all kinds are in strong demand. One reason for the brisk call for kraft wrapping is said to be the closing down of manila mills because of a scarcity of raw material, with the result that buyers have flocked into the kraft market. Prices on No. 1 domestic kraft are firm at around 12 cents at mills and all the supply to be had is meeting ready buyers at about this basis. Tissues rule quotably steady and are moving in good volume. Demand is not quite as voluminous as it was a short time ago but little stock is accumulating and the market presents a firm technical condition.

The board situation is marked by strength. Boxmakers are commencing to cover fall requirements and demand is daily picking up, while with mills outsold for several months and unable to take care of the fresh demands made on them, everything seems to point to further advancement in quotations. Plain chip board is quoted at $115 to $120 a ton at mills and is hard to get in sizable tonnage at these or higher prices. News board is firm at around $125 per ton.

GROUND WOOD.—The ground wood market is firm. There is no increase in visible supplies and the few straggling lots that come into the market from time to time are commanding top prices. About the lowest named in any corner of the trade is $140 a ton for freshly ground spruce pulp of prime quality, and sales have been made at $150, and, according to reliable reports, at even higher levels. From present indications, prices on ground wood are still a good ways off from the top heights they give promise of attaining during the next several months. Consuming mills are using up supplies as fast as they become available, and accumulations are practically negligible. When demand for paper broadens, as it invariably does in the early fall, the probabilities are the inordinate demand for ground wood that is likely to ensue will run prices up to undreamed of levels.

CHEMICAL PULP-WOOD.—Probably the most important development in the chemical woodpulp market has been a strengthening of the Scandinavian market. After a period of about a month's duration when the market in Norway and Sweden held steady with very little fluctuation in prices, values there are again sharply on the uptrend, and importers say that virtually every quotation received from the other side shows a further advance from the prices previously cabled. Prices on nearly every grade of Scandinavian pulp have soared to a point where importers are well nigh unable to compete in the domestic market here. About the lowest at which No. 1 foreign unbleached sulphite can be imported to sell in the American market is 10.50 cents on the dock here, while the scattering of quotations coming forward on bleached sulphite involve mainly pulp of secondary quality for which sellers on the other side demand around 17 to 18 cents a pound. Scandinavian kraft pulp is held at prices equivalent to 8 cents landed here, while even ground wood in Sweden is priced at a cost to local importers of $125 to $130 per ton ex dock on this side.

The demand for domestic chemical pulp has eased up slightly. Consumers are not quite so anxious to buy, yet prices, particularly on sulphite, remain firm and seem to be steadily undergoing a hardening process. Newsprint sulphite is selling freely at 8 to 8.50 cents a pound at mills, while easy bleaching sulphite is quoted at 9.50 to 10 cents, bleached sulphite at nominally 12 cents and domestic kraft at 7.50 to 7.75 cents.

RAGS.—The rag market is in an irregular condition. Some grades are held with pointed firmness while others are available to buyers at almost any prices within reason that are offered. High grades, notably new cuttings, are decidedly scarce and dealers are holding them at strong prices, with the result that buyers find it necessary to pay the figure asked to get supplies. Roofing stock and some other medium or low qualities, on the other hand, are weak and are repeatedly declining to lower price levels. There have been purchases of No. 1 roofing rags this week by mills at as low as 2 cents at shipping points, while plentiful supplies are to be had at a quarter of a cent more. Old thirds and blues are quotably easy and are offered freely by packers at around 4.25 cents f.o.b. shipping points. Old whites are a bit softer in value and are quoted at around 13 cents for No. 1 repacked stock. New white shirt cuttings, washables, flannelettes, new silesias and similar grades, however, are firm, with business reported done in No. 1 white shirt cuttings at 23 cents delivered mills, in No. 1 washables at 11.50 cents delivered and in new light flannelettes at 16 cents delivered.

PAPER STOCK.—Old paper stock of practically every grade excepting books and magazines rules firm in price and there have been slight advances in some directions. Possibly the strongest item at present is flat folded newspaper. Several leading consumers of folded news are actively in the market for supplies and are granting fancy prices, as high as 2.50 cents delivered mills, or in the vicinity of 2.25 to 2.30 cents at shipping points, having been paid. Shavings also are in ready demand and are fetching around 8.25 cents f.o.b. New York for No. 1 hard whites and 7.25

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to 7.50 cents for No. 1 soft white shavings. Because of the economy practiced by print shops, the production of shavings is light and packers are cautious about accepting orders covering large tonnages and are insistent on full asked prices. Kraft paper is in strong demand and steadily rising in value. There have been sales of No. 1 old kraft at close to 6 cents a pound f.o.b. New York, and most sellers are now demanding this price. White blank news cuttings are selling at the record-breaking figure of 6 cents New York. Old books and magazines are largely neglected by mills and are freely available at 3 cents at shipping points.

OLD ROPE AND BAGGING.—The market for old bagging is very nearly demoralized. There is little demand of worth while character emanating from consuming quarters and No. 1 scrap bagging is available at 2.75 cents a pound f. o. b. New York and probably at lower levels. Gunny is quotably off at around 3 cents per pound, and roofing bagging is offered at 1.50 cents at shipping points with few takers in sight. Old rope is steady at a quotable basis of 7 to 7.25 cents per pound for No. 1 manila rope at shipping points. There is a fair demand against contracts but mills are doing little new buying.

TRADE INQUIRIES

448. *Flours, grain, lumber, paper, preserved food products.*—A firm in Piraeus, Greece, with offices at Corfu, would buy on its own account the foregoing articles, or act as representatives for Canadian firms.

457. *Paper and textiles.*—A firm of commission agents at Athens, Greece, would like to open up correspondence with Canadian exporters.

458. *Flour, hardware and paper.*—A firm at Athens, Greece, would be disposed to enter into relations with Canadian exporters.

500. *Industrial chemical and pharmaceutical products, raw material for cotton mills, paper mills and soap manufactures.*—An important firm in Genoa, Italy, are anxious to enter into negotiations with Canadian houses desiring to open up business in Italy.

509. *St. John codfish, wood-pulp, codfish and seal oil, pure lard and backs.*—An important firm of commission agents in Genoa, Italy, are most anxious to enter into negotiations with Canadian houses desiring to open up business with Italy.

515. *Wood pulp.*—A very old Milanese firm anxious to enter into relations with Canadian firms exporting woodpulp.

550. *Newsprint.*—A Brazilian firm of importers, who state that they sold last year over 4,000 tons of newsprint paper, most of which was of Canadian manufacture purchased in the United States, wish to import directly from Canadian manufacturers for own account, shipped by direct line from Canada.

551. *Paper, hardware, cutlery, barb wire, etc.*—An active and reliable Brazilian firm in Juiz de Fora, State of Minas Geraes, Brazil, whose port is Rio de Janeiro, wishes to import Canadian paper, hardware, cutlery, cement, barb wire and other products. Payments would be made against documents at point of origin.

554. *Paper.*—A company trading in the far East wants Canadian supplies of newsprint paper and paper for envelopes and books. Quotations on samples, prices and deliveries.

565. *Paper.*—A Glasgow firm ask to be placed in touch with exporters of paper of all kinds, with a view to either buying or selling on commission.

574. *Stationery.*—An old firm in Trinidad desire correspondence with Canadian exporting firms in the stationery trade.

595. *Cardboard.*—A Glasgow firm ask to be placed in touch with exporters of cardboard.

596. *Box and woodpulp boards.*—A Liverpool firm ask to be placed in communication with exporters of box and woodpulp boards.

597. *Newspaper, etc.*—A Liverpool firm ask to be placed in touch with exporters of unglazed white newspaper in sheets and reels, glazed white printing paper in sheets and reels, unglazed colored printing paper, down to subst. D/C 12 pounds and upwards, and glazed colored printing paper down to subst. D/C 17 pounds and upwards.

598. *Tissue paper.*—A Liverpool firm are interested in importing unglazed and M.G. tissue paper, white and coloured.

619. *Paper cartons.*—The manager of a large bakery in St. John's, Newfoundland, wishes to be put into communication with Canadian manufacturers of paper cartons.

NOTE: For particulars, address Department of Trade and Commerce, Ottawa, giving the number of the inquiry.

NOT CANADA PAPER BOX CO., LTD.

An error on page 789 in our last issue is unfortunately confusing. The Canadian Paper Board Company, Ltd., is the correct name.

P.A.P.A.

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MONTREAL, Canada

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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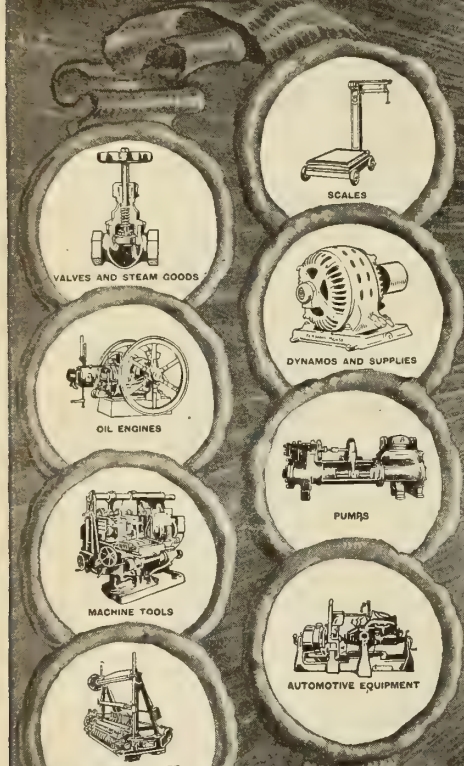
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-:- EDITORIAL -:-

A FALL FORESTRY MEETING.

No summer meeting of the Woodlands Section of the Pulp and Paper Association was held this year There was good reason for this. Many of the leaders in forestry matters in Canada are in London attending the Imperial Forestry Conference. While this important event is fresh in the minds of the delegates and before interest on the part of others has flagged, it would be well to have a meeting in Canada to hear reports from those who went to London.

Canada has the only extensive tracts of softwoods in the Empire and there will be an increasing demand on these forests for lumber and pulpwood. It is important that Canadians get a clear conception of what the demand is likely to be so as to prepare best to meet it. There is no question but what a more intelligent policy than the good one we have now must be instituted **generally** if we are to be depended upon as a source of forest products for more than a very limited time. A comprehensive policy for the whole Dominion must be planned by provincial, federal and individual co-operation, so that all may work on the same basis and in order that forest using industries may have hope of a future existence—there is no Heaven for a pulp mill.

ABSURD AND UNTRUE.

(*By the Associate Editor.*)

For gross departure from the truth as well as for its complete absurdity, we have seldom come in contact with a statement to compare with one published in last week's *Editor and Publisher* (New York) and purporting to have been telegraphed to that journal by General Felix Agnus, described as the publisher of the Baltimore *American and Star*, and prefaced by the remark that the Canadian Export Paper Company has notified that they will not supply those papers with newsprint in 1921. Here is what the General is reported as having said:

> "I am advised that the Canadians have been advised to cut exportation to the United States, all their products going to the Dominion, England, Australia, New Zealand, South Africa and other English colonies. I understand that the government's action is not altogether pleasing to the interests of Canadian paper manufacturers, but they have been forced to accept. The drastic conditions will prove very serious to American publications which had faith in the Canadian product.
>
> "I am informed that Mr. Steele, general manager of the Canadian Export Paper Company, is now in England endeavoring to secure a modification of the arbitrary Canadian Government ruling."

The facts are, as everyone conversant with the paper industry knows, that no restrictions are now being imposed upon the exportation of Canadian paper to the United States and none are in contemplation. The Canadian Government has made no "arbitrary ruling," nor has it advised Canadian paper manufacturers to divert their shipments from the States to England, Australia and other British countries. They are free to send their shipments wherever they like.

Mr. Steele's visit to England is not for the purpose of "securing a modification of the arbitrary Canadian Government ruling" which has never been made, nor has anyone in England any authority to deal with such a ruling if it had been made or to have any concern over its enforcement or non-enforcement.

Some Canadian newsprint manufacturers recently entered into an agreement with the Canadian Government to supply certain Canadian publishers with their paper requirements for the last half of this year—involving a total tonnage of approximately 3,500 tons. This may have necessitated some slight readjustment of foreign shipments. There is, however, no compulsion and no interference whatever with exports of newsprint from Canada to the United States. Canada is today exporting newsprint to American publishers at the rate of about 700,000 tons a year, or more than 80 per cent of the entire Canadian production.

The mischief in such foolish statements as that referred to lies in the fact that they arouse resentment against Canada in the minds of ignorant or uninformed readers and lead to stupid and unnecessary threats of "retaliation" such as were so freely and so needlessly voiced in Washington when the pulpwood situation was under discussion. They do incalculable harm to both countries.

WHO MAKES EAGLE BRAND?

A correspondent in Paris wishes to know who makes "Eagle" brand pulp. The Pulp & Paper Magazine will be glad to have this information so that we may advise our friends of the name and address of the producer.

THE INTERNATIONAL NUMBER.

Apparently the description of the International Number of Pulp and Paper Magazine in the issue for July 22 was not sufficiently explicit. Some subscribers are wondering why they have not received a copy. It will, perhaps, be a disappointment to know that they will not receive a copy unless we receive a dollar. The publishers are sorry that this is the case, but the facts of the matter are, that we could not print enough copies for the extensive distribution to possible future trade channels, which we felt to be our best contribution to the success of the industry, and also to supply each one on our large list of subscribers. In fact, it was difficult for the mill to give us enough paper for the edition printed. By referring to the contents, as given July 22, on page 774, it will be seen what subjects are covered. The full list of exports of pulp and paper appeared in the regular issue last week, and the article on imports will appear shortly. The excellent 14 page article on the "Manufacture of Sulphite Pulp," by H. G. Spear, has been reprinted and may be had as a 16-page pamphlet at 75 cents. The article by Guy Tombs on "How to Get the Goods to the Customer," will be used some time in a regular issue, but it will not be possible to reproduce the fine descriptions of individual mills that made the most striking feature of the International Number. A dollar is little enough for this number, which is well supported by the many complimentary letters received.

BACK NUMBERS OF "PULP AND PAPER" FOR SALE.

A friend of ours has volume 13 of the Pulp & Paper Magazine (1915) complete except for issue No. 3, bound in full leather in two parts; also volume 14, numbers 1, 2, 3, 5, 8 and 9. These are for sale and offers will be passed on to the owner.

By the way, our own copy of volume 11 (1913) has not been returned yet.

COBWEBS.

A despatch from New York to a Montreal paper states that the Canadian Paper Export Association—meaning the Canadian Export Paper Company—will divert 70,000 tons of newsprint in 1921 from the American market to British consumers. A Canadian statistician figures the 1921 production as probably 170,000 tons more than the present, so there is more than twice enough to take care of the diversion mentioned, even if this is as great as stated. American newspapers are large now, and they will hardly be starved with an additional 100,000 tons of paper. Getting scared will not help so much as getting careful.

Five hundred guests attended the 10th birthday party of the Forest Products Laboratory at Madison, Wis., to do honor to the precious infant. This is showing proper respect for the conservation of the forest.

TO MAKE MORE PULP MORE CHEAPLY.

There are other reasons than progress toward economic independence for the use of liquid sulphur dioxide in the manufacture of sulphite pulp. The possibility of using the sulphur dioxide from the treatment of sulphide ores of copper and nickel will reduce or eliminate a troublesome waste product of the smelter and enable the pulp mill to produce pulp more cheaply and to get a greater yield. Such is the conclusion to be drawn from the article on the next page.

The map in this issue shows that within convenient shipping distance of the principal Canadian smelters are sulphite mills which could make good use of liquid sulphur dioxide. Mr. Edwardes indicates methods by which this material can be recovered from smelter fumes and mentions the advantage of using it in the pulp mill.

The ore fields about Sudbury, Ont., seem the most important source of sulphur in Canada at present, although operations in the lead field in the Gaspe district of Quebec may figure in the future, and the British Columbia and Manitoba sulphides also present possibilities.

Preliminary investigations have been made with regard to the use of liquid sulphur dioxide which might be recovered at the rate of more than 50 tons a day at Copper Cliff, Ont. The principal difficulty in the way of making the proposition commercially feasible seems to be the freight rates asked by the railways, due to the classification of the material with explosives. The rate mentioned as obtaining in Washington is said to be satisfactory to the Canadian smelters. We understand that there is no return freight charge on empty cars for liquid chlorine, and the same should hold for sulphur dioxide.

Reference might be made to the Pulp and Paper Magazine for December 18 1919, at page 1091 and July 1, 1920 at page 694. It seems that something will be done and should be done along this line in the near future.

IF HE WON'T LEARN, FIRE HIM!

A very unfortunate accident which occurred recently in one of our Canadian paper mills should serve as a lesson to our third and fourth hands when lifting reels from the floor to the reel stands near the drum. It appears that in lifting a reel and trying to place it in position on the stand, the reel did not seat properly in the bearings.

The third hand tried to improve matters by giving the stand a push but of course this was of no avail. So he "yanked" the rope controlling the valve of the pneumatic hoist. Of course the hoist jumped up, but in doing so the fingers of the fourth hand were badly crushed between the chain and the reel. If this man had not lost his temper and had used the machine as he should have i.e. first of all opened the valve gently, this accident would not have happened. It only goes to show that some people have their minds everywhere but on their work.

This is the second demonstration of this fellow's thoughtlessness, as some time ago he started a wire on one of the paper machines while a man was sewing same. The latter was only saved from certain death by his ability to clutch on to the Deckle strap pulley shaft while passing underneath.

Think of the other fellow and keep your temper is the moral of the above.

Advantages of Liquid Sulphur Dioxide in Sulphite Pulp Manufacture*

By VANCE P. EDWARDES
Engineer in Forest Products, Forest Products Laboratory, Madison, Wis.

Since the last meeting of the Technical Association more or less interest has been displayed in the use of liquid sulphur dioxide in the manufacture of sulphite pulp. This paper was prepared with the idea of presenting such facts which are now available on this subject.

The production of liquid sulphur dioxide from smelter smoke has long been recognized as a possibility, but previous to the world war no liquid sulphur dioxide from any source was produced in this country. Prior to 1914 the Forest Products Laboratory was using liquid sulphur dioxide obtained from Germany in cylinders of approximately 200 pounds capacity. It was some time after the institution of the blockade before we were able to obtain the liquefied gas in this country. There are now, however,at least two concerns manufacturing this material from elemental sulphur, though upon a small scale, so far as pulp manufacture is concerned, and one smelter producing something in the neighborhood of fifty tons of liquid sulphur dioxide per day.

Fumes from smelters operating upon pyritic ores carry anywhere from 0.5 to 3 per cent. sulphur dioxide in the gas stream emanating from the main stack. However, from certain of the smelting operations, such as sintering, roasting and converting gas of much higher concentration is obtained. Gas from this source is naturally selected for liquefaction inasmuch as high concentrations of sulphur dioxide require less total amount of gas per pound of product.

The process employed follows rather closely the procedure outlined by Hannish and Schroeder and patented by them in Germany. The patent, however, expired sometime ago. The flow sheet and following description will serve to clear up the main points at least. The gas is first cooled, then passed through dust scrubbers which remove nearly all of the suspended solids and much of the sulphuric acid mist. In modern plants the Cottrell electric precipitator would very satisfactorily handle this step of the process. After cleaning, the gas is passed into absorption towers where as strong as possible a solution of sulphur dioxide and water is made up. In actual operation the strength of this solution tests in the neighborhood of 1 per cent. The sulphur dioxide is next recovered from the water solution by the application of heat and agitation, is cooled, dryed and compressed to 60 to 75 pounds, and cooled again to 20° Cent., at which temperature it is liquefied. Another method patented by Moulin and Vardini[2] comprising the direct cooling and liquefaction of the entire gas stream but has, as far as known, never been put into practice. The great disadvantage of this process lies in the enormous amount of inert gas which must be handled by the compressors. Other methods are that of Pictet, where sulphur dioxide is produced by the action of molten sulphur and sulphuric acid. This method was used to some extent in France, as was that of Melsens and Pictet, of freezing sulphurous acid solutions.[3] The solution of the sulphur dioxide in nonaqueous solvents, such as soya bean oil, has been recently patented in this country[4] and another method where the carrying media is a silica jell is being developed.

It is particularly difficult to figure costs on any plant at the present time and especially one of this type; so much depends upon local conditions but an estimate which we feel is sufficiently accurate to be used as a starting point is $3,000 per ton of liquid sulphur dioxide per day. Manufacturing costs are also uncertain, but will probably not exceed $8 per ton, including interest and plant depreciation, but not charges accruing from the purchase of tank cars.

Tank cars of the type required will cost not less than $7,550 with a loading capacity a trifle over 3,800 U. S. gallons weighing 10.4 lbs. each. Depending upon the distance and the number of transfers necessary, the number of tanks required will vary. Assuming one transfer on a total haul of 150 miles, with 3 day service in each direction, 9 or 10 tanks would be needed to take care of a steady movement of one car a day. In other words a plant producing 20 tons of liquid sulphur dioxide per day would need 10 cars. No figures are available on the rate of depreciation of these tanks but interest charges alone amount to 75 cents per ton while figuring a ten year life adds $1.25 a ton more.

For purposes of calculation it is safe to assume that this commodity will carry the same rate as sulphuric acid or 15 to 18 cents for a 150 mile haul. An actual rate applying on the west coast is 12½ cents a hundred for a 145 mile haul. A slight rebate probably equivalent to returning the emptys free, will undoubtedly be allowed the shippers by reason of the private ownership of the cars. (Said to be no return charge on chlorine cars.—Ed.

Cars suitable for transporting liquid sulphur dioxide are described as class V tank cars and the detailed specifications can be seen on page 33 of the specifications for Tank Cars as published by the Master Car Builders Association and revised in 1918. For purposes of general information the following abstract will doubtless suffice:

Tank.—60 inch inside diameter.
28 foot length.
¾ inch flange steel lap welded. No caulking permitted.
Test.—To stand hydrostatic pressure of 300 pounds per square inch.
Dome.—Cast steel dome cover, with 1¼ inch loading and unloading valves and a safety valve set at 200 pounds.
Drain Plug.—To be provided in bottom and closed from the inside.

*Presented at the fifth annual meeting of the Technical Association of the Pulp and Paper Industry, New York, April 14, 1920.

[2]Jour. Soc. Chem. 1912, p. 128.

[3]Molinari's Industrial Inorganic Chemistry, p. 245.

[4]Richter & Moore, U.S. Patent 1,315,189; see also Paper Industry, Oct. 1919, p. 536.

Valves.—To be of material not subject to destruction by the lading.

Insulation and Jacket.—Tank to be insulated with four one inch layers of cork or board or other approved material. Insulation to be covered with 1/8 in. riveted steel jacket.

The value of liquid sulphur dioxide for acid making and its advantages in cooking are to a certain extent unknown quantities, though it can certainly be assumed that it is worth in excess of its equivalent weight in sulphur. That is, if sulphur costs $24 a ton at the mill liquid sulphur dioxide is worth more than $12. Neglecting any of the chemical advantages due to the use of liquid sulphur dioxide, it is estimated that mechanically the decreased handling charges and simplified operation alone would permit $15 being paid for this material.

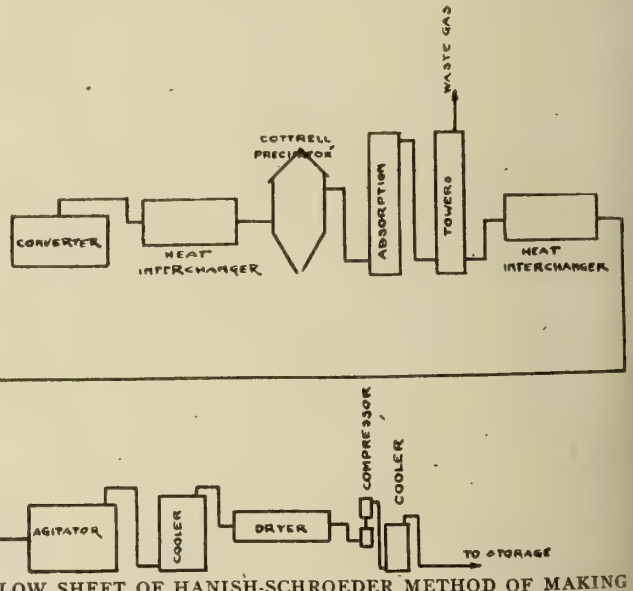
In addition to simplicity of operation and control, we feel that liquid sulphur dioxide has other and more important advantages over elemental sulphur when used in acid making. These may be briefly enumerated as follows: Freedom from sulphuric acid and sublimed sulphur; elimination of burners and coolers; smaller piping necessary and that of iron; stronger acid and shorter make-up time due to the more concentrated gas, and the advantage which would be gained in the summer by the acid plant being independent of the cooling water. With the exception of sulphuric acid and acid strength, the other points have been considered in the above estimate.

Sulphuric acid most frequently causes a loss of twenty pounds of sulphur per ton of pulp in addition to the lime which is precipitated out[5]. On the above basis this amounts to thirty-five pounds of calcium oxide per ton. The material loss from these items alone can easily amount to 35 cents a ton of pulp made, and in many cases is doubtless more. In addition to actual monetary loss, indirect, and more serious losses are incurred due to the cost of cleaning the acid system and piping of precipitated lime, and the rapid depreciation of such equipment. A saturated solution of clear cooking acid can carry about twenty pounds of calcium sulphate in the liquor per ton of pulp. This is precipitated at cooking temperatures and could easily form a protective coating over the ends of the chips, effectually plugging the pores, and seriously retarding penetration by the cooking acid, thus causing unevenly cooked pulp. Doubtless, everyone has noticed "egg-shells," which appear at times in the finished sheet. These spots are calcium sulphate.

In pulping woods carrying even small amounts of pitch, the precipitated calcium sulphate offers a nucleus around which the pitch may collect and examination of pitch taken off the couch guard board will show it to consist in the main part of mineral matter.

If the waste liquor is to be used for ethyl alcohol production, it has been found that sulphuric acid has a retarding effect upon the amounts of sugar formed. This is possibly contrary to what would be expected from the ease with which wood is hydrolyzed by sulphuric acid in the production of alcohol from wood waste.

The effect of increased gas concentration upon the speed of reaction and strength is well known, but deserves reiteration.[6] With a gas concentration of 100 per cent and at 20° Cent. and atmospheric pressure, the maximum amount of sulphur dioxide which can be dissolved in water is 10.8 per cent. With burner gases testing between 16 per cent and 17 per cent, approximately one-sixth or only 1.8 per cent free sulphur dioxide could be made. In addition, acid is usually made under a vacuum, thus further reducing the possible acid concentration. Before going further, I wish to explain the terms used above: By free acid in this case is not meant the usual mill test "free," but true free sulphurious acid. As an example,—an acid which by the mill tests analyzes 4.0 per cent total, 2.6 per cent free, and 1.4 per cent combined, actually has the following composition: 4.0 per cent total, 1.2 free and 2.8 combined. That is, the total amount of sulphur dioxide present is 4 per cent, sulphur dioxide in free sulphurous acid, 1.2 per cent and that combined with the bases 2.8 per cent. It would be possible then to make up an acid under atmospheric pressure and 20° Cent., using liquid sulphur dioxide to the following approximate composition, as indicated by the mill test. Total 13.2 per cent, free 12.0 per cent and combined 1.2 per cent. In comparison with this, using a 17 per cent gas at 16 ° Cent. and atmospheric pressure, the limit of solubility was reached when the mill test showed 4.0 per cent total, 2.8 per cent free, and 1.2 per cent combined.[7]



FLOW SHEET OF HANISH-SCHROEDER METHOD OF MAKING LIQUID SO_2 FROM SMELTER SMOKE

Assuming that it was not possible for any reason to use all liquid sulphur dioxide in the acid plant it still would be very advantageous to fortify the burner gases with this material. In such a case it would probably be best to introduce the sulphur dioxide into the burner gas stream at the beginning of the coolers, thus obtaining the cooling effect of the expanding gas. Most important, however, would be the advantage derived from the increased acid plant capacity without increased absorption equipment.

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[5]A. S. Cosler, "Burner Gas Cooling"——Paper, 2-13-18, p. 19

[6]Griffin, M. K., "Sulphur Dioxide Absorbtion Systems." Paper, February 13, 1918, p. 64.

[6]Baker, E. R., "Theory and Practice of Acid Making." Paper, February 13, 1918, p. 24.

[7]P. A .Paulson, "New Absorption Apparatus." Paper, February 13, 1918, p. 170.

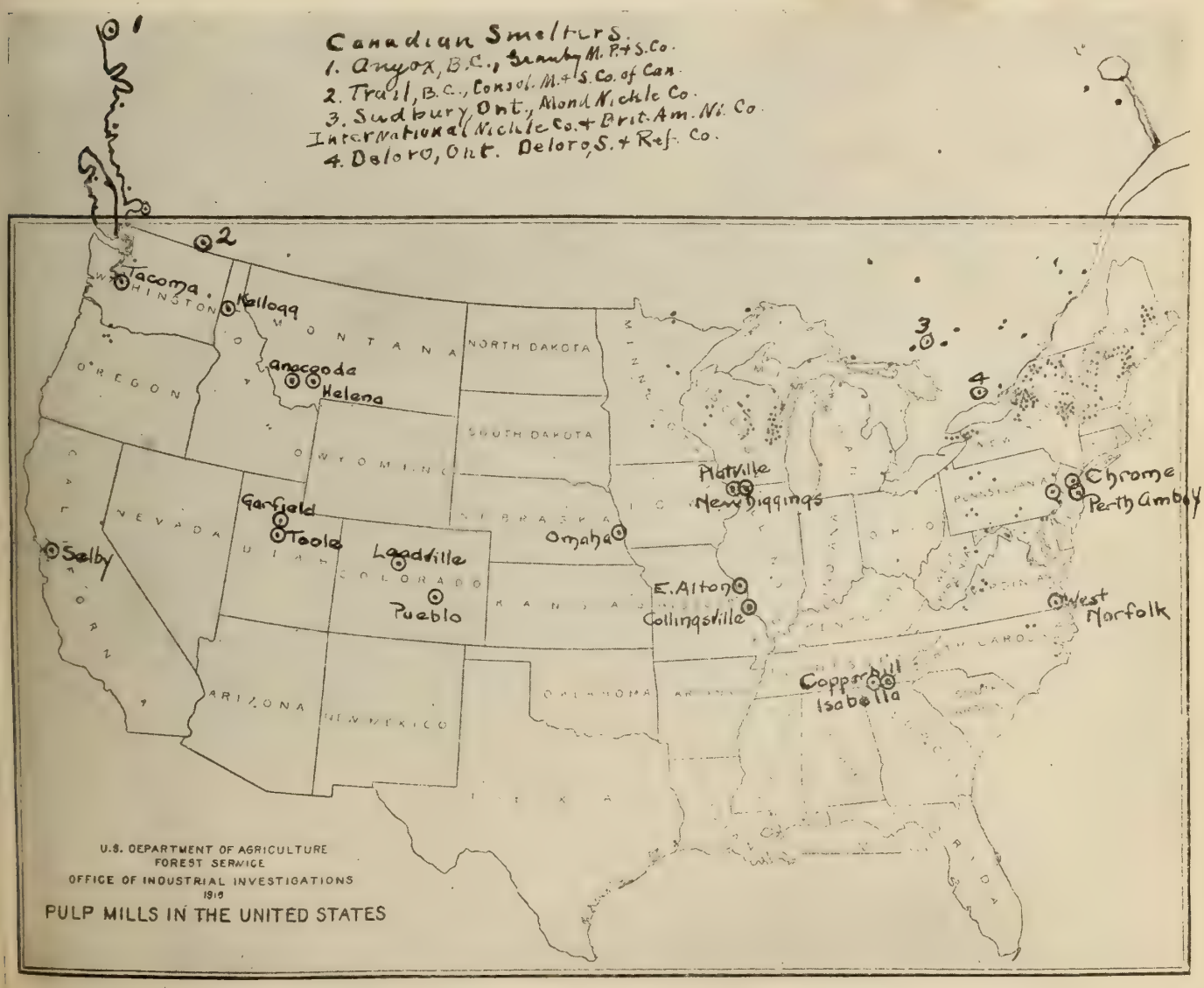
In acid making, then, we have several factors, the effect of which can be reasonably expressed in dollars and cents, and others which I feel to be of greater importance but which are difficult to estimate.

The advantages arising form the use of stronger acid in cooking have been repeatedly proved. What the effect of cooking with an acid of 10 to 15 per cent total sulphur dioxide concentration means, I cannot definitely say. It would be expected that increased yield due to more even penetration would be obtained, together with a shorter cooking time and lower bleach consumption. Such experiments as we have made indicate that with an acid of double the sulphur dioxide concentration than that usually employed, the time was decreased by 25 per cent and the yield increased by 10 per cent based on normal yields. While these figures remain to be confirmed, they will serve as a basis for calculating the saving effected. With a digester making two cooks a day a reduction of 25 per cent in the cooking time would add three cooks a week to the mill output. The increased saving due to greater yields would amount to about 100 pounds on a cord of wood, or you would be getting 1,100 pounds for the cost of 1,000 pounds. In the case of a 10-ton digester, the weekly output due to shorter cooking time would be increased from 120 tons to 150, while the higher yield would add 15 tons, bringing the total to 165 or a 37½ per cent increase.

Liquid sulphur dioxide upon expansion absorbs about 94 British thermal units per pound, and it is conceivable that the cooling water for the relief lines could be used to supply at least part of this heat. Also, it would be possible to pass the cooled relief gases directly into the acid system, regulating the flow of gas from storage tanks to suit conditions. This, of course would be impossible if the gas supply was obtained from burners. The reclaimed liquor would be collected in a separate tank and there would be no raw acid tanks.

Summer, with the temperature of the cooling water mounting upward, is generally looked forward to by the sulphite man as a time full of trouble. Because liquid sulphur dioxide upon expansion absorbs heat. hot cooking water will not have the same drawbacks as when sulphur is burned.

Again these advantages must be charged the various alterations necessary and the enlarging of the recovery system to handle the greatly increased amount of gas from the digesters. What this may amount to we unfortunately have not the data upon



Approximate location of Canadian Smelters and Sulphite Mills, added by the Editor.

which to base any calculations, so must leave the problem to those who are in closer touch with mill conditions.

So far we have considered only the pulp mill side of the proposition. However, it takes two to make a bargain, and the smelter man's wishes must be consulted. He must first be assured of a steady demand for a term of years at a fairly definite price before he can be induced to invest his capital in a plant for liquid sulphur dioxide manufacture. The proposition is new, and technical details will have to be worked out before the plant will be able to operate at anywhere near the highest efficiency. All this costs money and plenty of it, and while the smelters would be very glad to be able to dispose of their waste gases in such a manner in many cases products other than liquid sulphur dioxide can be manufactured. Sulphuric acid, of course offers the biggest field, both as a final product and when used in the production of phosphate fertilizer. Then it is possible to reduce the fumes to elemental sulphur which, however, would probably be a drug on the market. Sulphur when manufactured into sulphuric acid returns at present a greater revenue per unit of sulphur than a price of $15 a ton for liquid sulphur dioxide would allow, and the manufacturing costs are nearly the same. The argument in favor of the liquefied product is that the sulphuric acid market is subjected to rather violent fluctuations while the pulp mill demand should be fairly constant.

The foregoing has been written with the intent of presenting all sides of the question as fully as possible in order that the pulp men might be informed of the present situation, and enabled intelligently to estimate the price he would be willing to pay for liquefied sulphur dioxide.

Not all mills will be able to obtain a supply of this materially, because a relatively small tonnage of pyritic ores is smelted in the pulp-producing centers. The total amount of liquid sulphur dioxide which could be manufactured is in excess of 2,200 tons a day, but by far the greater part of this is produced in the West The accompanying map clearly indicates the situation with respect to both the present mills and the wood supply of the future. Upwards of three-fourths of the possible production is within easy shipping distance of the national forest areas, several smelters being on the forest borders.

ADVICE TO BATHERS.

In July the swimming season starts and with it, its normal quota of drowning accidents.

The first good advice we can give here is "LEARN HOW TO SWIM."

The second one is if you can not swim and yet wish to enjoy a refreshing bath be careful and do not go belond your depth.

Do not go in the water when prespiring.

Wait at least two hours after a meal before bathing.

Do not dive in rivers and lakes that you don't know.

Do not fool with poor swimmers in the water,they may get excited and get drowned.

Remember that canoeing is a dangerous sport and that rocking the boat generally ends in a regretful accident.

"I hear that she is interested in forestry."

"Well she is to the extent that she always pines to look spruce."

THE PRINCIPLE OF PROFITABLE PRODUCTION.

(Chicago Herald and Examiner.)

Put 100 men on an island where fish is a staple article of sustenance. Twenty-five of the men catch fish. Twenty-five others clean the fish. Twenty-five cook the fish. Twenty-five hunt fruit and vegetables. The entire company eat what thus is gathered and prepared.

So long as everybody works there is plenty. All hands are happy.

Ten of the allotted fish catchers stop catching fish. Ten more dry and hide part of the fish they catch. Five continue to catch fish, but work only part of the day at it.

Fewer fish go into the community kitchen.

But the same number of men insist upon having the same amount of fish to eat as they had before. The fifty men who formerly cleaned and cooked the fish have less to do owing to the undersupply of fish. But they continue to demand food.

Gradually greater burdens are laid upon the fruit and vegetable hunters. These insist on a larger share of fish in return for the larger efforts in gathering fruit and vegetables. It is denied them and soon 20 of the 25 quit gathering fruit and vegetables.

But the entire 100 men continue to insist upon their right to eat. The raily food supply shrinks. The man with two fish demands three bananas in exchange for one of them. The man with two bananas refused to part with one for fewer than three fish.

Finally the 10 men remaining at work quit in disgust. Everybody continues to eat. The hidden fish are brought to light and consumed. Comes a day when there is no food of any kind. Everybody on the island blames everybody else.

What would seem to be the solution? Exactly. We thought you would guess it. For we repeat that you can't eat, buy, sell, steal, give away, hoard, wear, use, play with or gamble with what isn't.

PAPERMAKING MATERIALS IN GERMANY HIGH IN PRICE

According to a recent issue of Kolner Zeitung, the German paper industry is handicapped by the scarcity and increased prices of raw materials. This is particularly true of old paper and rags, which are extremely difficult to obtain, and have reached a price which appears unjustified. The demand is very great and constantly increasing in spite of the fact that consumers believe present prices cannot continue. The cellulose plants in eastern Germany, which have been forced to suspend production for some weeks owing to the shortage of coal, have recently resumed operations, and it is hoped that renewed deliveries of cellulose will help to drive down the prices of old paper and rags. Straw, which is used in large quantities in the German paper industry, is now quoted at 55 to 66 marks per 100 kilos, but this price is expected to fall in the near future. It is hoped that this will also have an effect on the prices of other raw materials. Wages in the industry have risen over 100 per cent since December, and the cost of coal, chemicals, dyes, and other raw materials has risen in like manner. Manufacturers have therefore been forced to increase the price of paper to a point where the demand is seriously affected. Unless the cost of raw materials falls very soon the industry will suffer.

Wages and Labor in the U. S. Paper Industry

High wage rates and high average working time in the pulp and paper industry is revealed by figures just made public by the U. S. Department of Labor following a compilation of data relating to the industry during 1919, according to Paper, New York.

Cooks, machine men and beater men receive the highest wages, though there are several other departments in which the scale is almost as important, calender men, enamelers, trimmers and acid makers all receiving more than 50 cents an hour.

The range among male workers extends from 35.9 cents an hour for rag pickers to 69.2 cents for machine tenders, and for female workers from 27.4 cents an hour for sorters to 30.3 for calender girls.

A total of 85 mills reported 6,366 workers and 64 mills stated that 1,964 female workers were on their payroll, the great majority of the mills and workers being registered from Maine, Massachusetts, New York and Wisconsin.

Overtime was no exception in many mills, according to the records which show frequently that the employees worked from 100 to 110.4 per cent of the regular time, the acid makers being credited with the highest overtime record with cooks second.

The average number of hours worked per week amounted to 51.4 with the average week day at 8.6 hours.

The report is naturally subdivided into two parts—one dealing with the manufacture of pulp and the other with the manufacture of paper.

In the table published herewith are given the fundamental facts concerning the hours and earnings of employees. The first three columns of the table indicate the sex and occupation of the employees to whom the later figures in the same line refer, and also the number of establishments and the number of employees whose records were used in computing the averages. The rest of the table divides naturally into two sections, the former dealing with hours, the latter with earnings.

Table in Six Columns

"The facts about hours are shown in six columns. The first of these columns shows an average number of hours actually worked during the pay-roll period by employees on one-week pay rolls; the second shows the average number worked by employees on two-week and half-month pay rolls. It will be seen that there is no constant ratio between the figures for the same occupation in the two columns. This is to be explained partly by the fact that the figures for the two columns necessarily come from different establishments, partly by the fact that the second of the two columns contains data from pay rolls varying in length from 11 to 16 days; and partly by the fact that longer pay rolls show a constant tendency toward shorter average hours of actual work.

"Two groups of employees are combined in the next column. This column shows the average number of hours per week day worked by the employees in each occupation. The figure obtained for each employee in the occupation by dividing the number of hours worked by him during the pay-roll period by the number of week days in the period, adding the daily hours of all the employees in the occupation, and dividing the sum by the number of people in the occupation. The resulting quotient, average hours worked per week day, is the number of hours per day that each employee in the industry would have worked if all had worked six days a week and no more, and if all had worked the same number of hours on the each day.

Average Hours

"By multiplying the average hours per week day by six the average figures of the column "Average hours worked per week" are obtained. In the next column are shown the average full-time hours per week in each occupation. By comparing average hours worked per week with average full-time hours per week are obtained the figures in the last column relating to hours, the column headed "Percent of full time worked."

"The last four columns of the table relate to earnings. In the first two of these columns are given the average earnings actually received during the pay-roll period by those on one-week pay rolls and by those on two week and half-month pay rolls. These incommensurable figures are changed to a comparable form by reducing them to average hourly earnings, and the result for all the employees in each occupation is shown in the column bearing that heading.

State	Paper and Pulp Establishments	Paper and Pulp Employees
Alabama	——	——
California	——	——
Connecticut	6	193
Delaware	——	——
Florida	——	——
Georgia	——	——
Illinois	——	——
Indiana	——	——
Iowa	——	——
Kansas	——	——
Lousiana	——	——
Maine	5	1,038
Maryland	——	——
Massachusetts	13	1,549
Michigan	7	609
Minnesota	4	350
Missouri	——	——
New Hampshire	4	337
New Jersey	3	99
New York	11	734
North Carolina	——	——
Ohio	8	741
Oklahoma	——	——
Oregon	3	687
Pennsylvania	9	716
South Carolina	——	——
Tennessee	——	——
Texas	——	——
Vermont	3	281
Virginia	——	——
Washington	2	377
West Virginia	——	——
Wisconsin	7	619
Total	85	8,330

"Finally in the last column of the table, are shown the average earnings per week for employees in each occupation. This figure was first computed for each employee by dividing his earnings for the pay-roll period by the number of week days in the period

and multiplying the quotient by six. The sum of the figures thus obtained for all the employees in the occupation divided by the number of people in the occupation is the average earnings per week for the occupation. It is a hypothetical figure. It represents what each employee in an occupation would have earned in a week if all employees in the occupation had earned the same amount each day of the pay-roll period, and if any one employee in the same occupation had earned the same amount per day as any other employee in the same occupation.

Average Earnings

A figure for average earnings per week may be obtained by multiplying the average hours per week of an occupation by the average earnings per hour in the same occupation. Weekly earnings obtained in that way may vary considerably from the figures given in the table. Where this variation occurs, however, it is entirely due to additions or subtractions involved in handling continuing decimals. The two methods are fundamentally identical. As men work regardless of the number of hours per day they worked or the amount of work they turned out, actual earnings of employees for any number of hours per week could be readily and accurately changed into corresponding full-time earnings per week. The prevalence of a higher rate for overtime work and a great variety of bonus systems in the industrial world of to-day makes the process of changing actual earnings to full-time earnings laborious and the results problematical.

Overtime Pay

"Overtime pay presents few theoretical difficulties. If the exact number of hours overtime work and the overtime rate is reported for each employee, it is possible to deduct from the figures reported for total hours and total earnings the overtime hours and earnings, and from the remainders to compute an hourly rate for regular time. But the practical difficulties encountered in attempting to determine the overtime hours and earnings of each employee are great. Overtime hours can not be ascertained by subtracting the full-time hours of an employee for the pay-roll from the hours actually worked by him. Overtime is a matter of daily hours, and over-time hours on one day of the pay-roll period may be offset by less than full-time hours on another day.

"It frequently happens there is an employee whose total hours worked during the pay-roll period are less than the full time hours of the amount of overtime to his credit. Moreover, the pay-rolls of many establishments afford no indication of the amount of over-time paid for. The extra pay for overtime is frequently handled in practice by "boosting" the hours. For example, in an 8-hour establishment that pays at the rate of time-and-a-half for overtime an employee who works 10 hours in a day is credited on the pay-roll with 11 hours. By this method the total earnings of the employee for the pay period can be computed by multiplying his total hours, as thus measured by his regular hourly rate. In many cases it is only by

AVERAGE HOURS WORKED AND AVERAGE EARNINGS MADE IN THE PULP AND PAPER INDUSTRY IN 1919, BY SEX, OCCUPATION, AND PAYROLL PERIOD

Sex and occupation	Number of establishments.	Number of employees.	Average hours actually worked— In weekly pay period	In biweekly or semi-monthly pay period.	Per week day.	Per week.	Full-time hours per week.	Per cent of full time worked.	Average earnings actually made— In weekly pay period.	In biweekly or semi-monthly pay period.	Per hour.	Per week.
Paper and Pulp.												
MALES												
Paper												
Back tenders	81	757	53.0	102.1	8.7	52.2	50.8	102.8	$26.88	$53.76	$0.516	$26.63
Beater men	82	459	54.5	108.0	8.9	53.4	51.7	103.3	31.09	53.76	.551	29.44
Calender men	29	305	50.1	95.4	8.3	49.8	49.3	101.0	25.81	44.34	.504	24.92
Counters	15	43	52.4	92.2	8.4	50.4	50.0	100.8	24.02	40.68	.450	22.56
Cutter men	57	186	54.6	109.3	9.0	54.0	53.7	100.6	23.15	48.26	.428	23.15
Enamelers	7	87	55.1	95.6	8.5	51.0	50.2	101.6	30.15	47.74	.526	26.83
Loftmen	7	65	48.1	.....	8.3	48.1	48.8	98.6	21.43	.....	.429	21.43
Machine tenders	81	702	53.4	112.0	8.9	53.4	50.9	104.9	36.60	76.49	.692	36.63
Packers	80	582	52.1	99.0	8.6	51.6	53.2	97.0	25.98	41.04	.427	24.93
Plater men	12	45	50.3	106.0	8.4	50.4	51.4	98.1	23.13	48.81	.460	23.30
Size makers	40	53	55.6	134.9	9.2	51.6	54.1	95.4	18.36	38.69	.359	18.58
Rag workers	19	84	51.1	108.3	8.6	55.2	54.0	102.2	24.42	60.36	.440	24.90
Third hands	70	617	52.8	99.2	8.6	51.6	50.9	101.4	23.36	45.66	.447	22.99
Trimmers	38	100	53.4	102.5	8.8	52.8	52.8	100.0	26.71	50.39	.500	26.25
Washermen	16	55	51.4	98.3	8.5	51.0	49.7	102.6	23.90	46.25	.473	23.64
Total	82	4,140	52.8	103.4	8.7	52.2	51.4	101.6	27.68	52.90	.512	27.18
Pulp												
Acid makers	36	106	56.6	118.9	9.4	56.4	51.1	110.4	28.52	56.68	.500	28.12
Barkers	30	234	53.6	90.6	8.2	49.2	51.7	95.2	22.03	41.06	.424	20.95
Blow pitmen	33	125	53.7	108.4	8.07	52.2	50.0	104.4	23.36	46.46	.433	22.90
Chipper men	36	147	55.0	95.2	8.5	51.0	52.4	97.3	23.20	42.36	.431	21.77
Cooks	37	119	55.5	108.4	9.1	54.6	50.5	108.1	31.07	60.93	.555	30.51
Grinder men	29	555	52.1	93.3	8.3	49.8	52.6	94.7	24.14	44.80	.444	23.10
Pressmen	43	677	51.4	100.7	8.3	49.8	50.9	97.8	23.03	45.67	.448	22.40
Screenmen	32	180	52.6	111.2	8.8	52.8	49.7	106.2	22.59	50.79	.433	22.84
Splitter men	20	83	54.9	113.4	9.0	54.0	51.9	104.1	21.56	52.19	.433	22.52
Total	43	2,226	52.9	100.0	8.5	51.0	51.4	99.2	23.93	46.37	.449	23.17
Grand total	85	6,366	52.8	101.9	8.6	51.6	51.4	100.4	26.47	50.08	.490	25.78
FEMALES												
Paper												
Calender girls	4	43	49.8	.....	8.3	49.8	51.3	97.1	15.09	.....	.030	15.09
Counters	35	199	48.7	100.5	8.1	48.6	52.1	93.3	14.72	27.87	.297	14.48
Laborers	58	1,165	47.7	92.9	7.9	47.4	51.5	92.0	13.10	25.11	.276	12.82
Sorters	21	557	49.3	90.2	8.0	48.0	52.0	92.3	13.70	23.42	.274	13.10
Total	64	1,964	48.2	92.9	8.0	48.0	51.7	92.9	13.44	24.75	.277	13.11

obtaining the time record of the employee day by day that overtime hours can be discovered.

The Hourly Rate

"The effect of computing full-time earnings by the use of an hourly rate containing an element of extra pay for overtime is obviously to show full-time earnings more or less in excess of the amount that could actually be earned in regular time only. An additional difficulty is presented in the case of employees working overtime and receiving a bonus. It becomes necessary to determine for each such employee how much bonus, if any, he would have received if he had performed no overtime work. Sometimes it is readily seen that the bonus would have been earned in regular time. Such is the case, for example, with an attendance bonus, which is usually paid for regularity of attendance during regular time only. A production bonus, however, can not be so readily apportioned. It will be obvious in some cases that all of it was earned in overtime, but in other cases an approximate apportionment of the bonus between regular time and overtime is the nearest approach that can be made toward determining regular-time earnings.

"Still more hopeless would be the the attempt to determine how much of such a production bonus would have been earned in full regular time by an employee who worked less time in the pay-roll period for which the records were copied and consequently earned no bonus for that period. Production bonus systems are very frequently so arranged that an employee of average ability and industry will earn some bonus if he works full time.

"The purpose of dwelling at length upon the impossibility of making an accurate determination of full-time earnings from the pay-roll data of employees under modern conditions is only partly to explain the omission of figures for such earnings from the foregoing table. It is intended primarily to bring out and emphasize the fact that it is entirely inadmissible to compute full-time earnings for employees in any occupation shown in the table by multiplying full time hours per week by earnings per hour. For, while the former figure is definite and entirely adapted to the purpose in hand the latter represents the average actual hourly earnings of employees, some of whom worked more than full time and others less and whose average hourly earnings for the period, therefore, may may be either more or less than they would have been if the same employees had worked full regular time and no more."

PROPER LIGHTING PAYS

The Illuminating Engineer Society gives the following introduction to the new edition of the Industrial Lighting Code of the State of Wisconsin:

"Insufficiently and properly applied illumination is a prolific cause of industrial accidents. In the past few years numerous investigators, studying the cause of accidents, have found that the accident rate in plants with poor lighting is higher than similar plants which are well illuminated. Factories which have installed approved lighting have experienced reductions in their accidents which are very gratifying.

"Of even greater importance, poor lighting impairs vision. Because diminution of eyesight from this cause is gradual, it may take the individual years to become aware of it. This makes it all the more important to guard against the insiduous effects of dim, flickering light, of sharp shadows, of glare reflected from polished parts of their work. To conserve the eyesight of the working class is a distinct economic gain to the state, but regardless of that, humanitarian considerations demand it.

"Finally, inadequate illumination decreases the production of the industries of the state, and to that extent, the wealth of its people. Factory managers, who have installed improved illumination are unanimous in the conviction that better lighting increases production and decreases spoilage."—From the Canadian National Safety League.



HOWARD F. WEISS,
Former Director of the Forest Products Laboratory, who acted as Chairman of the successful Decennial Celebration held at Madison, this last week.

WHAT THE EMPLOYMENT MANAGER IS.

The U. S. Bureau of Labor has prepared the following in regard to employment managers:

"Description: The employment manager is responsible for the selection, training, education, promotion, transfer, and discharge of shop and factory employees.

"Qualifications: He must have the ability to judge human nature and should have had sufficient experience and training to make it unnecessary to delegate responsibility when hiring men. He must have self-control, and be masterful, yet tactful. He must be fair in dealing with employees and understand his duty to the owners as well as to the employees. He must be conscientious, diplomatic, firm, and have executive ability of a high order. He should have had special training in economics, business administration, industrial hygiene, shop and factory management, statistics and labor problems.

"Schooling: College education or equivalent."—From National Safety League.

Fables from Mill Practice—4

Savings Crumbs and Losing Tons

By H. TUESS.

The chemist of the Wake and Doin Paper Company, engaged as usual in burning off his never lessening pile of retention samples heard a prolonged br-r-r-r-r-r -br-r-p -brup -brup -brup. That was the office, acting through Miss Gigglin Fitts, the switchboard operator. "Yep, Oh, Mr. -er-er Test Tubes—'scuse me, I never can think of your other—I mean your name—Mr. Boutan Doin wants to see you right away."

A few minutes later T.T. enters Mr. Doin's office to find him talking to a sad looking man of about fifty, impinging on a chair, and preventing a straw hat from obeying the law of gravitation by gripping it at the rim with both hands. "Say, Test Tubes, this is Mr. Toopercent Moore, the er-chemist—you said "chemist," didn't you Mr. Moore?—of the Puttit Dover Company. He is to make a joint test with you of those four cars of pulp from them that came in last night. He would like to return tonight, if possible."

"Glad to meet you, Mr. Moore, but I am afraid we cannot do that. It will be necessary to unload the central third of all the cars in order to get an adequate sample, and the yardmen are busy. We'll get at it right away, though. Let's go down to the laboratory."

At the laboratory the following dialogue takes place:

"This is the laboratory, eh? Wish I had a place like this to work in."

"What's yours like, Mr. Moore?"

"Oh, just a plain room with scales and an oven."

"Oh, you only test the pulp for moisture."

"Yes, I'm a moisture chemist."

"Where did you study chemistry, Mr. Moore?"

"Can't say that I ever studied it. I was weighing man, and after that shipper. Then I was sick, and after that the boss showed me how to make tests. He said that was all the other chemists did. You got them French weights? I can't use **them**. I like to use good old American pounds and ounces."

After some little telephoning, a pair of grocer's scales was borrowed—Mr. Moore insisting on examining the certificate of the government inspector on the scales and weights in question.

After they were installed in the laboratory, the two chemists proceeded to the receiving platform, where the cars of wet pulp were being unloaded. It was decided that each should take the first two cars by his own method, and that the test of the next two was to depend on the results obtained.

" I take a piece out here," said Mr. Moore. It was on the felt side, and he took only about half the thickness of the sheet. He said he did this because it was easier. Nothing further was said on this point, but Test Tubes was making notes.

Mr. Moore said he was satisfied when ten laps were sampled—"They're all the same. It's no use taking more. They take too long to dry."

Test Tubes sampled thirty laps, and they returned to the laboratory. The samples were duly weighed—the oven locked: Mr. Moore taking the key.

"How hot do you keep your oven, Mr. Moore?"

"About 125 degrees Fahrenheit."

But that will not take out all the water? What makes you keep it so low?"

"The boss said it was hot enough to dry anything, because things get dry as chips in the summer, when it never got hotter than 100. I always keep them in until they stop losing weight, so they must be dry."

With some solicitude on the part of Mr. Moore as to burning the pulp the oven was set for 215 degrees Fahrenheit. It was arranged to meet at six-thirty the following morning to get results on the first samples before tackling the balance.

In the morning, the oven was opened with due formality by Mr. Moore, and the samples weighed, after a careful sweeping of tiny crumbs on to a scale whose limit of sensitiveness was a quarter of an ounce. There was a discrepancy of a shade over two per cent in Moore's favor between the two lots of samples.

"I'm sure you heat your samples too high. You see this result confirms our figures."

"I admit, Mr. Moore, that the result on **your** samples is similar to those billed by your company, but why didn't your samples burn at the same temperature? Why would my samples burn, as you say, and not yours, in the same oven?

"Well, that IS strange, sure enough."

"Your trouble Mr. Moore is in the sample, not the oven. Your sample only represents the drier side of the sheet.

The other two cars were proceeded with as before. Mr. Moore was persuaded in addition to make a parallel test cutting right through the sheet, at more than one point in each lap, and other tests were made on several laps—cutting strips right through.

The results showed a very reasonable closeness all around except those on Mr. Moore's felt-side only samples which were as before two percent higher.

Mr. Moore left that night. Three days later, Mr. Doin sent for his chemist and showed him the following letter:

Messrs. Wake and Doin,
"Wakeville, New York.

"Gentlemen:—Our Mr. Toopercent Moore has re-
"turned after making joint test with your chemist
"on four cars of pulp (our invoice of 3rd instant)
"and reports that the results substantially verify our
"billing. We shall be obliged if you will honor in full
"sight draft, now going forward.

Yours very truly,
Puttit Dover Pulp Company,
S. Nappy Finants,
President.

"But," gasped the mill chemist, "that's all wrong. I explained to Mr. Moore, and made special tests to show him, that his tests as he cuts samples will always be about two per cent high."

"The point is, Test Tubes, that we are not going to stand for this hold-up business any longer. If the Puttit Dover people think we are going to pay for the blunders of that poor fellow they have bullied into testing to save compensation for making him work on an open air shipping platform, they are a long way out. I am going to fight this out. Keep those cars sealed. I am going to have an independent test made, and have it out."

The moral.—Ignorance is the foundation of fakes.

The steamer "Lackawana Valley" arrived in Boston, July 24th, with 1,700 tons of chemical pulp from Finland.

BOOK REVIEW.

PAPERMAKING AND ITS MACHINERY, by T. W. Chalmers. 178 pages, 139 text illustrations and 6 plates. D. Van Nostrand Company, New York. Price $8 (U.S. funds).

The author calls atttention, to his preface, to the book of information of an engineering nature regarding pulp and paper making machinery. The present book is compiled from material, collected through the courtesy of several English firms making paper mill equipment, published as a series of articles in *The Engineer* in 1915 and 1916.

The book is arranged according to the sequence of operations, and includes the following chapter headings: Introductory; Cutting, cleaning and boiling; Washing, breaking and bleaching; Purifying and pulping; Beating; Refining; The Fourdrinier machine; Fourdrinier driving arrangements; Details of the Fourdrinier; Pulp strainers; Tub sizing; Calendering, cutting and winding; Wood pulp; The coating of art paper; The finishing of art paper; The coating of photographic paper.

The Introduction is a very clear and concise description of the papermaking process, mentioning its history and the character of materials employed.

The machinery described is, of course, all of English make, in fact, it is confined to the products of Bertrams, Limited; James Bertram & Son, Limited; Masson, Scott & Co.; James Milne & Son; Watford Engineering Works; Glossop Ironworks, Mather & Pratt; West End Engine Works. Bentley & Jackson; Boving & Co.; Charles Walmsley and Co. and others are not mentioned, though typical apparatus can probably be adequately described without using pictures of their machines. The book, therefore, gives one the impression of being a composite catalog—there is need, however, for just this very thing.

The book is profusely illustrated and beautifully printed. The description is based on the drawing, or halftone. Some machines are shown both in perspective and in section. Most of the apparatus shown is typical of the industry anywhere, and the descriptions explain the principal features of construction and mechanical operation, though a few of the machines illustrated will be strange to American readers. Even these may inspire new ideas and will certainly broaden the reader's knowledge. The use of numbers to indicate machine parts would be an improvement, as would also the printing of key words in italics.

Papermakers on this side will differ with the author with respect to some statements of practice, for instance, that rags are boiled in from 3 to 6 hours at a pressure of 20 to 30 pounds per square inch, or that a concentrator of the cylinder (with vacuum) and couch roll type will take 25 per cent of water from stock which, "in comon practice, would contain, before concentration, equal weights of fibre and moisture." The only other instance we shall refer to is the table on page 133, in which the composition of common news is given as 10 per cent esparto and 90 per cent sulphite, while in high-class news the figures are 80 and 20 respectively. This occurs in the chapter on wood pulp, but no furnish containing ground wood is given.

This chapter on wood pulp is short, because but little pulpmaking equipment is made in England. The pulp drying machine shown is of the Fourdrinier type, very uncommon on this side, though Canada's newest sulphite mill has this type of machine.

In the description of the paper machine, no mention is made of the syphon system of draining the dryers. There is a good table on page 64 giving a comparison of two machines as to speed, steam pressure, power, number and size of rolls, etc. A diagram on page 72 shows how a belt running on cone pulleys may be made to be flat by setting the small end of each pulley slightly past the large end of the other. The Marshall drive is not shown, but the Lumsden belt drive, an electric drive, and a rope and electric drive.

Details of the Fourdrinier machine are quite completely given, though nothing is found on other paper machines, as the Harper, Yankee or cylinder.

Strainers (screens) are given a long chapter, with rather scant attention to the diaphragm screen, but with full descriptions of several revolving strainers.

The chapter on Tub Sizing is extensive. Among the calenders we note a 130 in., 10 roll, super calender. No plater is described. Perhaps they are not used in England. The same may be said of de-inking, or waste paper recovering machinery.

The most striking feature of the book is the portion devoted to the coating of art and photographic papers. From our limited knowledge of the process and observation of mills, this appeals strongly as a fine description, with excellent diagrams.

We are a bit diffident about criticizing, and particularly about calling attention to weak spots. It is easy enough to find flaws in the other fellow's work, but, in pointing out the few we noticed, it should be understood that this is more with the idea of charting a few rocks in a broad expanse of fine and pleasant sailing. There is not a paper mill superintendent or engineer who will not find much of interest and help in Mr. Chalmers' book, and a new idea is cheap at almost any price.

The Pulp and Paper Magazine will be glad to transmit orders to the publisher, or they may be sent direct to D. Van Nostrand Co., 8 Warren Street, New York. On account of the rate of exchange, it is suggested that orders be accompanied by a money order payable to the publishers in New York.

ROME HAD PAPER SHORTAGE.

Le Figaro of Paris has unearthed for its readers what it believes is the world's first recorded paper shortage. It quotes from the Causeries du Lundi where Sainte-Beuve, translating from Pliny, says that under Tiberius there was such a scarcity of paper in the Roman empire that it was necessary to appoint senators to regulate distribution; in other words, a congressional board of control.

Sainte- Beuve, grown cynical in his day of excessive erudition, books, ink and paper, added:

"How welcome such a shortage would be now! But such things happened only under Tiberius. We cannot hope for like happiness today."

Le Figaro finds Sainte-Beuve refreshing reading, but in view of the situation in 1920, unduly appreciative of Tiberius.

CARELESSNESS SAID:

I am not much of a mathematician, but
I can ADD to your troubles,
I can SUBTRACT from your earnings,
I can DIVIDE your attention,
I can take INTEREST from your work,
I can DISCOUNT your chances for SAFETY.

A NEW RESOURCE MAP OF CANADA.

A "Map of the Dominion of Canada indicating Natural Resources, Transportation and Trade Routes," scale 10 miles to the inch, has just been published by the Department of the Interior.

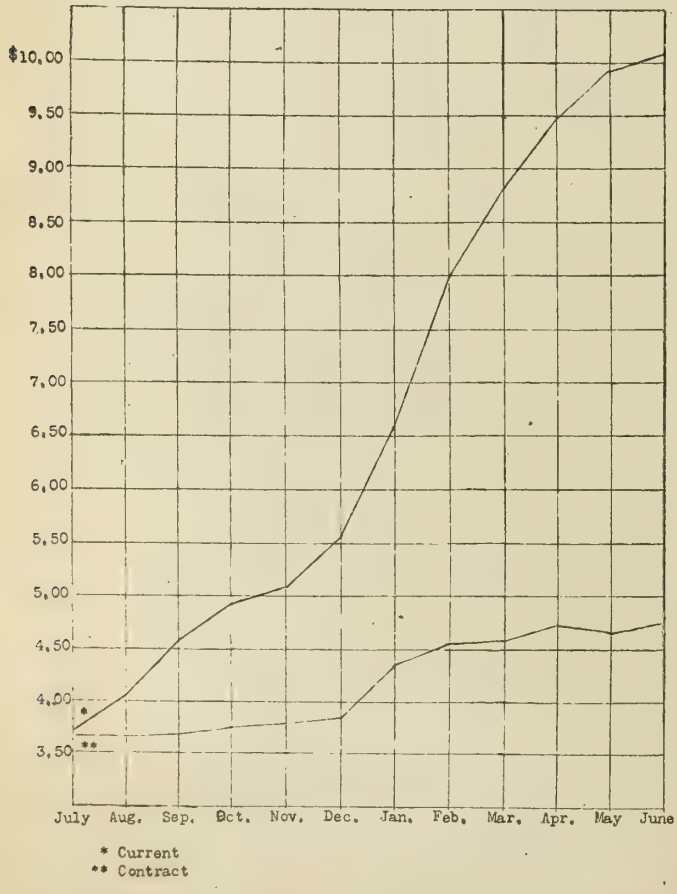
On this map varieties of mineral, agricultural and fishery resources, and the timber and fur in general are printed in red lettering in their proper locations. The sites of important water powers, developed and undeveloped are indicated, and the lines of all railroads completed up to date are clearly defined.

The resources shown on the map extend from "whales" near Herschel Island in the Arctic to "salt" at the southern toe of the Ontario peninsula, and from the "white whales" of Ungava bay to the fruit lands near Victoria, B.C. An important inset contains 5 circular diagrams, showing the comparative contributions of each province to field crops, commercial timber, developed water power, fisheries and minerals. A sixth diagram displays the proportion of the total exports filled in 1918 by manufacturers and by the five great classes of Natural Resources severally.

The thorough reliability of this map is shown by the caution which ignores probabilities, however promising. The trader, investor manufacturer and economic student will read the map as an open book; its appearance is timely when demand is abnormal and enlarged production a necessity.

The map can be obtained free of cost on application to The Superintendent, Natural Resources Intelligence Branch, Department of the Interior, Ottawa.

GRAPHIC COMPARISON OF PAPER PRICES



Graphic comparison of average open-market and contract prices per 100 lbs. f.o.b. mill paid by publishers for standard newsprint paper from July, 1919, to June, 1920, inclusive.
—Courtesy, Federal Trade Commission.



HON. HONORE MERCIER,
Minister of Lands and Forests, Province of Quebec.

HOW GUTENBERG HIT UPON IDEA OF MOVABLE TYPE.

The Rev. John Roach Stratton of New York in a recent issue of the American tells this story about Johann Gutenberg that is well worth reading.

In the fifteenth century there was a German lad who had the euphonius name of Johann Genefleisch. Translated into plain English this means John Gooseflesh.

It is said that John was one day playing near a pot of boiling dye with which his father was preparing to color some skins.

He had cut the letters of his name from the bark of a tree and was spreading them out to form his name when one of them accidently fell into the pot of boiling dye. Quickly John plunged in his fingers to rescue the letter.

Finding it very hot, he more qiuckly turned it loose. It fell upon one of the white skins which were waiting to be dyed, and when John lifted the block away he saw a beautiful purple "H" smiling up at him. That was the first letter ever printed upon the continent of Europe.

Whether he admired the marks on the skin, or ruminated ruefully on the marks which his irate father might make upon his own skin because of the accident, we do not know. But we do know that this accident, or something else, started the young man to thinking.

In the year 1450 we find a printing press working in Meintz, under the direction of John Gutenberg, who had changed his name from Gooseflesh by availing himself of an old German law which permitted a child to take his mother's name, instead of his father's if he desired. His discovery of the art of printing revolutionized the world.

P.S.—It has recently been discovered that movable type in metal was used in Korea in 1403.

UNITED STATES NOTES

Joseph H. Wallace & Co., engineers, of New York City, have completed plans for the remodelling and enlarging of the building recently acquired by the Standard Paper Manufacturing Company at Richmond, Va. It is estimated that the work of shaping up this addition to the company's plant will cost in the neighborhood of $500,000 by the time it can be opened for actual operations.

Twenty-eight members of the Midwest Newspaper League have given approval to the organization of a publishers' buying corporation which is ultimately to act for about 400 newspapers in the buying of newsprint. This action resulted from a conference held last week at Kansas City. The league includes publishers in Kansas, Missouri, Arkansas, Colorado and Nebraska. Newspapers, which, according to plans, will be served by the buying corporation have total requirements of 75,000 to 100,000 tons of newsprint annually.

Plans have been laid by the Associated Dress Industries of America for the manufacture of pulpboard and corrugated paper boxes on its own account. A factory is to be erected by the organization and an effort will be made to have it in operation in time to supply containers to the dress trade next Spring, thereby bringing to an end troubles that manufacturers have been having for some time. Long delays in shipments from factories already established and the very high prices asked for the kinds of boxes required are given as the chief reasons for the step the association has taken. Several possible sites in and near New York city are being considered by the association, and orders for the necessary machinery are to be placed in the near future.

Measures to obviate troubles that might arise from a serious shortage of fuel oil and the possible failure of electric power supply are being taken by the Crown-Williamette Paper Company at its Camas, Washington, mills. The eleven boilers in this plant, developing about 5,000 horse-power and consuming annually 250,000 barrels of oil will be converted from oil burners to coal. While the machines in the mill are run largely by electricity steam is necessary in the digesters for cooking the stock, for heating purpurposes and for drying the paper. A 1,000 horsepower steam turbine and generator has just been installed for emergency use when the electric power fails. Changing the boilers over and supplying accessories to meet the change will cost several hundred thousand dollars.

A loss estimated at $60,000 was sustained by the Ohio Paper Company through the fire which partly destroyed its plant at Miamisburg, Ohio last week. Coming at a time when the company was turning out several large contracts and when considerable material was on hand awaiting shipment, the fire resulted in a serious set-back. Though the management is making every possible effort to rebuild so that operations may be resumed at an early date, a suspension of work for at least three months may be found necessary.

According to John M. Gries, assistant professor of Lumbering at the Harvard Graduates School of Business Administration, the present paper shortage in the United States is due mainly to a greatly increased demand at a time when production could not easily be increased. During the war few pulp and paper making machines were made, and it was impossible to equip plants to meet the growing demand for paper, says Prof. Gries. Considering the distribution of the timber available for pulpwood, the pulp and paper industry was too much centralized in the North and East. To have increased the capacity of many of these plants would unduly have shortened their lives. The obvious way out of the present difficulty, Prof. Gries believes, lies in increased production in the West and South. It is his opinion that no great increase in the production of woodpulp can be expected until more pulp and paper mills are located in these sections. Chief among the reasons enumerated by Prof. Gries for the skyrocketing paper demand is the enormously increased space being given to advertising.

A recent re-organization in Ohio that is causing considerable speculation in paper trade circles there was that of the Crystal Paper Company which has concluded an arrangement whereby it will lease its plant at Amanda in the Miami Valley to the Crystal Tissue Company. The capital of the latter is put at $1,000,000 in the articles of incorporation filed at Columbus. Z. W. Ranck will serve as its president, W. O. Barnitz as treasurer and E. A. Cahill as secretary. The new company will continue to manufacture the same high grade white and colored tissues as were formerly made by the Crystal Paper Company, and it is reported that the latter retains its charter as a holding company under the present management. It is understood that no changes will be made in policies or employees.

Jason Rogers, President of the Publishers Buying Corporation, this week purchased for members of the association 2,500 tons of newsprint a month at 9½ cents. He has also been offered 1,000 tons a month at 9 cents.

The forest area of southern New England is now about 46 per cent of the total land surface. This is equivalent to 1,750,000 acres of forest land, says the American Forestry Association of Washington. The area forested is apparently on the increase. In 1910 the forested area was estimated at 41 per cent in 1850 at 32 per cent, and in the Connecticut portion of the territory in 1820 as about 26 per cent.

Prosperity is the fruit of labor; property is desirable; is a positive good in the world. That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise Let me him who is houseless, pull down the house of another, but let him work diligently and build one for himself, thus by example assuring that his own shall be safe from violence when built.—Abraham Lincoln.

Technical Section

REVIEW OF RECENT LITERATURE

A-3.—Whorl-flowered bent-grass (Andropogon muricatus, Retz) as a papermaking material. Bull Synd. Fab. Papier et Carton. No. 1, 4-8 (Jan. 1, 1920).—Results of tests carried out recently at the French School of Papermaking, Grenoble. This plant is native of India and neighboring countries, but grows in other tropical countries, notably Brazil. The tests were carried out on plants grown in Algiers. The leaves, which are a by-product of the perfumery and basket- making industries, were treated (1) with 7 per cent of NaOH at 4°B under 3 kilos pressure, for 4½ hours, and (2) with 3°B Ca bisulfite acid under 3 kilos pressure, for 4½ hours. The former treatment yielded a pulp having a decided greenish yellow color; the latter a much lighter-colored product, which was easily defibered and bleached yielding 35 per cent of bleached pulp. This contains 20-5 per cent of non-fibrous material, a large part of which would be lost in washing. It greatly resembles straw pulp but is not as strong. It is sufficiently white and opaque to be used as a filler in fine printing and writing papers. The felting power of the fibrous material (expressed as the ratio of the diameter to the length) is 1/150. It is quite possible that material from tropical Asia would yield a higher grade product.

B-0.—Non-inflammable timber. J. Ind. Eng. Chem., **12,** 82, (1920). The oxylene fire-proofing process for timber consists in submitting the wood in a closed chamber to steaming and vacuum treatment which removes the air and moisture in the pores of the wood and vaporizes the sap water. The wood is then impregnated under hydraulic press. with a solution of fire-resisting chemicals. Finally the water of the solution is dried off and the chemicals in minute crystal form remain embedded in the fibres.

E-5.—The problem of sulfite cooking. M.L. and R. Papeterie, **41,** 434-8, (Oct. 25, 1919); 487-92, (Nov. 10, 1919); 531-2, (Nov. 25, 1919); 573-9, (Dec. 10, 1919); 616-9, (Dec. 25, 1919)—A brief discussion is first given showing how the strength and temperature of the gas, the nature of the stone, and the height of the the influence the composition of the liquor obtained, and the means of obtaining the desired results. The function of the SO_2 is to split off the lignin from the cellulose by forming a ligno-sulfonic acid, and the CaO combines with the latter, preventing it from recombining with the cellulose. The amount of SO_2 in the liquor should be at least sufficient to combine with the whole of the lignin, and will-depend on the method of cooking and on the amount of gas relieved during the cooking. The amount of CaO should be just sufficient to combine ligno-sulfonic acid; deficiency results in imperfect elimination of the lignin and excessive precipitation of $CaSO_4$ on the fibres and also on the partially-cooked wood, there mechanically preventing further action by the SO_2. The conditions for obtaining good results by direct cooking are (1) medium sized digesters, not exceeding 10 t., (2) a plentiful supply of superheated steam at constant pressure, (3) a strong cooking liquor. It should be conducted as fast as possible to obtain the maximum action in the minimum of time. Indirect cooking must be conducted more slowly at a slightly lower pressure, and it is not essential to use superheated steam; but the composition of the liquor should be maintained very constant. It yields a pulp which is weeaker and dirtier (owing to the precipitation of $CaSO_4$ on the fibres), but more easily bleached, than direct cooking. Examples of various cooks are given with hourly analyses of the liquor, showing how the above points are borne out in practice. A few of the uses for the waste liquor are briefly described.

E-0.—Linings for experimental digesters. Paper, **25,** 971, (1920).—A satisfactory lining was obtained by using solid stoneware casting of acid-proof tile 1½-inch thick, the holes being made by a stone-cutter with an air chisel after the casting was in place and backed with cement.

K-6—Esparto pulp. A new method of preparation. Fr. patent No. 118,376, E. Arnould, France. Papier, **22,** 344-5, (Dec. 1919).—The grass is ground by suitable means before being subjected to the action of chemicals. By this means an economy of 50 per cent of the NaOH is effected, and the pulp can be bleached with 6 per cent of bleaching powder. The yield is increased from 38-42 per cent to about 50 per cent. A second grade pulp may be obtained by using the liquor from a previous cook and bleaching with 3-4 per cent of bleaching powder. It then becomes unnecessary to recover the NaOH.

K-6.—Process for the manufacture of pulp. F. patent No. 496,613, Feb. 11, 1919. Societe Anonyme des Establishments A Olier, France. Papeterie, **41,** 623, (Dec. 25, 1919).—This process is suitable for the treatment of fibrous plants, such as corn stalks and leaves, esparto, dwarf palm, papyrus, etc. It consists essentially in a preliminary cutting and crushing, followed by steaming, and finally by cooking with NaOH. For lower grade pulp the NaoH treatment may be replaced by a $Ca(OH)_2$ treatment.

K-8.—The coloring of paper. Otto Kress. Paper, **25,** 869-75, 917-20, 961-3, (1920). Pulp and paper, **18,** 355-9, 289-92, 319-22 (1920.—The various pigments and dyes used in the paper industry are described, together with the manner in which they should be used; and a detailed description is given of the method of determining the tinctorial power of dyes by means of laboratory tests. At the end of the article is given a list of the American made dyes, together with the uses to which they may be put.

K-10.—Improvement in the sizing of paper. E. Arnould. Rev. Univ. Papeterie, **2,** No. 12, 7-8, (Dec. 15, 1919).—In sizing the following facts should be borne in mind:—(1) Success does not depend entirely on the quality of the rosin. (2) The method of sizing and the water used in the manufacture of the paper has an important bearing on the success of rosin sizing. (3) The main object is to obtain a maximum retention of the size of the fibers. (4) Proper drying is very important for successful sizing. Owing to the high cost of rosin, proper utilization of all its colloidal

elements is indispensable. This has been obtained by means of the "Glover size."

K-10.—Substitute for rosin size. D.R.P. No. 316, 324, Orloff Hansen, Bannewitz, Germany. Papierfab. Bull. Synd. Fab. Papier et Carton, No. 1, 10-1, (Jan. 1, 1920).—Glue is soaked for 12-24 hours in cold water, and then heated to about 60°C and stirred for half an hour. China clay is then added until a very fine Emulsion is obtained; i.e., until there is saponification by the colloidal silicic ecid. After stirring for ½-1 hour the temperature is quickly brought down to 20-5°C, thereby giving an apparently perfectly homogeneous product which is ready for use. The large amount of silicic acid gives the paper the maximum whiteness, and also gives it bulk and makes it almost incombustible. For tub-sizing it should be added to the stuff at a temperature of about 50-5°C. Under no condition should it be diluted with water before adding to the heater. 100 kilos of dry paper require 5-10 kilos of size.

K-12. The felting of fibers on the paper machine. Fr. patent No. 498,971, May 3, 1919. Léon Thiry, Belgium. Papeterie, **42,** 211-4, (Mar. 10, 1920). The felting of the fibers is obtained by means of jets of air, water or steam, which are made to impinge on the sheet in process of formation. This method is much more flexible and efficient than the use of vibrations of the wire and possesses the further advantage that it may be used to bring the stock on the wire to any desired temperature or to incorporate color or size with the stock. It may be used independently of, or in conjunction with a vibratory system.—A.P.-C.

K-12.—Paper, cardboard, or pulp dryer. D.R.P. No. 315,028. Carl Schaaf, Falkenstein. Papeterie, **41,** 624, (Dec. 25, 1919).—Hot gas or steam is led through stacks of rolls, passing from one roll to the next in the stack.

K-12.—Paper moistener. D.R.P. No. 305,585. Jan Goebel, Darmstadt. Papeterie, **41,** 627, (Dec. 25 1919).—To prevent excessive moistening of paper as it is being reeled, a circular brush pressing against the roll is given a velocity proportional to the increasing diameter of the roll.

K-12.—Electric drive in the paper mill. Barbillion, Directeur de l'Ecole Francaise de Papeterie. Papeterie, **41,** 610-6, (Dec. 25, 1919),—A study of the manner in which various types of motors may be used to obtain the range and constancy of speed required to drive a paper machine.

K-22.—Paper for wrapping oranges and lemons. Wochenblatt fur Papier-fab.; Papeterie, **41,** 634, (Dec. 25, 1919).—This paper generally weighs 17-18 g. sq. m. and the best qualities have the following average composition:—white paper trimmings 30 p.c., fine white groundwood 10 per cent, semi-bleached sulfate 20 per cent. unbleached Mitscherlich pulp 30 per cent, waste paper 10 per cent, Na Silicate 1 per cent, sulfate of alumina 1 per cent, talc colored with rosin 5 per cent. The addition of talc prevents molding and imparts an agreeable touch to the paper.

K-0.—Micro-organisms on old papers. Rev. Univ. Papeterie, **2,** No 11, 11, (Nov. 15, 1919). Galippe has examined papers dating back to the 18th and 15th centuries, Chinese manuscripts anterior to the invention of printing, and Egyptian papyrus of about 3000 B.C., and in every case found micro-organisms.

K-23.—Waterproof paper. Papier, **22,** 358, (Dec. 1919).—The dry paper is passed through a bath containing a hot mixture of the following composition:—Resin 50 per cent, paraffin, 45 per cent, Na silicate, 5 per cent, the excess being squeezed out of the paper by passing through rolls. The proportions of resin and paraffin may be varied 5 or 10 per cent, but not that of Na silicate.

K-23.—Waterproof wrapping paper. Papier, **22,** 358, (Dec. 1919).—Prepare a solution of 1000 g. of white soap in 1000 cc. of water containing 100 g. of $K_2Cr_2O_7$ and (b) a solution of 0.25 g. of glue in 1000 of water. Mix (a) and (b), heat, pass the paper through the solution, then through a pair of rolls, and finally dry. If no rolls are available the paper may be hung up in such a manner that it will drain thoroby, or better passed between 2 sheets of dry paper.

K-0.—The decay of paper in hot climates. Paper, **25,** 971, (1920).—In hot climates low grade papers decay very rapidly owing to the chemicals which remain in them, while high grade papers usually fall prey to vermin. It takes an exceptionally high grade paper, such as used to be made in China, to last long. Parchment paper would doubtless be satisfactory as to durability.

M-4.—Reducing friction loss in transmission. N. P. Winchell Jr., Paper, **25,** 957-60, (1920).—Advice as to the manner of eliminating friction losses due to misalinement, bearings, improper lubrication and unnecessary loads.

R-5.—Machine for dewatering pulp. D.R.P. No. 311,934, Akt. Karlstade Mekaniska Verkstad, Karlstadt, Sweden. Papeterie, **41,** 624, (Dec. 25, 1919).—The stock is passed between two rotating rolls of unequal diameters, the water passing into the larger roll.

PROMISE OF FINE MEETING FOR T.A.P.P.I.

All indications point to a largely attended meeting of the Technical Association of the Pulp and Paper Industry at Saratoga Springs, N.Y., September 1-3, 1920.

Technical papers and reports will be read and discussed during the sessions held on the opening day of meeting, the second and third days of the convention being mill visitation days when the members and their guests will be taken in automobiles to mills and factories at different points in the Adirondack and Hudson River Valley district. The banquet of the association will take place on the evening of the opening day. A number of gentlemen prominent in the pulp and paper industry and mill executives will be present as hosts as well as guests, and the banquet is expected to be a brilliant affair. It will be held at the Grand Union Hotel, which is official headquarters of T.A.P.P.I. for the Fall Meeting. Members should make certain of securing reservations at the hotel for September 1 and succeeding days of the meeting.

COPPER TUBES 1-8″ TO 12″ IN DIAMETER

Messrs. Allen Everitt & Sons, Limited, of Smethwick, Birmingham, England, whose Canadian representatives is the Imperial Trading Company, Montreal, maintain a stock of over 20,000 copper tubes alone, from ⅛″ diameter to 12″ diameter and can fill any ordinary order for tubes in three or four days after receipt at works.

It is worthy of note that they supply almost all the pulp and paper mills in Great Britain, Sweden, Norway and the continent, with their brass and copper tubes, and have already done considerable business in Canada.

PULP AND PAPER NEWS

During a severe electrical storm last Friday night, July 23rd, a serious fire occurred in the finishing room of plant No. 2, Garden City Paper Mills Co. Ltd., caused by lightning striking some electrical appliances and resulted in a lot of damage by fire and water. Operations have already been commenced in restoring the building and plant and the management hope that in a few weeks this portion of the mill will again be in running order. The brick chimney of the paper mill Plant No. 1, which is a good half mile away across the other side of the canal was also struck by lightning and all the bricks on two sides were ripped off. In the city of St. Catherines there were four fires resulting from the effects of this storm, which was unusually severe in that locality.

A settlement has been effected between J. J. Carrick and the Hydro-Electric Power Commission in regard to the pulp mill at Campbellford and the Bruton limits. By the settlement it is understood that $225,000, deposited by Mr. Carrick on account of the purchase price, has been returned. A further sum has been paid to Mr. Carrick by way of compensation. Prior to this settlement, Mr. Carrick made application for a fiat to sue the Hydro-Commission to compel them to fulfill the conditions of the bargain his lawyer made for the purchase of the Campbellford mill and the Bruton limits.

Circulars were mailed this week to the shareholders of the Kipawa Company, Limited, asking them to expand their holdings of the company's stock into the common stock of the Riordon Company, Limited, as soon as possible. It will be remembered that the Kipawa Company, Limited, was one of the companies which went to make up the Riordon Company, Limited. The stock will be exchanged in the proportion of one share of Kipawa Company for 1½ shares of Riordon stock. As neither of these issues are on a dividend basis at the present time, no transfer or record dates have been set. The Montreal Stock Company is in charge of the exchange of stock.

Toronto printers have decided to press upon the publishers a demand for a further increase in pay. The printers had previously asked the publishers for a conference, but were told that this could not be granted till next Fall. The Toronto printers are working on a wage schedule that has two years to run, and despite the fact that publishers were not bound to make any increases during the life of the contact voluntary increases, to the number of three, have been given. The grievance of the men lies largely in the fact that other trades in the newspaper industry have been given an increase in which the printers do not share. The men's demand is practically a twenty per cent increase. This would be applicable upon the present wage scales of $36.00 a week for day workers and $38.50 a week for night workers.

The approval by the Ontario Government of the sale by the Dominion Government of certain disputed G. T. P. lands near Fort William to the new pulp company being organized by Lieut.-Col. Thomas Gibson, Toronto, and others, is causing some criticism to be directed against Premier Drury. The pulpwood lands in question are located on the G.T.P. right-of-way and were given by the Ontario Government to the railway as land grants under a patent that was supposed to provide for the return of the lands to the Dominion. The province has laid claim to the lands, and as the Dominion Government contests it, a fight for possession seems certain. It is stated that the agreement with the pulp company fixes a price of about 40 cents a cord for the wood, and it is complained that the pulpwood was sold without asking for tenders. Brig.-Gen. Hogart of Port Arthur, in a letter to Premier Drury on the subject, contends that the fair market value of the pulpwood is $2.00 a cord.

Owing to the shortage of paper in Toronto some of the contracts to supply text books to the schools of the city will not be completed in time for the opening of the schools, and pupils may have to wait some time before they can get their books. One publisher, under contract to supply the schools, said that he had had paper on order for the books for several months, but had been unable to get a sufficient quantity, although he was putting all his available stock into text books. In the meantime the publishers are under bond to supply the books by the opening of the school term, although the bond companies take the ground that the clause exempting fulfilment if the contract was affected by the war, let the publishers out.

Elaborate preparations have been made by the local committee for the entertainment of the Imperial Press Conference in Toronto. The party will arrive in Hamilton on Monday, August 9th and will motor from that city, arriving in Toronto between 5 and 6 p.m. A banquet will be given in their honor that evening at the King Edward Hotel by the City Council. On Tuesday the delegates will be taken on a drive around the city and at noon the Governors of the University of Toronto will entertain them at luncheon, following which honoray degrees will be conferred upon four of the delegates by the University. On Wednesday the Harbor Commissioners will act as hosts when a luncheon at the Royal Canadian Yacht Club will be a feature. In the afternoon the delegates will leave for Guelph commencing a tour of Southern Ontario and returning to Toronto for the second week of the exhibition.

Mr. H. B. Donovan, sales manager of the Canada Paper Co., Ltd., has moved from his old home on Bank Street, Toronto, and is now occupying his new residence in Oakville.

Mr. D. F. Robertson, general manager of the Canada Box Board Co., Ltd., was in Toronto a few days ago calling on the firm's customers.

The Minister of Lands and Forests of Quebec has completed arrangements with the Dominion Air Board

for the patrolling of the province's forests by airmen. The mapping of the vacant lands in the northern part of Lake St. John will also be undertaken, thus surveying an area of 127,000 square miles.

E. S. Oliver, a chemist who has been investigating processes for the extraction of turpentine from the Douglas fir, claims to have perfected a process. He has obtained a number of resin leases from the B.C. government and intends to commence operations at once.

INDUSTRIAL ACCIDENTS IN ONTARIO

The reports of accidents to the Ontario Workmen's Compensation Board do not indicate much falling off in the general industrial activity of the Province, although the war-time industries have ceased, says the Canadian National Safety League.

The total number of accidents reported during the first half of 1919 was 19,811, the corresponding figure for 1918 being 22,702. The amount of compensation awarded was $1,676,049.88 during the first half of 1919, as compared with $1,672,362,84 during the first half of 1918, the amounts being almost the same, although the number of accidents was a little less. This indicates a higher rate of wages.

The accidents reported during each month of the half year are as follows:—January, 3,471; February, 3,164; March, 3,343; April, 3,112; May, 3,201; and June, 3,520.

The number of fatal accidents reported during the half year was 215, as against 212 for the corresponding half of 1918.

FIVE HUNDRED AT CELEBRATION OF 10th BIRTHDAY.

The decennial celebration of the Forest Products Laboratory held at the University of Wisconsin in Madison, July 23 and 24, was attended by more than 500 nationally known leaders in the lumber and lumber by-product industries and the program included addresses and papers by many of the greatest experts in their lines. Addresses by Gov. Philipp of Wisconsin and President E. A. Birge of the University opened the decennial on July 23. Reforestation, the utilization of waste, conservation measures and other vital forestry problems were the subjects mainly under discussion. It is expected that definite action may result from the discussion of a plan for forming post-graduate schools to train forestry graduates in the use of wood products, giving them expert training in the handling of wood and an insight into the various methods of manufacture. Several speakers declared that the bill before Congress to appropriate $1,000,000 to find a substitute for woodpulp is unwise, that the money would be spent to a better purpose if made available to forest products laboratories for their development.

Charles M. Schwab told Princeton University undergraduates what he thought were fundamental requirements for a successful life: First, unimpeachable integrity; second, loyalty; third, a liberal education in the finer things of life, of art, of literature, as man needs imagination and these are the sources of it; fourth, make friends and whatever misfortunes one has in life, just laugh; fifth, concentrate and do not be afraid of mistakes; sixth, go at your work, which means to give the best that is in you.

FORESTERS MET AT GRAND'MERE .

About thirty Foresters from all parts of Canada and the Eastern States attended a three-day conference at Grand Mere last week.

Mr. G. C. Piche, chief of the forest service of the provincial Government, briefly addressed the foresters at the luncheon on Friday at the Laurentide Inn, and outlined the forestry policy of the new premier, Hon. Mr. Taschereau. He said that in general the policy of Sir Lomer Gouin in dealing with the paper industry would be followed, and declared the new premier would make an announcement shortly relating to the classification of the size of the various kinds of wood that could be legally cut.

The foresters spent most of their time while here at the Proulx Nursery of the Laurentide Company, where experimental reforestation work is being carried on under the direction of Ellwood Wilson, head of the Forestry Department of the Laurentide Company.

NEW WORLD'S PAPER MILL DIRECTORY.

In the 29th edition of the "Paper Makers' Directory of all Nations," just published by Dean & Son, Ltd., 160a Fleet St., London, Eng., for 1920 (900 pp., Demy 8vo., price 20s. net), the mill entries affected by the re-arrangement of the map of Europe will be found grouped under their new geographical headings in respect of Australia, Czecho-Slovakia, Esthonia, Fiume, France, Germany, Hungary, Italy, Latvia, Lithuania, Poland, Russia, Ukraine, and Yugo-Slavia, as indeed they were also in the last edition, although it was only published a few days after the signature of peace with Germany.

Arranged entirely alphabetically, the three main features of the book comprise:—(1) British Paper and Board Mills and many useful lists connnected with the Paper Trade of the United Kingdom; (2) Paper Pulp and Board Mills in foreign Countries and the Colonies; (3) Production of the Mills of all Countries classified together in one alphabetical list of nearly 400 trade designations; to these are added a Buyer's Guide of especial value and use to those having control and equipment of mills, factories, etc.

With the expansion of the export trade, especially in pulps, Canadians will find much of value in this directory. Orders may be placed through the Pulp and Paper Magazine at $5.00 per copy.

BRITISH WOULD BUY WOOD.

Mr. Jost, of the Jost Pulpwood Co., recently told the Pulp and Paper Magazine, when asked regarding an opinion as to the pulpwood situation, that pulpwood keeps soaring and sales are frequently reported at a price considerably in excess of $30. Some dealers have received serious propositions from British paper mills for export of pulpwood due to the shortage of groundwood and sulphite pulp.

The Paris Wholesale Paper Company, has opened business in all lines of paper, with offices and warehouse in Paris, Texas. The nearest paper house is in Dallas which is 100 miles to the south; in the other directions there's no local paper house within 200 miles. This territory is as thickly settled as most any other in the Southwest, and has some of the largest printing lithographing plants located in it. The new company will be glad to make more mill connections.

The Markets

CANADIAN TRADE CONDITIONS.

Vacations are epidemic in the paper trade and seldom has this period come when the mill man could leave for a holiday with greater peace of mind. Mills are busy and will stay so for some time without hustling for orders in hot weather. It is true that trade is a little quiet because buyers also are resting. They need the rest, having been laboring hard to find paper and satisfy customers and they will need some surplus energy for the strenuous times that appear to be ahead. Transportation is difficult now and this should be the easy time. One pulp man made the statement that coal cars are about the only available conveyances for pulp. In spite of the temporary decrease in correspondence, a lot of material is moving on orders.

Pulp

The ground wood situation still dominates the wood pulp market. Trade is a bit quieter at present, but the tendency is for a considerable strengthening by the last of August, as the mills are all sold up now. Most of it goes to the United States. As high as $150 is being paid, but $130 to $140 is a common range on contracts.

Chemical pulps are also commanding respectful attention. All grades of sulphite are tight. News grade is valued at $160 to $175 with easy bleaching and bleached pulps correspondingly higher. Sulphate pulp is quoted at $150 to $155.

There is a tendency to place as much pulp as possible in England, which is no doubt very good policy.

Newsprint

Many ask but few are answered who inquire about newsprint. There is supposed to be a softening in the spot market, but New York dealers are asking 12½c. More than one consumer would call that reasonably firm. It is not probable that there will be much change in the situation for some time. Other grades are firm, and mills that are on the fence—those which nominally make other grades, go back to their own when newsprint is unprofitable, keeping on the side where the most money lies. The hope that new production will ease things up is not very bright. Price Bros. will probably be the first to have a new machine going, and its product is understood to be placed in England. Old customers of times "before the war" can now be reached with better shipping facilities, and their demand is another strengthening factor.

Book Papers.

The feature of the week in book paper circles was the advance in coated book stock. Jobbers were in receipt of letters from the coated paper mills advising them of an advance of 2½c a pound on the product effective July 27th. Prices, of course, and those of book papers generally, are all subject to the prices prevailing at date of shipment. The present price of coated paper with the increase added is 18½c, and it is predicted that this price may not last long before circumstances compel another rise. During the week representatives of English book paper firms were in Toronto with samples, but with a quotation of nearly a shilling a pound, few, if any orders were booked. There was no serious attempt to do business by the English firms, for there is a shortage over there as there is in this country, and the mills in the Old Country are up against pretty much the same conditions as prevail in Canada. The visit of the English salesmen was more in the nature of a "feeler-out" for the days to come in the more or less distant future when the world paper trade will have reached a normal state and when it is hoped to resume export of paper from England to Canada. At the present time hardly any British paper is coming into this country, although a few shipments of gummed paper have been received of late. In the present state of the paper market it is not thought possible that the English makers can compete with the Canadian manufacturers.

Box Board.

With the mills paying from $150 to $200 per ton for groundwood pulp and a proportionately high price prevailing for coal and other supplies, the paper board manufacturers are having a rather hard time of it supplying the wants of the consumers. In fact they are not doing it. Most of the mills are several months behind with their orders and are unable to meet the big demand that is being made on their resources. A box board manufacturer told the Pulp and Paper Magazine that the fuel problem is getting more acute and that what small quantity of coal is available is at fancy prices. A peculiar feature of the situation is that paper makers are getting very little coal on their old contracts made some months ago and are now compelled to go into the open market and buy from the same firms with whom they have contracts, and at the open market prices.

Wrapping Papers.

Keenness of demand and the same scarcity of stocks that have characterized the wrapping paper trade for the past several months continue to prevail. Remarking that the paper trade is an index to trade in Canada generally, a leading wrapping paper jobber went on to say that the demand for wrapping paper not only was keeping up, but the turnover continues to increase month by month and still the demand cannot be met. It was pointed out that when the boot and shoe men were selling their goods they demanded paper and the same way with the grocer and the dry-goods merchant. There is no question about it. There is a tremendous demand for all classes of wrapping paper and bags and the theory of the dealer quoted is that business generally in Canada will likely keep pace with the present era of prosperity in the paper trade. The dealer further expressed the belief that the paper business would not right itself until 1922 when the new machines on order now are delivered and running and the machines now working on newsprint are released for the wrapping paper and other demands.



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INQUIRIES SOLICITED.

U.S. MILLS MADE MORE PAPER

Every grade of paper reported on by the Federal Trade Commission for June, 1920, shows a marked increase in production over June, 1919. The total increase is 159,342 tons for the month. From the amount of over-lapping it appears that more mills are making more than one grade than last year.

Standard news shows a gain of nearly 19 per cent, book paper of 31 per cent, paper board of 41 per cent, wrapping 20 per cent, fine papers 20 per cent, tissues of 35 per cent, and felts and building of 50 per cent over June, 1919. It is significant that the figures for June 1919, are very nearly the same as the average for 1917, 1918 and 1919.

Stocks of all grades except newsprint, felts and building and hanging, decreased during the month. Stocks of all grades reported by manufacturers at the end of June amounted to 170,877 tons, including the stocks at terminal and delivery points. In addition to these stock jobbers and publishers reported newsprint stocks and tonnage in transit aggregating 194,373 tons.

Comparing the stocks on hand at the domestic mills on June 30, with their average daily production based upon the combined production for the years 1917, 1918 and 1919, the figures show that:

Newsprint paper mill stocks equal slightly less than 6 days' average output.

Book paper mill stocks equal slightly less than 8 days' average output.

Paperboard mill stocks equal slightly more than 6 days' average output.

Wrapping paper mill stocks equal slightly more than 9 days' average output.

Bag paper mill stocks equal slightly more than 5 days' average output.

Fine paper mill stocks equal slightly more than 25 days' average output.

Tissue paper mill stocks equal slightly less than 12 days' average output.

Hanging paper mill stocks equal slightly more than 4 days' average output.

Felts and building paper mill stocks equal slightly more than 12 days' average output.

Miscellaneous paper mill stocks equal slightly more than 19 days' average output.

Total paper mill stocks of all grades equal slightly less than 9 days' average output.

Newsprint is the only grade of which the United States is a heavy importer. Practically all of this tonnage, the value of which amounted to $4,981,784 for May, 1920, is imported from Canada. The value of the exports of newsprint in May, 1920, amounted to $629,719 which is slightly less than 13 per cent of the newsprint imported.

Book paper, fine paper, wrapping paper, and newsprint were the principal grades exported, the combined value amounting to $3,149,983 for May, 1920.

The value of the total imports for all grades was about 1 per cent less than for April 1920, and more than 37 per cent greater than for May, 1919. The value of the total exports for May, 1920, was $834,400 less than the value of the exports for May, 1919, and was $264,475 more than the value of the imports for May, 1920.

The time lost in June, 1920, was less than half of the figure for June, 1919, and in each case paper board claims more than one-third the loss.

SAGUENAY'S FIRST ANNUAL REPORT.

The 1919 and first annual report of the Saguenay Pulp and Paper Companies and its subsidiaries, which company was formed a year or so ago to take over the several companies represented by the North American Pulp Paper Companies Trust, has made its appearance. The report, which covers the year ended December 31 last, indicates an improved position of the new company over the old, gross revenue in the period having amounted to $5,416,545 as compared with $4,268,368 as shown in the 1918 report of North American Pulp. After bond interest net earnings amount to $464,636 against $442,227 for the old company in 1918, while surplus of $33,551 compares with $38,005 for North American Pulp in 1918, the showing being lowered by way of creation of a reserve against depletion of timber limits of $263,001, and writing off of surplus of coal used in alterations of the Chandler mill, of $149,067.

In his report to shareholders, Hon. F. L. Beique, the president ,says:

"We are glad to announce that the Chandler Mill, which heretofore has been a source of loss to the company, has been much improved and will show a substantial profit during the current year. The enlargement of one of the mills at Chicoutimi has also been completed, increasing considerably production of the company. Our pulp, both sulphite and mechanical, is now being sold at priees much higher than in 1919, and firm contracts which have been made for delivery during 1920 and 1921 warrant us in saying that the

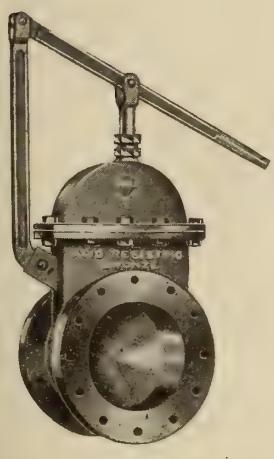
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net income for each of these years will exceed three million dollars."

The accounts of the following companies are consolidated in the above statements: Saguenay Pulp & Pawer Company; La Cie de Pulpe de Chicoutimi; St. Lawrence Pulp & Lumber Corporation; La Cie Generale due Port de Chicoutimi; La Cie du Chemin de Fer Roberval-Saguenay; The Chicoutimi Freehold Estates Limited; La Societie d'Eclairage et d'Energie Electrique du Saguenay; La Cie du Telephone Saguenay-Quebec.

WRITING PAPER EXHIBIT AT ALBANY

The American Writing Paper Company is to be well represented at the forthcoming convention of the International Typographical Union which is to hold its annual session at Albany, New York, during the week of August 7 to 14.

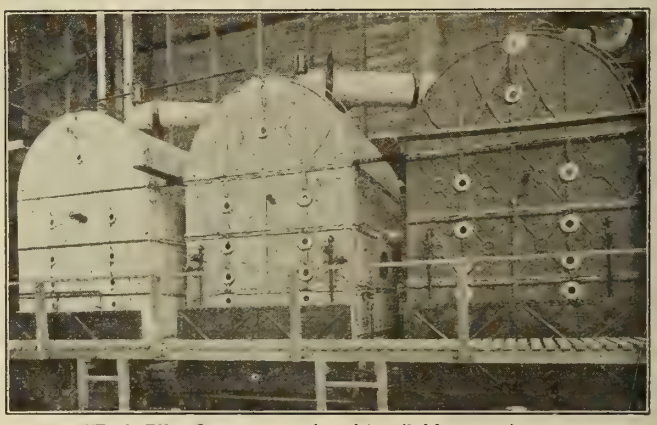
The company has arranged a paper-making exhibit during the last four days of the convention as a special educational feature, which will be in charge of Mr. Fred. C. Clark, director of the company's Department of Technical control.

Pulp Mill Machinery

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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. **GARDENVALE, P. Que., August 12, 1920.** No. 33

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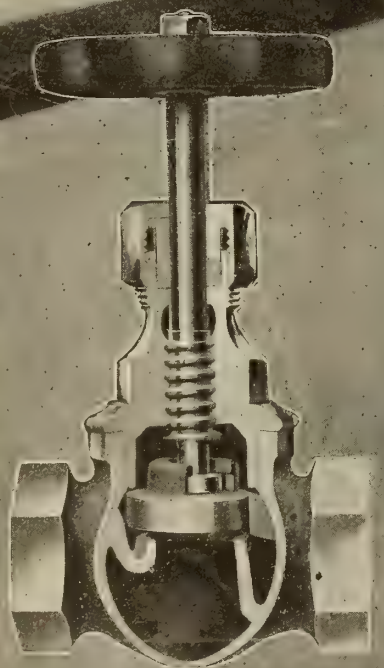
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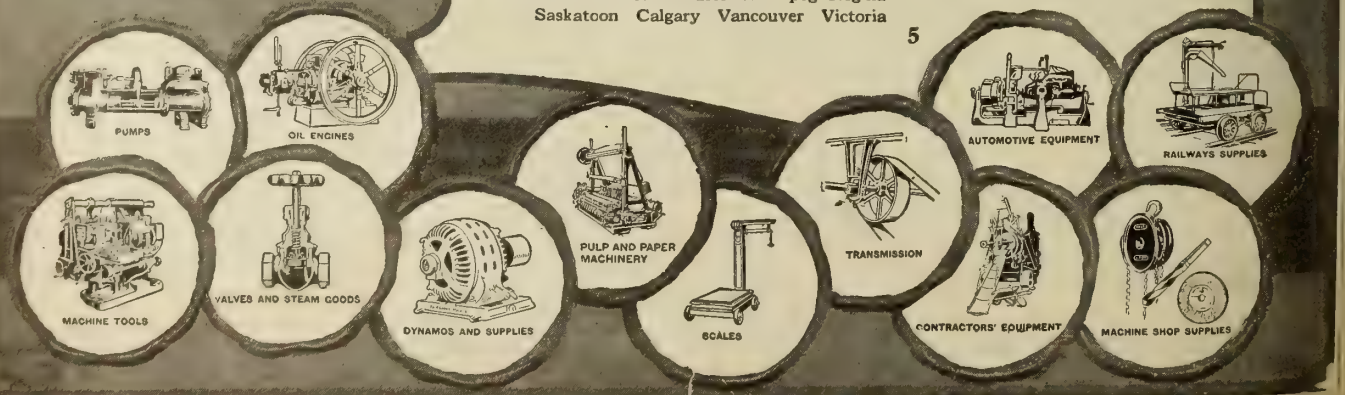
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-:- EDITORIAL -:-

SOFT SOAP OR SACRIFICE.

In how many pulp and paper mills is Safety First a form of religion and not simply sop to the workman or a chance to sit on the band wagon? The concern that is backing the Safety First movement just to keep down indemnities for accidents, to cheapen or increase production, or to win the favor of employees, will either lose out or be converted. The energizing principle underlying real safety work must be an affirmative answer to the question of Cain "Am I my brother's keeper?" To realize that each of us is his brother's keeper is the first step toward safety and all the benefits it brings.

The Safety movement is not simply the placing of occasional grease on a machine, or a sign near a danger point—it means also the education and inspiration that will result in taking thought for one another. This taking of thought is the basis of sacrifice—a little time to see that some one is not in the road when turning a corner or dropping a plank, a little care in piling pulp or wood, the trouble to pull or bend down a nail or turn down a board, the effort to remove an obstacle from the path, the time to tighten a nut, to tell a fellow workman, especially a new man, how to avoid an accident, or to be decent in a lavatory.

Can a workman be expected to do all or any of these things if his employer is interested only superficially, if at all, in safety work? Of course not. But when a mill manager is so full of a sense of responsibility for his men that he will order a machine stopped until properly guarded, there is the real spirit of Safety First. Work that is done for the sake of safety and not primarily to swell dividends is what really counts, and these other things shall be added thereto.

Safety work, welfare work, and all the other good works will not succeed as cures for unrest **when undertaken for that purpose.** Their virtue lies in giving an opportunity for some one, every one, to make some sacrifice for the good of others—and incidentally, for himself.

The argument that Canada will profit by the export of raw pulpwood holds equally well in the other direction. Although less has been said of the great advantage that insures to Louisiana, Texas, Pennsylvania, and and West Virginia because of the excellent market in Canada for their sulphur and coal, and to other states for rosin, dyestuffs, chemicals, machinery, and mill supplies.

IMPERIALISM AND PAPER.

Instead of ascribing their newsprint troubles to imaginery discrimination on the part of Canadian paper manufacturers, the newspaper publishers from Australia, New Zealand and other distant parts of the Empire, who are complaining to the Imperial Press Conference of their inability to obtain Canadian paper, as related elsewhere in this issue, should rather, we think, regard themselves as the victims of the fortunes or misfortunes of war.

It is quite true, as was suggested by Mr. P. D. Ross of the Canadian delegation, that the disruption of shipping during the war seriously interfered with and practically put a temporary stop to our overseas exports of paper. The manufacturers had to choose between the alternatives of seeking customers elsewhere or reducing their output. Once having been forced into making other trade connections they, not unnaturally, find it difficult, even if it were in every way desirable, to terminate such connections in order to oblige former friends and customers. Certainly they have no desire and no intention needlessly to discriminate against Australia, New Zealand and other places. They are, however, just as much subject to the exigencies of commerce as are those who make complaint against them. They yield to economic conditions that were originally placed upon them. If in so doing, they are running counter to their obligations to the Empire, what, may be asked, are those British newspaper publishers doing who, says the latest issue of their organ, The Newspaper World of London, are deserting the British paper manufacturers in preference for those of Germany?

"The blind, but popular patriotism so prevalent during the war," says this journal in extenuation of their conduct, "which caused business men to say that they would never more do business of any sort with the nations of Central Europe, seems to have quite passed, and many of those who were loudest in their condemnation of any and everything German are now amongst those who are most anxious to open up business negotiations with them if thereby they can get the goods they want and at a cheaper price than they are being quoted in this country." And, again, "Whatever prejudice there was a few years back against trading with them seems to have quite disappeared, and if deliveries are at all up to time and prices lower than home quotations their paper will find a ready sale amongst British buyers and will

be treated solely on its merits as paper, quite irrespective of its place of origin."

If newspaper publishers in Great Britain may buy their paper from Germany on any such basis—and we are not suggesting that they may not—without encountering approbrium, surely the charge of disloyalty to Empire interests cannot successfully be sustained when brought back against Canadian paper manufacturers who did not find it expedient to abandon business obligations which they assumed at a time when it was greatly to their advantage to make them.

However, we are far from suggesting that the troubles of the Australians and others are no concern of those in other part of the Empire. There is much to be said for the policy of Empire solidarity advocated by the Imperial Press Conference. It is true that we should be more convinced as to the sincerity of the Conference's professions, as applied to the paper situation, if they gave us some concrete example of its practice. For instance, we are violating no confidence when we say that one of the Conference's most prominent and most distinguished Canadian members has the good fortune to be able to control the output of a newsprint mill not a great distance from Montreal. Much of this output, we are informed, is now being sold in the American spot market at a handsome profit. The tonnage thus disposed of would, if diverted to Australia and New Zealand, go a long way towards alleviating the inability to get Canadian paper now complained of, and at the same time would entail hardship upon no one, because the overseas publishers say the question of price is not material.

The Pulp and Paper Magazine offers this suggestion in the best of faith, believing it would be a happy solution of the difficulty. If carried out, we think, too, it would go far towards convincing the other manufacturers that they owe a duty to the Empire in this regard, as well as affording strong support to Viscount Burnham's touching appeal to the Canadian Pulp and Paper Association's executive to consider, seriously and sympathetically, the situation with a view to its amelioration and which, in any event, we believe will be met in the spirit in which his lordship offered it.—E.B.

YOUR FUTURE RESIDENCE.

A man died owing a certain editor six years unpaid subscription to the paper. The editor did not send any flowers. He attended the funeral and placed a palm-leaf fan and a block of ice on the casket.

None of the subscribers to the Pulp and Paper Magazine are as bad as the man referred to. This is just a warning, though, to the wilfully delinquent, that we shall place on their coffins, in addition to the accessories mentioned, a gas mask loaded for sulphur dioxide.

A POINT OVERLOOKED.

The Imperial Press Conference, our report discloses, was given a "publishers' version" of newsprint control as it was carried out in Canada for the period of the war and some months thereafter. We are safe in assuming that the principal and most important effect of the control was not included. That effect was to suspend for a period of practically three years, all expansion of the newsprint-making industry in Canada. Had there been no control, it is safe to say that Canada would have been in a position at the close of the war to have produced at least 50,000 tons more of newsprint paper annually than she was doing. This amount of paper would have gone some appreciable distance in meeting the universal newsprint shortage which now exists. It would seem that the Imperial Press Conference ought to take note of this fact in its investigations into the reasons why some of its members cannot obtain all the Canadian paper they would like to have.

SULPHUR, NOT SULPHITE.

A curious mis-statement of one of Mr. Dawe's remarks at the Imperial Forestry Conference appears to be going about. When asked regarding the source of sulphur for the production of sulphite pulp, Mr. Dawe said that most of it comes from Louisiana and Texas and that as far as any one knows, the supply is unlimited. This has been twisted till he is credited with the remark that "there was a sufficient supply of sulphite to last to the end of the world." Perhaps the original was not clearly understood. The press has rather consistently confused sulphite with sulphur, just as it has confused pulp with pulpwood.

The delegates to the Imperial Forestry Conference were quartered in Speeche House. How appropriate!

And "the question before the house" is whether we shall have large, excessively large, papers for a few years, or moderate sized newspapers for an unlimited period. There has been an epidemic of **elephantisis** recently among publishers.

Speaking of freight troubles, one Massachusetts mill is handling paper by truck 32 miles or more to the Hudson River and shipping from New York by boat. Shipments to the Central States and the west are going via steamer to New Orleans and by good luck to destination.

It is reported that Toronto is getting sizable shipments of paper from New England mills. That may be on account of the practical impossibility for them to get freight to United States points and they can probably make use of empty cars that brought Canadian pulp and must go home anyway.

The Imperial Press Conference and the Paper Industry

By the Special Representation of the Pulp and Paper Magazine.

As was to be expected, the Imperial Press Conference, held in Ottawa last week, developed a lively interest in the Dominion as a possible source of newsprint supply for a large part of the newspapers published within the Empire. In the Conference, which was presided over by Viscount Burnham of England, owner of the London Daily Telegraph and himself interested in paper manufacturing in England, were representative publishers from the United Kingdom, Australia, India, South Africa, the West Indies, New Zealand, Ceylon, Singapore, Malta, Newfoundland, Egypt and, of course, Canada, in addition to the numerous distinguished editors in attendance. That the question of paper supplies was uppermost in many of their minds was apparent from the very first "interview" given to the local newspapers immediately on their arrival. Representatives of the Canadian Export Paper Company, who met them in Quebec, on their arrival in that city, also found them keenly anxious to know all about Canada as a paper-producing country, and on their first contact with a Canadian paper mill at Grand Mere, early in the week, they again evinced the greatest interest in the subject.

At Grand Mere the visitors were the guests of the Laurentide Company, Limited, and were entertained in the hospitable manner common to Mr. George Chahoon, the company's president, and his executive assistants. They were afforded opportunity to inspect the company's mill and took full advantage of the chance to acquaint themselves with a modern paper-making plant in operation. The visitors—even those to whom the experience was no novelty—expressed their admiration and surprise over the general character of the Grand Mere mill and more particularly of the community development built up in connection therewith.

At Ottawa and Hull some of the delegates made personal visits to the Booth and Eddy mills, and other plants will also come in for inspection by the delegates during their tour, which embraces a complete coast to coast journey. Lord Burnham, himself, announced that at the close of the trip he proposes to devote a week to seeing something of the forest resources of Quebec and it is understood that he is going to Chicoutimi to look over the Chicoutimi Pulp Company's property and possibly to inspect other properties.

One of the distinguished members of the conference is Mr. John L. Greaves, who is the editor and one of the owners of The Paper Maker of London. Mr. Greaves was a journalist before being associated with his present publication and is the only representative of a trade journal attending the conference as such. The delegates, naturally, looked to him for much information on the paper situation and not in vain.

In his address upon formally opening the Conference, His Excellency, the Duke of Devonshire, made reference to Canada's pulp and paper industry and spoke of its importance as a contribution to the Empire's welfare. The subject came formally before the Conference in the form of a resolution submitted by Mr. J. J. Knight of the Brisbane (Australia) Courier, and Dr. T. W. Leys, of the Auckland (New Zealand) Star, worded as follows:—

"The question of paper supplies being of vital importance to members of the Empire Press Union, steps should be taken to ensure adequate supplies throughout the Empire; and that a Standing Committee be appointed to give effect to the above, such Committee to consist of two representatives of the British Isles and one delegate appointed by each delegation and the President who is to be Chairman."

The discussion which followed was opened by Mr. John M. Imrie, general manager of the Canadian Daily Newspapers Association, in a well conceived and very comprehensive statement of the newsprint situation in Canada and the United States. He gave the publishers' version of newsprint control in Canada during the war and of what had since transpired between the Canadian newsprint mills and their Canadian customers. He stated that a sellers' market exists at present and is likely to continue for some little time, that the market price of paper is not today based upon its cost of production but rather on the abnormal demand. He didn't exactly blame the manufacturers for making the most of their harvest time and said, quite frankly, that the publishers would probably do the same under like circumstances. He said the paper situation from the publishers' point of view might be improved by a general slump in business which might reduce the volume of advertising, but that, of course, was not at all desirable. Greater production of paper was assured some time in the future, his estimate of such increase bringing Canada's total production up to 3,600 tons a day by 1922. The American production would also show an increase, but consumption was likely, in Mr. Imrie's opinion, to keep pace with the output.

As to the diversion of a greater proportion of Canadian-made paper to the United Kingdom and other parts of the Empire, Mr. Imrie was, of course, in sympathy with the suggestion, but thought it had to be considered in connection with the fact that 75 per cent. of the capital employed in the production of newsprint in Canada had been supplied by United States interests. He urged upon the delegates the wisdom of more British capital being brought into the industry, and suggested that with Britain supplying the money and Canada the resources there would be greater reason to expect that British publishers would enjoy a larger proportion of the resultant output. Mr. Imrie also dwelt upon the necessity for conserving and replenishing Canada's pulpwood forests as a means of assuring plentiful and reasonably-priced newsprint in the future.

Mr. A. L. Dawe, who appeared for the Canadian Pulp and Paper Association, traversed pretty much the same grounds as had been covered by Mr. Imrie, to whom he gave credit for an able and accurate presentation of the main facts, while differing slightly with some of the deductions he had drawn from them. He took issue, particularly, with the statement as to

the question of manufacturing costs, which he said were constantly increasing—instancing particularly the enormous rise in the cost of pulpwood—and said they had a very considerable bearing upon the ultimate selling price of paper. He agreed with Mr. Imrie as to the desirability of more British capital being employed in developing Canada's forest resources as a means of giving the Empire newspapers more paper, and said that conditions today do not justify any belief in an early reduction of the market price of newsprint.

Mr. Dawe's address was as follows :

Lord Burnham: Ladies and Gentlemen of the Imperial Press Conference.

The Canadian Pulp and Paper Association, on whose behalf I appear before you, regards your invitation to come here and discuss in a brief and informal way the relationship between the newspapers of the Empire and the Canadian Paper Industry, as a very high compliment and as one carrying with it, upon your part, a desire for an interchange of views and of information that may prove to be mutually beneficial.

I am not going to occupy your time with a dissertation upon the origin, growth or present status of the pulp and paper industry of Canada. In anticipation of your meeting here, a careful compilation has been made of all the available information bearing on these several subjects. This has been reduced to printing and given the form of a modest handbook dealing with the industry in its many phases, copies of which will be distributed to you in order that you may peruse them at your leisure.

You will discover from the statistics therein presented that paper has been made in Canada for more than a century, but that the development of paper making into one of the country's greatest industries is of comparatively recent origin. You will learn that there are close to a hundred establishments in Canada now engaged in producing pulp and paper or both, that they represent a capital investment of about $300,000,000 at the present time, that their annual output is valued at about $150,000,000 and that they contribute to Canada's external trade well over $100,000,000 a year.

You will learn, furthermore, that Canada's present annual production of newsprint paper, in which you may be presumed to be specially interested, approximately 870,000 tons, of which not more than 120,000 tons are needed for domestic consumption and that the remainder is exported, in greater part to the United States and in a smaller proportion to the United Kingdom and to other British overseas dominions. You will learn, also, that prospective new establishments and additions to those now in existence, some of which are now well under way, promise a large increase of output in the immediate future. Some of the more optimistically inclined go so far as to predict that within the space of three or four years from now Canada will be producing more than double its present output of newsprint paper. While I am not prepared to endorse, without reserve, this somewhat sanguine forecast, there is no gainsaying the fact that the industry is going ahead very fast and that it would increase still more rapidly were the British paper machine manufacturers able to meet expeditiously all the demands now being made upon them from this side of the water.

Neither is it necessary for me to go into the various details having to do with the production of pulp, both mechanical and chemical, which at the present time is even of greater importance in maintaining your uninterrupted supply of paper, nor of those relating to book and writing papers, wrappings, boards and all the other commodities which the industry is engaged in producing. The facts and figures in regard to these are also fully set forth in the little volume I have alluded to. Besides, I understand that your itinerary through Canada includes visits to a number of the more important pulp and paper mills and that in this way, at first hand and in a practical and more agreeable form, you will be brought into direct contact with the industry and thus be enabled to form your own conclusions both as to its extent and as to its ability to contribute to the requirements of the press of the Empire. There are, however, one or two questions which, as publishers, you may like to hear discussed.

I have already been asked why, with the demand in the United Kingdom so great as it is today, and with every incentive, from both a business and sentimental point of view favorable towards better trade relationships within the Empire, so large a proportion of our pulp and paper products finds a market in non-British countries and so small a proportion, comparatively speaking within the Empire. A comprehensive and satisfying answer is not easy to formulate.

Before the war, of course, the United Kingdom's reliance for imports of this character was largely centred on Northern Europe. Canada found her distance from the British market an almost insuperable barrier, while at her door there existed an available market made easy of access through the passage of tariff laws especially designed to favor that market. Then, too, there comes in the question of the source of the capital employed in the development of the industry, Canada still having to look beyond her own borders for much of the wherewithal with which to develop her resources.

A financial authority estimates that between three-quarters and four-fifths of the total amount of capital employed in the building of pulp and paper mills in Canada has been derived from the United States. Production naturally, other things being equal, favors the source of the capital required to produce.

Shipping difficulties, for a time, tended to restrict trans-Atlantic exports of pulp and paper, but these have now been swept away. Shipments of Canadian pulp and paper to the United Kingdom are assuming larger proportions, although they are by no means as large as they should be. Exports of paper and paper products from Canada to the United Kingdom increased in value from $2,675,412 in 1915, to $4,813,577 in 1920, a gain of $2,138,165, our fiscal year ending March 31st each year. Exports of pulp increased in value from $1,498,415 in 1915 to $5,014,400 in 1920, a gain of $3,515,985. Included in these exports were 467,372 cwts (23,368 tons) of newsprint valued at $1,700,965. Before the war Canada exported somewhere around 100,000 cwts (5,000 tons) of newsprint to the United Kingdom yearly. The amount varied greatly during the war years, and in 1918-19 reached the low figure of 9,310 cwts, valued at $38,484. This was due chiefly to shipping conditions. The notable increase in 1919-20 is looked upon by the manufacturers as the beginning of a large and continuous expansion of their United Kingdom trade, but until British capital interests itself more extensively in the development of this industry, trade between the United

Kingdom and the Dominion will never reach the extent it should nor be of the maximum benefit to those whom it chiefly concerns.

As you journey through our somewhat extensive country you will discover, if you have not already made the discovery, that so far as the pulp and paper industry is concerned, Canada is divided into three separate zones or territories—the east embracing particularly the provinces of Quebec, New Brunswick and Nova Scotia; a central section, taking in the extensive mills in Ontario, and the far west represented by the big mills of British Columbia. Eastern Canada, so far as the United Kingdom is concerned, is the logical field to enlist your special interest. The other districts entail a land haul of from one to two thousand miles in extent before their products can reach the Atlantic seaboard. Freight rates impose a practically insurmountable obstacle to the shipment of paper from these districts to great Britain. British Columbia's production finds its natural market across the Pacific, Central Canada's nearer at home, but there is no good reason why British newspaper publishers, and British paper-makers, too, for that matter, should not draw upon Eastern Canada for a large proportion of their supplies.

The Province of Quebec is generally regarded as being the best off in the extent of its pulpwood resources. It also enjoys the advantage of being the most readily accessible to the British market. This province is estimated to possess 75 million acres of unlicensed Crown lands still available for exploitation, in addition to 45 million acres of licensed Crown lands and six million acres of privately owned lands, all bearing spruce, balsam, poplar and jack pine, suitable for paper-making. These combined lands are estimated to be capable of yielding some 360,000,000 cords of pulpwood. A large part of it, of course, is at present commercially inaccessible. But enough is accessible to supply the pulp and paper requirements of the United Kingdom for generations to come, if, and when, the capital is provided for its development. Quebec also possesses the water-power necessary to the utilization of this vast store of raw material. The province furthermore, is controlled and governed by enlightened laws that operate to the best interests alike of the commonwealth and of those seeking to make use of its natural wealth.

It is, of course, known to you that Quebec, as well as most of the other provinces, requires that pulpwood cut from the Crown lands, under license, shall be manufactured into pulp or paper within Canada. This we regard as a very reasonable and natural requirement, tending to promote the welfare of the province, to provide employment for its people and to give the commonwealth some slight if still inadequate return for the consumption of its resources. This policy, as you may have heard, has led to some controversy of late with certain of our neighbours to the south, the merits of which it is not necessary to discuss here except to say that neither Canada nor Quebec has any reason whatever to shun the fullest investigation into the question by anyone who may be disposed to examine the facts with an open mind.

Quebec offers abundant opportunity to British capital in her vast undeveloped resources. The other Eastern provinces mentioned, while less abundantly provided with raw material than Quebec, are no less ready to welcome the British investor and to help him in making their natural resources available to the Empire's needs.

Another question I have been asked to touch upon is one relating to the present abnormal prices for Canadian pulp and paper. Are they likely long to continue, or is some measure of relief, if not imminent, probable in the near future?

To this I can only say that most of those who are looked upon as authorities on the subject, fail to see any immediate relief in sight. The price of pulp and paper is governed, as is that of most commodities, by world-wide conditions with which you are all familiar. It is true that the demand, especially for newsprint paper, so far outstrips the supply as to create an abnormal condition, but this, in itself, affects the market price but indirectly. It has, of course, increased prices on what is known as the "spot market," but has had little or no effect upon the bulk of the product.

A recent survey of conditions affecting the paper market in Canada states that the price of wood is the controlling factor and that wood has advanced from a pre-war price of from $5 to $6 a cord to as high as $15 and $20 and even higher. It is pointed out that the newsprint industry is really the growth of a decade, but that it has made such marvellous strides in this brief period as to necessitate going back to forest areas so remotely distant from the mills, as to require from two to three years for recent cuts of logs to reach the manufacturing plants which, originally, found their raw material at their very doors. Coincident with the growth of the paper-making industry there occurred in Canada a brief period during which the lumber industry stood practically still, so that it became feasible and more profitable to utilize the sawlogs to make pulp instead of lumber. The revival of the demand for building material and the rapidly rising cost of lumber tend to the discouragement of a recurrence of such a condition in spite of the fact that pulp and paper prices are now at levels that were not even dreamed of two or three years ago. All indications—the high price of labor and the enormous increases in the cost of transportation, in addition to the increased cost of wood—point, according to this authority, "to a continuation of present high costs of production and high prices for products for some time to come, as it is hardly possible for new capacity to overtake the entire demand for paper products in the next five years, and with normal increase in consumption, even if the present abnormal demand subsides, there must be another period of balance before there is very much actual over-production."

If this prospect is not an alluring one for the paper consumer, it at least has the merit of placing the situation frankly before him for consideration, of putting him upon his guard, and of giving him opportunity for adopting measures to meet it. While it is not for me to suggest what these measures should be, there are two very obvious means of relief—one, that of curtailing the avoidable use of paper and keeping it within the strict confine of the actual necessary; the other, the adjustment of advertising rates and subscription charges to meet the increased costs of production and to act as a deterrent upon unnecessary consumption.

In conclusion, I bespeak better and closer relations between the Canadian paper-makers and the Empire Press. This can be brought about to the advantage of both, by an interchange of information applying to

conditions governing both interests. There should be, in my opinion, a joint committee on standardization, whose business it would be to work for the elimination of all those things which tend to waste and inefficiency, both in the manufacture and in the use of paper, and for the adoption and the encouragement of those things which enure to greater production and stricter economy in the use of the finished product. There ought to be some sort of co-relation between the building of new printing presses and the building of new paper-machines so that one would serve to meet and offset the requirements of the other, instead of the present haphazard method of building and installing printing machines without adequate assurrance as to where the supply of white paper to keep them in operation is to come from.

There are many other ways in which the paper-maker and the publisher can work together and I am here to say, on behalf of the Canadian paper-makers, at any rate, that we welcome such co-operation and are willing to do whatever lies within our power not only to bring it about but to make it effective when once it is inaugurated.

The Canadian Pulp and Paper Association adds its welcome to the great number already extended to this gathering of distinguished journalists from all parts of the Empire. It bespeaks for you a profitable and enjoyable conference and extends to your members, both as a body and individuals, the hospitality of its members whenever in your journeying through the country you may reach a community in which our industry is represented.

Mr. Dawe suggested that something might be done in the way of newsprint conservation by a getting together between the publishing interests of the Empire press and the paper manufacturers to secure standardization of production and elimination of waste, instancing what had been done along that line by the users of sheet news and the producing mills in Canada. This, however, was not taken kindly by the chairman, Viscount Burnham, who said that efforts along that line had been found impracticable insofar as the British situation was concerned.

Mr. Knight and Dr. Leys both spoke at length to the motion and both gave voice to a serious grievance entertained by the publishers in Australia and New Zealand at being unable to obtain Canadian paper, although willing to pay practically any price therefor. They said that in their extremity some of their publishers had been obliged to buy Scandinavian newsprint at an ultimate price of from $450 to $500 a ton computed in Canadian money and taking into account all the factors of freight charges, exchanges, etc. Some of the other delegates appeared to think this statement slightly exaggerated, but the speakers stuck to it.

Mr. Knight said that there was no more important question before the Conference than that of getting paper supplies for Australia. They felt that Canadians should be willing to supply them when they were shipping so large a proportion of their output to countries outside the Empire. He appealed to the Conference for help and said that Empire unity and Empire trade should have a common basis. The Empire needs should come ahead of those of outside nations and that perhaps the dispelling of the war clouds which are again unfortunately manifesting themselves might depend upon a reasonable distribution of the Empire's production of newsprint. The lavish use of paper by the publishers of the United States and Canada was touched upon and the suggestion made that it could be reduced without disadvantage to the publishers.

Mr. P. D. Ross, of the Ottawa Journal, took up the defense of the Canadian paper manufacturers in a very able brief address. He was sure that there was no desire upon the part of Canadian manufacturers to discriminate against any part of the Empire and while he sympathized with the delegates from New Zealand and Australia in their difficulties, and would do all possible to help them, he thought it unwise to let the sense of grievance prevail over that of fair play. He said that Canadian publishers enjoyed no favors at the hands of the Canadian paper-makers, except that some of them were given the benefit of not having to pay the price that could be exacted if the difference made by exchange rates between the American and Canadian market price were taken into account. He thought, however, that Canadian publishers were entitled to some special consideration because they had contributed to the upbuilding of the industry in this country when, he said, a protective tariff had been imposed on paper for the benefit of the paper manufacturers. He thought, perhaps, the situation complained of now was due to exigencies imposed upon the manufacturers by the war. For a time they were cut off from their overseas markets and had to seek markets elsewhere, since it was not desirable that the mills should be closed. The commitments made as a result of this condition no doubt made it difficult, even if it were desirable, for them to divert paper from the new market back to the old without doing injustice somewhere. Then the fact had to be taken into account that American capital as had been disclosed, was heavily interested in the industry and the American trade was undoubtedly entitled to consideration on that account. There also came in the situation created by the high premium on American exchange which the manufacturers were certainly entitled to consider. The question, in Mr. Ross' mind, appeared to resolve itself into one of trade expediency, although he did not lose sight of the sentimental interest involved and, at any rate, hoped a way would be found to assist the Australasian and other Empire newspapers out of their dilemna.

Mr. J. L. Greaves, of the Paper-Maker and British Paper Trade Journal, contributed a helpful talk to the discussion, by pointing out that the paper shortage was a world-wide affair and by going into some of the economics of the business. He gave some illuminative facts about possible substitutes for pulpwood in the manufacture of paper and the comforting assurance, so far as it applies to Canada, that pulpwood is not likely to be supplanted by any other material so long as it is available. As an illustration of British faith in the permanency of Quebec's forest resources he instanced the recent purchase by the Harmsworth interests of the Gulf Pulp and Paper Company's Mills at Clarke City and spoke of other British investments of a similar nature mooted or in actual negotiation.

The outcome of the discussion was a request made by Viscount Burnham upon Mr. Dawe to bring the Australian and New Zealand newsprint situation to the attention of the Executive of the Canadian Pulp and Paper Association in such a way as to enlist sympathetic consideration. This Mr. Dawe very willingly agreed to.

The newsprint question was further alluded to in the final session of the conference, when the subject

of the Imperial Press Union came up for discussion. Mr. P. D. Ross of the Ottawa Journal instanced the success of the Canadian Press Association in fighting the newsprint manufacturers as an argument in favor of newspaper organization and solidarity. He said that the Canadian newspapers had been "saved" between two and three million dollars within a period of two and three years as a result of their organized appeal to the Canadian government. It might interest Mr. Ross' fellow delegates to know that any such "saving" was secured, it at all, at the expense, in part, of newspaper publishers outside of Canada, including some of those in the Imperial Press Conference, who, naturally, had to make good the loss sustained by the manufacturers in being compelled to sell paper below cost in Canada as a result of the Canadian publishers' political pressure upon their government.

Mr. Imrie's Address.

The manuscript of Mr. Imrie's excellent address was received unfortunately too late to be included in this number. It will appear in the next issue.

Prominent British Pulp Men

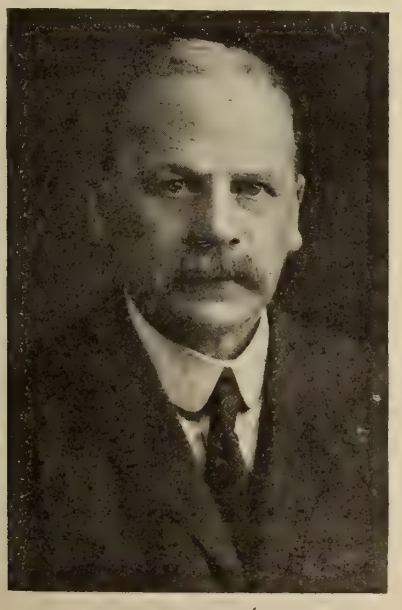
L. P. ANDREWS and ERIC NORDBERG
(By J. R. B.)

Times change and we with them ! Nearly a quarter of a century ago I asked a paper man, who hailed from a little Welsh town, what were the objects of a new body I had just heard of going under the name of the Wood Pulp Association and now known as the British Wood Pulp Association. He admitted he did not know ; he looked scared in replying, because Trade Unionism about that period was on a crucial pivot—it was growing and falling-back. My paper friend evidently jumped to the quick conclusion, thoughtlessly, that the Pulp Association was another "big gun" introduced a hurl shrapnel into the mills and disturb labor elements, and if there is one thing a British paper mill owner abhors and detests it is anything that tends to cause unrest among his workers. And so we all went on our ways wondering with our eyes focussed on the new Association; until suddenly some one dropped the news in Manchester that one of the promoters of the Association was L. P. Andrews. Among paper makers there were sighs of relief. Why? Well, the paper manufacturer knew that instead of having to cope with a labor leader he was out to deal with a body intended to help him, and, above all, he knew that L. P. Andrews would not associate himself with the Wood Pulp Association, if there was anything un-English in it. And neither he would.

A Brilliant Career.

Having helped to promote the British Wood Pulp Association—some 23 years ago, I believe—Mr. L. P. Andrews (who is of the firm of Andrews & Co. Ltd, New Bridge St., London, E.C.) has now been elected to the position of President and a higher honor could not be conferred on any Englishman. To occupy the presidency a live man is required—one who will take upon himself the trouble to understand, investigate, and deal out mercy with justice in the many ramifications and vicissitudes which come within the scope of his office. At times the office is no senecure, particularly if a gentleman of the law should imagine that he had discovered a plan in the Force Majeure Clause, but in Mr. Andrews there is great confidence and his name is highly respected in pulp and paper circles.

But one does not eulogise Mr. Andrews, because he is President of the British pulpmen. We recognise in him a true spirit of sincerity; he is perfection of exactness; a fluent speaker with delightful elocution and a methodical business man today at the age of 62 years. All these brilliant qualities have been utilised



MR. L. P. ANDREWS.



MR. ERIC NORDBERG.

in the promotion of the great wood pulp industry and the name of L. P. Andrews will go down to posterity as one of its singular pioneers. He has done what MacIntyre, H. T. Meldrum, and a few others have done for the Canadian Pulp Association on its initiation, the only difference being that the work was accomplished nearly 25 years gao after considerable spade work and today Mr. Andrews can sit back in his presidential chair and say: "Let the young ones now carry on!" Not that, his work is done—far from it. He is, I am told, attacking one of the greatest bug-bears that could be thrown in the face of a pulp agent and that is the taxation of foreign manufacturers question, which will take the head of a Borden or a Lloyd George, to forsee what damage it will do financially and otherwise to an industry that is trying to keep the country on its straight legs.

As A Pulp Man.

Mr. L. P. Andrews is an ideal pulp man. He has studied the manufacture of pulps in more places than most men and being an old pioneer, he has watched the growth of the industry with interest and delight. He has a very keen eye on Canada just now and I know he and his firm enjoy very friendly relations with some of the big Dominion concerns. They will always find Mr. Andrews a through Englishman and a thorough business man from whom much can be learned particularly at an after-dinner talk. I recollect a story he told some years ago at the expense of a papermaker.

"I was making a round of visits to paper mills," said Mr. Andrews, "and when walking down a mill yard, as I often had done on many occasions before, I was held up by a voice which ordered me abruptly to come back. I went back and when I got to the gate again there stood a very stolid individual who looked at me up and down, and said: "Give me your name and address and I will telephone it down to the mill." That did it. I asked what was the meaning of all this as they knew me so well at the mill."

"There was a man came in tuther day and stole a bag of rags."

"Do I look like a man who would steal a bag of rags?"

"I no say that, sir—but we are not taking any risks."

Mr. Andrews says he felt crushed. This story has a moral, like all others. It gives a slight indication of a time when the papermaker could not afford time to see the pulp man in an interview. In these post-war days the pulpman now sits in his office and the papermen are being intercepted "down the yard". Times change and we with them. The paperman would do anything to see the little note book of the pulpman today. In the past, it was rags, a missing bale; woe betide the man who took a bale of pulp nowadays.

As President, Mr. Andrews follows such fine British leaders of industry as Mr. Frank Lloyd, Albert E. Reed, and Capt. Partington, who was raised to the Peerage. Behind Mr. Andrews we feel secure and resolute.

A Coming Pulp Man.

In these days of uncertainty we are apt to overlook the young ideas. Mr. Andrews does not. He has as a right-hand man, Eric Nordberg, who is a partner with his able and respected father, Mr. J. A. Nordberg of Messrs. J. A. Nordberg, Ltd., 30-31 Queen St., London. Mr. Eric Nordberg is Hon. Secretary of the British Wood Pulp Association and as a young man he has won the euconiums of all pulp men. He studied in his boyhood days in Scandinavian mills. The idea was to give him a thorough knowledge of the pulp and paper manufacture. Then he was with the late Alsing & Co. Ltd, of London, and he finished up with Messrs. Becker & Co. Ltd., the large wood pulp importers of the United Kingdom, where he got a great knowledge and insight into pulps, shipping, and minor detail work so often to be encountered in a large place of business. Then war broke out and Mr. Eric Nordberg "joined-up" like many more British Pulp and Papermen. He is now steering the wheel of the British Wood Pulp Association under the guidance of Mr. Andrews and his knowledge besides experience obtained in the United States and Canada enables him to look on things broad-mindedly, besides being a gentleman in his business transactions.

In Mr. Andrews we have a generation of which all pulp and paper men are justly proud; in Mr. Eric Nordberg we have a gentleman jumping into the limelight to reap the benefits of what men like his President, Mr. Becker, Lloyd, and others have fought for. An organization, like the British Wood Pulp Association must thrive when in the hands of such capable men. It is thriving and carrying on a good work in its own way.

What we want now, say Mr. Andrews and Mr. Nordberg is plenty of pulp. We have markets and the consumers and the Association to study the interests of the pulp men.

WALLPAPER TABOO IN INDIA AND CEYLON.

Mr. J. L. Wilson-Goode, H.M, Trade Commissioner at Bombay, in response to inquiries writes as follows regarding the sale of wallpaper in India and Ceylon:

As the result of careful inquiry, I have come to the conclusions that the opportunities of selling wallpaper in this country are by no means favorable for the following reasons:

Wallpaper has been used to a limited extent on all types of residential buildings, but the results have not been altogether satisfactory The principal objects to the use of wallpaper are as follows:—

(a) The dampness of the atmosphere in Bengal affects the brick walls and the bricks contain a certain quantity of saltpetre which attracts the dampness. A very large percentage of the houses have defective damp-proof courses, with the result that the damp rises up the walls to a height of approximately 9 feet above the floor level. Wallpaper placed under these circumstances becomes discolored and peels off.

(b) White ants are very commonly met with and these insects destroy the paper. Attempts have been made to mix paste with blue stone and as a result the paste does not attract the ants, nevertheless the paper is still being destroyed.

(c) The wallpaper provides homes for objectionable insects which thrive in the district.

2. It has been found that ordinary color wash treatment of the walls is the most satisfactory, it meets local conditions, is inexpensive, clean and can be done at short intervals. Distemper has the objection of being too difficult to remove when it becomes discolored through the action of dampness and strong sunlight.

The Advertising Value of Paper Packages*

To give full justice to a subject such as has been handed to me, will take more time than we have at our disposal this afternoon. For that reason, I will try to boil down as much as possible the few remarks that I have to make. In using the word "Paper Package", I mean all the receptacles that are made from paper for the purpose of packing goods. To deal with paper packages as an advertising medium, one will need to make a short historical review of advertising as a whole, for the two are so linked together, it is hard to deal with one without at least touching the other.

Back in early days when trade was in its primitive stages, and there were few articles to be sold, men lived in caves, their wants and needs were few, and were generally got by hunting, but as tribe intermingled with tribe, and trade grew, then there started a crude system of exchange, gradually this expanded, as certain tribes would have articles to barter, and there the first system of advertising must have started. One tribe would tell the other of the goods they had to exchange, and through this beginning, we have from the very earliest of civilization the beginning and growth of advertising, and may trace it down to those two outstanding Nations who advertised, and did it well, Greece and Rome. Their laws, their customs, and their national doings, have been impressed upon minds through the written word and picture. Has there been anything more widely known or more lasting even in more modern times? The municipal Crier, a very important person, was used in the early days, to let people know what was going on, the old time market had its place, which links the past up with the advertising of to-day.

Another outstanding fact in the world, was the discovery and application of steam, before this, were days of small tradesmen—cobblers, blacksmiths, the spinning wheel, etc., whose wares were generally sold by the quality of the goods, and the good word of their friends being passed from neighbor to neighbor, but this all changed with the introduction of steam. Steam power instead of man power introduced the making of many articles and bringing together of many workmen under one roof, and from this has gradually grown the great system of modern commerce. With this factory growth, new systems of distribution were needed, first, travellers were sent out with a certain amount of limited advertising, largely local, and then we find advertising campaigns undertaken until today, we have the growth of business with its combinations, and find side by side with this tremendous growth, plans and schemes of national and international propaganda are being used. The package has had its place from the very beginning wherever there were goods to be packed and shipped, it had its use, whether made from wood, grass, paper or iron, these were the forerunners of the great number of packages that are used to-day. With all this growth, there has been certain fundamental principles at work, that has within the last few years brought a new industry into being; first the desire to improve the manufactured product, second the improvement of its appearance, or might I put it another way, the desire to dress a large part of the goods of the world in an attractive manner. With this as a back ground, we can appreciate all the more the value of the package, not only as a piece of commerce, but as part of the great system of advertising, along with its selling power.

It is a very practical proposition, and you and I as manufacturers, are keenly interested in its possibilities.

Its Scope.

In nearly every line of business, new sources of application of the package, are being opened up; one needs to but look around and see the many ways in which packages are being used, and to my mind, it is just at the beginning of the development. It has grown and expanded during the last ten or fifteen years, when only a few articles were put up this way, till we find now, that almost every kind of marketable goods are being put up in packages. We find that in this country, there has grown an industry which has become very important to the manufacturer and his product.

Its Advantages.

Need I draw your attention to the advantages of paper boxes, their sanitary qualities, their convenience, their individuality, eliminating chance of substitute, guaranteeing the makers goods increasing its selling power easy of handling. In fact, they put well dressed goods as well as well-dressed salesmen on the selling end of the manufactured product and, skilfully handled, mean increased sales and larger turnover for the buyer.

Its Selling Power.

The distinctive paper box will give life and expression to what might be otherwise one of many articles of the same kind, which have the disadvantage of being bulk goods. To make myself clear, let me tell the experience of one of our customers who told me he had been selling his goods in packages for a long time, and through the increased cost of cartons, thought he would try and sell them again in bulk, which he did, but his experience was, that his sales fell off nearly 50 p.c. in six months. He is now convinced more than ever that packages pay.

When placing on the market a package, many details must be taken into consideration, art, design, size, shape, strength, color, simplicity, and to whom it is going to appeal—men or women. To look at packages from their wide application, makes them something more than so much cardboard, to try and incorporate into them the possibilities of design, advertising and selling powers, makes an unlimited field for development.

Its Educational Value.

Probably this is one side to which we have given very little thought, but if we stop to think for a moment, we see here a splendid opportunity of telling the public the merits of the goods that are enclosed, in a few sentences to tell the prospective buyer the story of the enclosed product, and as a

* Paper read by Mr. J. B. Lawrason of Messrs. Lawrason-Doughty Company, Toronto, at luncheon of Toronto Carton Club held in Toronto, Tuesday, July 6th, 1920.

rule, it can be done in a short concise way that the buyer can read at a glance, and will leave a lasting impression.

Its Standardization.

This is one point that has been given a good deal of consideration, during the recent past. I think it is one of the most important subjects that has to be considered, and the very best thought of this organization should be given to its working out. We will find that the paper box will become more useful, and will become a better paying proposition than it has been in the past, through eliminating what may be a good deal of duplication and waste. Another thought comes to my mind, if ever the time comes when the present rush of business eases off, we should keep in mind the all around advantages of the package to the prospective customer to create new business, and in this way we will get business which will keep our factories busy, instead of going out and cutting prices to get work.

I believe it would be well for the Toronto Carton Club to keep in mind some way of keeping the industry before the public, in an effective, and practical way, by exhibits of finished products actual operations of the goods being manufactured, which would have a fascinating and educative value for the public.

Allow me to repeat, is there any industry that has greater possibilities of future expansion and by its application to draw upon the very best there is in us, and by its continued development and expansion to be of real service to the world of business, and by keeping the higher ideals ever before our minds, to contribute to the convenience and betterment of the human race?

STOLE ABITIBI LOGS.

The Abitibi Power & Paper Co. has brought action in the Police Court at Quebec against five lumbermen of Lasarre, named G. E. Lambert, H. Bergeron, C. Doheney, J. N. Boucher and G. C. Chevalier, who are charged with having taken lost logs to the amount of $10,000. Messrs. J. N. K. Laflamme, K.C., of Montreal, and Mr. Hector Laferte, K.C.. M.P., who appear for respondents, admit that their clients had been found with the wood in their possession. which is alleged to belong to plaintiff, but claim that even if it had been the property of the Abitibi Power & Paper Company, Ltd., this action has been entered in a court which has no authority, as it is purely a question to be decided by the civil courts. In answer to this, plaintiff, represented by Mr. Robert Taschereau, K.C., Montreal, contends that the wood found in possession of accused was stamped with a registered mark, and under no pretext could the respondents have kept it, which was a violation of the law. Due to the importance of the amount and the fact that the five persons involved are well known in Lasarre, great interest is manifested in the case.

A similar difficulty is being faced in Ontario.

Density Table for Paper Stock

This table has been prepared for the rapid determination of quantities of bone dry fibre in stock of known percentage density, or for converting inventory of wet stock into equivalents in other units, and also for the assistance of the engineer who will find it useful in calculating the wet stock capacity required in producing a specified tonnage of paper

Percent or Lbs. Dry Stock in 100 Cu. Ft. Liquid	Pounds Dry Stock in 1 Cu. Ft. Liquid	No. Cu. Ft. Containing 1 Lb. Stock	Lbs. Dry Stock in 1 Gal. Liquid	No. of Gals. Containing 1 Lb. Stock.	Cu. Ft. Liquid per Min. per Ton Dry Stock per 24 Hrs.	Gals. Liquid per Min. per Ton Dry Stock per 24 Hrs.	Lbs. Liquid per Min. per Ton Dry Stock per 24 Hrs.	Lbs. Water per 1 Lb. Stock	Gals. Water per Lb. Stock	Gals. Water per Ton Stock
.10	.0625	16.00	.0084	119.76	22.20	66.24	1,388.88	999.00	119.64	2,392.80
2.30	.1250	8.00	.0167	59.88	11.10	83.12	694.44	499.00	59.76	1,195.20
.25	.1562	6.40	.021	47.87	8.88	66.49	555.55	399.00	47.75	955.11
.30	.1875	5.33	.025	39.90	7.41	55.41	562.96	332.33	39.78	795.53
.35	.2187	4.57	.029	34.20	6.35	47.50	396.83	284.71	34.08	681.54
.40	.250	4.00	.038	29.92	6.55	41.56	347.22	249.00	29.80	696.05
.45	.2812	3.66	.038	27.43	4.94	36.94	308.64	221.22	26.48	529.55
.50	.3125	3.20	.042	23.94	4.44	33.25	277.77	199.00	23.82	476.86
.55	.3437	2.91	.046	21.76	4.04	30.22	252.52	180.82	21.61	432.84
.60	.376	2.66	.050	19.84	3.70	27.71	231.48	165.66	19.83	396.56
.70	.4375	2.28	.058	17.10	3.17	23.75	198.42	141.86	16.98	339.57
.75	.4687	2.13	.068	15.96	2.96	22.16	185.18	132.33	15.84	316.78
.80	.50	2.00	.067	14.96	2.78	20.78	173.61	124.00	14.84	296.83
.85	.5312	1.86	.071	14.06	2.61	19.56	163.40	116.65	13.96	279.22
.90	.5624	1.83	.075	13.71	2.47	18.47	154.32	110.11	13.18	263.58
.95	.5937	1.68	.079	12.61	2.34	17.50	146.19	104.26	12.48	249.58
1.00	.625	1.60	.084	11.97	2.22	16.62	138.88	99.00	11.85	236.98
1.35	.7812	1.38	.104	9.57	1.78	13.80	111.11	79.00	9.45	189.11
1.50	.9375	1.07	.125	7.98	1.48	11.08	92.59	65.66	7.86	157.19
1.75	1.0937	.91	.146	6.84	1.27	9.50	79.37	56.14	6.72	134.39
2.00	1.250	.80	.167	5.97	1.11	8.31	69.44	49.00	5.86	117.29
2.35	1.4062	.73	.188	5.49	99	7.39	61.73	43.44	5.20	103.99
2.50	1.5625	.64	.209	4.79	.89	6.65	55.55	39.00	4.67	93.35
2.75	1.7187	58	.230	4.35	.81	6.04	50.50	35.36	4.23	84.65
3.00	1,8750	.53	.251	3.99	.74	5.54	46.29	32.33	3.87	77.40
3.50	2.1875	.46	.292	3.42	.63	4.75	39.68	27.57	3.30	66.00
4.00	2.50	.40	.234	2.99	.55	4.15	34.72	24.00	2.87	57.45
4.50	2.8125	.36	.375	2.74	.49	3.69	30.85	21.22	2.54	50.80
5.00	3.125	.32	.418	2.39	.44	3.32	27.77	19.00	2.27	45.36
5.50	3.4375	.29	.459	2.18	.40	3.02	25.26	17.18	2.06	41.13
6.00	3.75	.37	.501	1.99	1.37	2.77	23.15	15.66	1.87	37.50

NOTE—Second number in first column should be .20.

—From "Paper."

The Imperial Forestry Conference

Written for the Pulp and Paper Magazine by Ellwood Wilson.

Late in 1919, Mr. Robson Black of the Canadian Forestry Association, wrote Sir John Stirling Maxwell, suggesting an Imperial Forestry Conference. The British Forestry Authority took up the matter and invited the British Dominions and Colonies to send delegates, and 35, from all parts of the world, met in London on the fifth of July. There were present also 54 Associate Delegates. Canada was represented by Messrs. E. H. Finlayson, Forestry Branch, Ottawa, Clyde Leavitt, Commission of Conservation, Robson Black, Canadian Forestry Association, M. Kilbey, Canadian Government Railways, M. A. Grainger, Chief Forester British Columbia, Avila Bedard, Assis'ant Chief Forester, Quebec, and Ellwood Wilson, Canadian Society of Forest Engineers. The meetings were held under the Chairmanship of Lord Lovat, K.T., K.G.M.C., D.S.O., Chairman of the British Forestry Commission. The first day was spent in visiting the British Empire Timber Exhibition and the second in a visit to Kew Gardens, the celebrated Royal Botanic Gardens and Arboretum in London.

The opening session of the actual work of the conference was held in the morning of the 7th July in the historic Guildhall, and addresses were made by the Lord Mayor of London, Lord Milner, Lord Lovat and several of the delegates. The Forestry Commissioners entertained the delegates at lunch and in the afternoon in the Council Chamber of the Guild Hall, the delegates presented their reports on the forest resources of the various Dominions and Colonies. These meetings were very impressive and especially the afternoon session when a mass of information on the forest conditions and resources of so large a part of the world was brought together. No such authoritative statements had ever been prepared and the conference had before it up-to-the-minute data for the study of forestry and timber supplies the world over. In the evening the delegates were entertained by the Forestry Students Society of Oxford, Cambridge and Edinburgh Universities. At this banquet Sir William Schlich spoke most interestingly. The next day the delegates left for a trip through the Crown Forests of Dean, Highmeadow and Tintern, as the guests of the Forestry Commission and spent three delightful days in tramping through Dean Forest situated in the West of England and in getting acquainted with one another.

The Forest of Dean lies between the Rivers Severn and Wye in the West part of the County of Gloucester. This forest contains 18,700 acres under management and also a freehold of 15,594 acres, but, owing to the legal position, only eleven thousand acres of the forest can be enclosed at any one time, so that the whole area cannot be placed under management. This area has been reserved as a forest since the earliest time. The term "Forest" originally meaning an area set apart for hunting and having little of its present meaning. This forest was originally oak and was used for supplying timber for wooden ships.

The greater part of the actual Forestry work was first undertaken in 1808 and by about 1832, eleven thousand acres had been planted up. In the early days the trees, on account of Naval requirements, were grown with large spreading crowns in order to obtain knees for ships. After wooden ships were discontinued an effort was made to grow the trees taller and straighter. A great many plantations of exotic species have been made including Douglas Fir and Sitka Spruce. These two species make remarkable growth and those of the delegates who were familiar with British Columbia said that the growth was certainly equal if not greater than that in their native habitat.

Oak is perhaps from one to two hundred years old and Coniferous species from one to eighty years old.

The delegates were quartered in Speeche House, still belonging to the Crown, and in which in early time the old Verderer's court was held for trying cases of crimes against the Forest Law. These were very severe in the early days and a man would lose his life or be mutilated for killing a deer and often a hand was cut off for killing rabbits or smaller animals.

The prices received for wood cut in these forests are rather interestinng: Oak over ten inches forty cents per cubic foot, felled lying in the wood. Oak under six inches to ten inches about twenty-four cents per cubic foot felled. Beech, seventeen cents per cubic foot felled; Larch, thirty cents per cubic foot felled; Spruce, twenty-two cents per cubic foot felled; Pitwood, for use in the mines; hardwood, $10.00 per ton, free on rail and coniferous species, $12.000 per ton free on rail; hardwood, cut into cord wood, $5.00 per ton, free on rail.

The forest is in charge of a deputy Surveyor, with a head Forester and thirteen Foresters with definite beats and having charge of gangs working in these beats. The average number of workmen employed is one hundred and forty to one hundred and sixty.

The receipts from the forests of Dean, for the period 1908 to 1918, amounted to $389,000 and the expenditure $440,000 making a deficit for ten years of about $50,000.

The Forest of High Meadow comprises about three thousand, five hundred and eighty acres, of which three thousand, three hundred and forty-nine are under timber. This was purchased by the Crown in 1817 and further purchases were made in 1824 and 1828. At the time of purchase, the timber was between fifty and sixty years old and about a thousand acres were planted with oak between 1825 and 1850.

Larch has been freely introduced in groups among the oaks to replace the matured standards cut out, but in most cases the groups were too small and the surrounding oaks were tending to close in over the Larch. In 1911, a system of clear cutting and replanting at the rate of approximately a hundred acres per year was begun. A new working plan is now in course of preparation for these woods. The best of the soil will be given over to oak and the remainder will be planted with conifers and ash.

The prices ruling in the woods are practically the same as those in the Forest of Dean, but there is a larger quantity of good oak timber which sells up to fifty-two cents per cubic foot in the woods.

The excess of receipts over expenditures for the

period 1908-1918 amounts to about one thousand dollars.

The Forest of Tintern, situated on the left bank of the River Wye, between the towns of Monmouth and Chepscow were purchased from the Duke of Beaufort in 1901 and contain three thousand, two hundred acres. The object of management since 1914 has been the production of coniferous and hardwood timber of good quality and also a supply of small wood for the local turnery industry. A great bulk of the material which is cut in the wood is used for mining purposes. This applies to both hardwood and smaller coniferous poles. The better class larch poles are sold for telegraph purposes. The smaller hardwood material is utilized in the manufacture of chair legs, et cetera. Practically all the material is felled by the Crown and is disposed of to timber merchants. The prices run somewhat higher than in the other two woods.

The balance of receipts over expenditure for the ten year period has been thirty-six thousand dollars.

On July 10th the main body of the delegates returned to London while a special committee of thirteen remained at Tintern Abbey to discuss the policy and general conduct o fthe Conference just in session. This meeting was held in the Beaufort Arms Hotel at Tintern, overlooking the ruins o fthe famous Abbey of that nam eand the beautiful valley of the Wye River.

On Monday, July 12th, the delegates met in the morning to elect a president and to decide on the procedure and form an address to the King. After that there was a general discussion of the responsibility of the State of Forest Policy and it seemed to be the general opinion that as Forestry was a long time business, that the State was certainly responsible for the management of forest lands owned by it and there was also the opinion that a certain amount of supervision over private forest holdings was the duty of the State.

In the afternoon a description and discussion of the Forestry Department of all the various countries represented was held and much interesting information on these points was secured.

On the 13th, methods and problems of technical forestry were discussed, including fire protection, reforestation, utilization and so forth.

In the afternoon the subjects of education and research were talked over and it was the concensus of opinion that for England, at least, it would be better to have only one forest school, rather than the three which exist at present. It was also decided that a central Forestry Bureau for the exchange of information to be a sort of clearing-house for all sorts of Forestry matters should be set up in London and also that some Central Bureau of Research which did not trench on any of the work being done by similar organizations should also be established.

On the 14th of July, the resources of the British Empire and the consumption of forest products were also discussed together with the scope for Imperial development. As different parts of the Empire have different kinds of timber and different needs, it was hoped that there could be an interchange of products between them so that to make the Empire self supporting in its forestry needs.

From the 14th to the 20th of July a tour of Scottish forests was made and on returning, the Committee which had been appointed at the previous meeting presented their report, resolutions were discussed and adopted and on the 21st an address was presented to the King at Buckingham palace from the Conference.

In the afternoon there was a discussion of the foundation of an Imperial Forestry Bureau and the session concluded by a banquet to the delegates given by His Majesty's Government.

On the 23rd a visit was made to Windsor Forest with a luncheou at the Royal Hotel Ascott.

In every way the Conference was a great success and should be one of the brightest mile-stones in the history of Forestry. The fact that the British Empire sees the need for proper forestry management of its timber resources and that men were gathered together from all parts of the world to discuss these questions in common is of the very greatest importance

To sum up generally, one's impression of this Conference was the splendid hospitality of the Forest Authority's members to the delegates. The meetings were conducted in the most business like way that the writer has ever seen and moved more smoothly and a greater amount of work done per unit of time than it has ever been his experience to witness.

The delegates were promptly in their places at the opening of the sessions; speeches were short, business like and without oratorical efforts and when anyone commenced to get off the subject which was being discussed by the Conference he was promptly brought back to the matter in hand.

Lord Lovat, as Chairman, handled these sessions in a most masterly manner and to him is due a great part of the success of the Conference.

The English Authorities did all in their power to encourage the delegates from overseas to express their opinion and to take the major part in the debate and in all the proceedings and their splendid hospitality will never be forgotten by any of those present.

The problems confronting Foresters in all parts of the world were found to be practically the same; lack of money, lack of continuity of policy, lack of trained personnel, lack of definite information in regard to forest resources, interference by political authorities, lack of definite forest policy and an insufficiently formed public opinion were found to be common to all the countries represented.

The setting up of a Forestry Commission in Great Britain had been a wonderful step in advance and this Commission has been given a free hand and an appropriation of fifteen million pounds to be spent in reforestation of waste land and to encourage private planting for the next ten years. Great Britain learned a lesson during the war in its lack of timber supplies and the necessity of importing everything from overseas. The present policy will be to establish sufficient forests to fill the needs of Great Britain for three years should any future war occur.

The situation in India was perhaps the best of any country because there, Forest Authority has the full backing of the Indian Government and as this great dominion is not a democracy, the necessary power to establish a definite policy and to insure its continuity is present.

With only one exception, all the foresters present, except those from Canada, were in favor of establishing and maintaining forests by plantation rather than by natural reproduction. The general reason for this was that under natural reproduction many undesirable

and weed species take the place of valuable species or seed in along with them, making their management difficult and it was felt that planting was cheaper and a better means towards establishing forests.

This Conference was so successful that it has been decided to hold one every three years and the next one will be held in Canada in 1923.

Messrs. Clyde Leavitt, Avila Bedard and Robson Black made a trip through Holland and Belgium to the battle fields of France and some of the French forests after leaving the Forestry Conference in London.

The Technical Man.—What is He?

By A. G. DURGIN, in Spanish River News.

Every practical operator is in essence a technologist, having acquired through years of training and thorough experience a vast fund of practical information, and a detailed knowledge of operative short cuts, and of machine, and process control, which makes him a master artisan.

This special training, often started in early youth, has made the practical man alert to all the possibilities of his craft, so that he is both willing and eager to attempt new developments, which will increase the efficiency of process or machine and tend to produce larger output and increased quality.

The technically trained man possesses as his "stock in trade," a knowledge of the fundamental laws of nature, physics, chemistry and mechanics, which underlie all manufacturing processes. His equipment makes it possible for him to enlarge on operative ideas, and to design machinery or process to render the idea operative.

The relationship between the operating and technical man must, therefore, be a partnership to which each brings his own special training or equipment. The operator suggests possible alterations in design of equipment or criticizes constructively the design offered by the technologist. Both are vitally interested in the betterment of machinery and process and in the elimination of waste.

The present destruction of the spruce forests, to supply the ever increasing demands for paper, indicates that before many years the industry will again be confronted with the necessity of developing new raw materials just as in 1855 the acute shortage of rags made necessary the development of the great wood-pulp industry. This is a vital problem which demands attention alike from the operator and technologist, that the present supply may be protected and used to the utmost advantage and when this supply can no longer meet the demand, new sources of material shall be available, new processes perfected, that operation will not cease, and healthy growth of the industry will continue.

The salvage of waste both in the paper industry and in the by-product of other industries is of paramount importance in the struggle to reach ideal operating conditions. A typical case is the commercial utilization of liquid sulphur dioxide, obtained from smelter waste, in the Crown Williamette Mills.

For over 50 years tons of sulphur dioxide have daily been discharged from smelter stacks, representing not only a loss of sulphur, but also constituting a menace to agricultural pursuits in the area surrounding the smelter, since no vegetation can withstand the destructive action of these fumes.

During practically the entire period the basic method for collection and liquefication of the gas has been known and cars suitable for transportation with absolute safety have been procurable.

Despite all this, the actual development of this product along practical lines was not affected on this continent until 1919 when the joint effort of operator and technologist both in the smelter and in the mill solved the problem, thus increasing the supply of raw material, and at the same time making better control of acid manufacture possible.

The question of waste sulphite liquor too has been a problem before the industry for many years. Numerous and ingenious methods have been devised to utilize this waste, which represents half the weight of the wood.

Coal briquettes, road binder, alcohol, and scores of other products have been made, but the right solution is not yet discovered and more than 1000 tons of this material are **discharged daily into lakes and streams.** The solution of this problem is not impossible and the day will come soon, when this material, at present waste, will form the nucleus of a big new industry.

Yet another phase of technical work is standardization and control.

Standardization of machinery and equipment reduces the general storage of repair parts to a minimum and insures more complete stock. But standardization does more, for, acting on the principle of elimination, parts of machines, which have become obsolete or nearly so, as a result of improved method or design, are eliminated, and the most efficient product substituted.

Another phase of standardization is that of standardizing finished product. The grading system of the Quality of Product Department which gives a numerical value to the product of the mill is an example of this type of standardization.

Undoubtedly the most intimate contact between operator and technologist comes from the daily intercourse in control work. The testing and valuing of raw materials and of finished products, the establishing of operating limits, as freeness of groundwood, strength of sulphite, etc., are too well and favorably known to require mention.

In brief, then, the relationship between operating and technical men is a partnership, the object of which is improvement of present method of elimination of wastes as outlined in this article. Anything which is developed either individually or jointly must eventually, when put into practice, come under the control of the practical operator and the acid test to any project or development must be finally measured by the test, "Will it work successfully in practice?"

Although each group may function successfully as an independent unit, and apart from the other, the best results can only be obtained through harmonious co-operation, to which each group contributes its own special assets.

UNITED STATES NOTES

J. Y. Webb of Dallas, Texas, and G. W. Beeman, Texas, have just effected the organization of the Trinity Paper Mills which, following the erection of its initial plant, will manufacture various grades of book, blotting and writing papers from cotton linters. The company is capitalized at $1,000,000. Work on the construction of the first mill will be started at once. This plant will have a daily capacity of 20 tons a day. Its cost will be $800,000. This is the first paper mill to be started in Texas for the express purpose of utilizing linter pulp. It will purchase the raw linters, make its own pulp and produce the finished paper.

The Grays Harbor country of Washington State is to be the site of a new pulp and paper mill projected by a new company whose incorporation is being arranged by R. J. Parks of New York. Mr. Parks who has succeeded in interesting Western capital in the venture, says it is intended to bring the mill to the Northwest in units from the East. Washington has been chosen for the location, says Mr. Park, because the supply of woods suitable for pulp in that State is almost inexhaustible.

The General Paper Goods Manufacturing Company has purchased a block of forty-four lots in Bay Ridge, Brooklyn, as a sit for a new re-inforced concrete warehouse. The main plant of the company is in the Bush Terminal Buildings.

The American Writing Paper Company announces that Donald P. Weston, formerly with the Canadian Export Paper Company, Ltd., has been appointed manager of its Buffalo office, succeeding John L. Forsythe, who resigned recently. Mr. Weston has had considerable experience as a paper salesman in the territory over which he has been placed in charge.

A new power-house, to cost about $45,000, is being erected by the Colin-Gardner Paper Company at Middletown, Ohio.

The Royal Card and Paper Company has purchased fro mthe Majestic Paper Mills Company two six-story buildings with stores on Broome and Wooster streets, New York City. Following extensive operations, the new owners who are at present located at 100 Worth street, will occupy the structures. The buildings involved in the deal have been owned by the sellers for several years and were held at $175,000. They return an annual rental of approximately $25,300.

Arrangements are being made through the Portland, Ore., office of the United States Forest Service for a tour of investigation in Alaska by Forest Service officials. The trip is to be made some time this month. The party will be headed by Colonel W. B. Greeley, United States forester and will include George Cecil, forester of the Alaska district; Fred Ames, assistant district forester and John D. Guthrie of the public relations department. The main object of the trip will be the inspection of Alaskan timber resources in connection with a possible development there of the pulp and paper industry to meet paper requirements in the United States.

Lives of several workmen were endangered when the plant of the Empire paper mill at Ithaca, N. Y. collapsed last Saturday. An overload of paper stock on the second floor is thought to have been responsible for the accident. The monetary loss to the company is estimated at $25,000.

According to the American Forestry Magazine, manufacture of paper pulp from seaweed is proving a profitable undertaking in Japan and the only company making this pulp is building another factory. This concern was organized in December, 1919, and is producing, by a secret process, about fifty tons of pulp daily, which is largely used in the composition of cigarette paper. The new plant, when completed, will have a daily capacity of 150 tons of pulp. The present price is about 5 cents a pound.

Cable orders for samples of paper suits much in vogue in Germany and Austria have been dispatched by the United States Department of Commerce. In a statement explaining this action the department says that it has received numerous inquiries and that wide interest has been created since the publication of a recent despatch from England telling of the display in stores there of large quantities of such suits, which, it was said, retailed at 40 cents each. When the samples arrive they will be displayed not only in Washington, but also in the department's district and cooperative offices located in important cities in the country.

The Eau Claire Paper Manufacturing Company, recently incorporated in Wisconsin with a capital of $400,000 by W. L. Davis, Jr., Willy Brubacher and Claude Hayden, will build at once in Altoona, Wis., near Eau Claire. Commercial filter paper used by chemists, sugar refineries and manufacturers of fruit syrups will be made by the new company. When the Altoona mill is finished, the plant of the old Eau Claire Manufacturing Co., in Eau Claire will be dismantled. The latter was an unincorporated concern whose plant and business have been taken over by the newly formed company.

A branch office in the Holyoke National Bank Building in charge of Charles R. O'Niel has been opened by the Maurice O'Meara Company of New York. Through this ofice the company proposes to keep in closer touch with the mills it serves.

An announcement has been sent out by the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association calling for a meeting on September 8 at the plant of the Eastern Manufacturing Company, South Brewer, Maine.

SERIOUS FIRES IN MANITOBA.

Winnipeg, August 6.—Two forest fires raging in northern Manitoba are endangering thousands of dollar's worth of timber, one on the east side of Lake Winnipeg at the head waters of the Manigotogam river, and the other on the east side of Lake Winnipegosis, north of Lake Pickerel, according to word received today by the Winnipeg office of the Dominion Forest Service.

The situation is rendered more acute by the fact that the north country is drier than it has been for twenty years, officials said. There has been no rain for two months.

PULP AND PAPER NEWS

E. G. R. Clarke, who represents the Canadian Nashua Paper Co., Peterborough, Ont., was in Toronto this week. It is undersood that the company will soon open an office in Toronto.

George W. Pauline, sales manager of Ritchie and Ramsay, coated paper manufacturers, Toronto, has returned from spending his holdidays at Pointe au Baril on the Georgian Bay where he had good luck fishing.

L. S. Stevenson, President of the Mountain Hill Paper Co., Lee, Mass., manufacturers of greaseproof paper, was in Toronto recently where the company is represented by Paper Sales Limited.

C. Nelson Gain, manager of the Don Valley Paper Co., Toronto, was in Lawrence and Boston recently on a business trip in connection with improvements which are being made to the plant of the company.

The Copeland-Chatterton, Limited, of Brampton and Toronto, who for the past twenty five years have been manufacturing loose-leaf and filing equipment, have just opened a large new factory in Toronto at 1303 Queen St. West.

C. N. Ramsay of Ritchie and Ramsay, Limited, Toronto, is spending the summer months at his cottage at Eastbourne, Ontario.

Joseph Shiach died recently at his home 362 Ossington Avenue, Toronto, in his sixty fifth year from pneumonia. Mr. Shiach, who was a prominent contractor, was the father of Charles Shiach of the Lincoln Paper Mills Ltd., Toronto, and was the chief director of operations in connection with the construction of the big pulp plant of the Spanish River Pulp and Paper Co. at Espanola, Ont.

The Bulletin of Collingwood, Ont., recently celebrated its fiftieth birthday, being established in 1870 and fifteen years later was taken over by William Williams and his son, David Williams, former President of the Canadian Press Association, who are still in possession. The Free Press, of Acton, Ont., and the Mercury of Renfrew, Ont., are other weekly publications nearing their golden jubilee.

There are now only one hundred and eleven daily newspapers in Canada and owing to the high cost of production and materials, over half of them have already advanced their rates to three cents a copy while in the west the price is five cents per copy.

A. V. Nolan, who has been a partner in the Enterprise of Chesley, Ont., for two years, has sold out his interest to his partner William McDonald, and has bought the Advance of Barris, Ont.

Rev. J. M. G. Mutch, who for the past three years has been associate editor of Presbyterian Publications, Toronto, has received and accepted a call to the First Presbyterian Church, Truro, N. S.

The Provincial Paper Mills Co., Ltd., have acquired for their Port Arthur division the steam tug W. J. Emerson and are using it in conjunction with the tug Maitland for the hauling of pulpwood.

A number of fires are burning in the vicinity of Nelson, B.C. The Salmon Valley and Kootenay Lake seem to be the worst danger spots.

The American Paper and Pulp Association has again registered with the Western Union Telegraph Company the cable word "Ampapulp."

Mr. Guy Tombs, manager of transportation for the Canadian Export Paper Company of Montreal has returned from an extensive western trip in which he covered most of Canada that can be reached by train or steamer.

The News of Chatsworth, Ont., which has been published by T. H. B. McCullough, has been sold to the Fleming Publishing Co., of Owen Sound, publishers of the Sun-Times, who have taken possession.

Important newspaper mergers have taken place in the west owing to the high cost of newsprint and the great expense in production. The Regina Daily Post has been taken over from W. F. Herman by the Leader Publishing Co. of Regina. The Post is an evening newspaper and will be issued from the office of the Regina Morning Leader. The Saskatoon Daily Phoenix has been taken over from the Northern Publishing Co., Limited, and will be issued from the office of the Saskatoon Daily Star. The papers will continue to be published under their present names.

Jenkins Bros., Ltd., have opened a big addition to their Montreal plant. The new machine shop, which covers 16,000 feet of floor space, will be used by the Iron Valve Division. The opening was made the occasion for a regular "blow-out," when the company tendered a reception to their employees. Mr. W. F. Trimble, managing director, outlined the plan for group insurance and also the pension scheme.

A suit has been entered in the Supreme Court of British Columbia by George H. Grauer, formerly of Janesville, Wis., against the Whalen Pulp and Paper Mills Co., for recovery of $62,000, on an alleged breach of contract. Mr. Grauer, now a broker in Yokohama, Japan, claims that on October 9, 1919, he contracted with the Whalen Company for the delivery of 400 tons of pulp, for which he was to pay $140 per ton, C.I.F. in Yokohama. The pulp was not delivered, and the plantiff is seeking to recover his damages on account of non-delivery.

Two cases of unusual interest to the lumberman and public generally are before the police court at Parry Sound, Ont. The lumbermen and pulp wood owners of the Georgian Bay have been greatly troubled, and have suffered heavy losses from the operations of log stealers and the number of small mill owners who have been willing to act the part of the "fence" and purchase logs bearing the stamp of other lumbermen. To prevent this as far as possible the Timber Marks Act was passed making it a criminal offence to either pick up logs bearing the registered marks of lumbermen or to cut off or deface marks, but in spite of severe penalties the pirates have been doing a thriving business.

New stumpage dues have gone into effect on the Crown lands of New Brunswick. The rate has been increased from $3.50 to $5.00 a thousand feet with increases in other minor particulars. The advance mentioned is on spruce, pine and hecmatac saw logs; fir and poplar logs from $3.00 to $4.50 and hardwood logs from $1.10 to $1.25. Hardwood timber and cedar have been raised slightly. At the last session of the N. B. Legislature an amendment was moved but was voted down advocating that the stumpage rate be placed at $7.00 per thousand feet.

In a serious fire, which visited the village of Carp, Ont., A. E. Evoy, proprietor of the Carp Review newspaper was completely burned out. His loss is $12,000 which is only partially covered by insurance.

The Toronto Star Weekly is the latest paper to make an advance on its Sunday edition which now sells at ten cents per copy instead of five. It is pointed out by the publishers that the price of newsprint before the war was thirty six dollars per ton and now it is from one hundred to one hundred and twenty dollars with further advances expected in the near future. Canadian daily papers are under the increased production cost of paper alone of four million dollars for the second six months of 1920 as compared with the corresponding period of 1919. Considerable wage increases to labor have been necessary to meet rising costs during the past year and further advances are being pressed upon the publishers by the newspaper unions. Then the postage on newspapers was elevated at the recent session of parliament. For 1921 the increase in postage will represent a million dollars upon Canadian dailies and for 1922 two million dollars. Many dailies have endeavored to take care of augmented costs by revisions made in their advertising rates from time to time, but the point has been reached where it is no longer possible to postpone advances in subscriptions. In the case of weekly and Sunday papers in Toronto and other cities, at the present cost of newsprint the unprinted white paper which goes into the production of each copy, has amounted to more than the selling price of five cents paid by the reader.

Mr. Chas. F. Buss, manager of the Mille Roches plant of the Provincial Paper Mills, Ltd., Mrs. Buss and their son Richard have returned from a delightful trip up the Saguenay. They were accompanied by Mr. and Mrs. Hibbard of Montreal, Mrs Greter, Miss Anna Greter and Mrs. Rabb of Middletown, Ohio.

The wall board department of Bird and Son's plant at Hamilton, Ont., which has been shut down temporarily for lack of paper, is again in operation.

Mr. James Whalen, with a party of financial and pulp and paper men from the East are in British Columbia. Their visit includes a tour of the plants of the Whalen Pulp & Paper Mills.

PRINTER'S PICNIC AT STE. ANNES.

Ste. Anne de Bellevue was again chosen for the annual picnic of Typographical Union 176 of Montreal, which was held last Saturday under ideal conditions. The Garden City Press, where the Pulp and Paper Magazine is published, was made headquarters, and the fields and athletic grounds were put to good use. Regular trains and the Printers' Special brought hundreds of Montrealers to this delightful country spot by the lake shore. After a busy afternoon of games, a dance was given in the main hall of the Press.

NORTHEASTERN FORESTERS CONSIDERED AEROPLANES AND EMBARGOES.

The Society of Northeastern Foresters held their annual meeting in Canada this year, arriving in Montreal on the 27th of July and proceeded by train to Berthier where they were the guests of Mr. G. C. Piche, Chief Forester of Quebec, and after lunch visited the Government Nurseries and plantations on the sand dunes along the C. P. R. Railroad. They were much impressed by the good results obtained on the drifting sand, especially in regard to the Spruce trees.

On leaving Berthier they went to Grand'Mere and from there to Proulx, the headquarters of the reforestation work of the Laurentide Company.

Wednesday and Thursday were spent in inspecting the plantations and Wednesday night a business meeting was held. On Thursday night there was a general meeting in which the eighteen members of the Northeastern Society were joined by fourteen Canadian foresters and a joint discussion of the demand for the removal of the embargo placed by the Quebec, Ontario and New Brunswick Governments on wood cut from Crown lands for export was thoroughly discussed.

On Friday morning, the party proceeded to Grand' Mere and inspected the plantation of the Laurentide Company and the mills and were the guests of the Company at lunch. In the afternoon, fifteen of the members proceeded to Lake Edward as the guests of the Commission of Conservation and Dr. Howe, of the University of Toronto, where the experimental Company was visited. Here they saw the sample plots and sample cuttings have been made and were much interested in the results obtained.

Mr. Austin Carey, who represented the United States Forest Service at the meeting, afterwards proceeded to Quebec to discuss the work of the Provincial Government with the Chief Forester. He expects after that visit to go to Montreal to talk over the work of the Riordon Paper Company with Brigadier General J. B. White.

Captain H. A. Peck visited the aviation station of the Laurentide Company in order to inspect the work done in mapping the forests by aerial photography and also took a flight over the limits of the Laurentide Company to have their method explained to him. Captain Peck has been investigating the subject of aeroplanes or seaplanes for use in forestry and logging work for the Riordon Company and he was much impressed with the photographic work done by the Laurentide Company.

Mr. Roland D. Craig and Dr. Swaine, of the Commission of Conservation and the Dominion Entomological Branch, were at the meeting of the Northeastern Foresters and afterwards took a trip in the Laurentide Company's seaplane, piloted by Lieut. Stuart Graham, in order to see for themselves what kind of work could be done in reconnaissance on a large scale such as the Commission of Conservation is doing in a forest survey of Ontario. They were much pleased with the results of their flight and very enthusiastic about the possibilities of the machine.

Worry Less	Work More
Ride Less	Walk More
Frown Less	Smile More
Drink Less	Breathe More
Eat Less	Chew More
Waste Less	Save More
Preach Less	Do More

The Markets

CANADIAN TRADE CONDITIONS

Toronto, August 9, 1920.—"No, there is nothing really new in the general paper line," remarked a leading Toronto jobber to the "Pulp and Paper Magazine" this week. "We have never had so little to do around here and a large number of our staff are on holidays, and those of us here might as well be away for all that we are called upon to perform in the way of work. Deliveries are still very slow, the number of lines which we handle is being depleted and the mills seem utterly unable to catch up. I think prices will remain unchanged for the present month at least. You know, that lately, there have been a number of changes and the increased railway rates, which will shortly go into effect, may add to the cost of the finished product. We are not worrying, however, particularly about that as the consumer will have to assume the extra cost. It will simply be a case of passing it on."

Regarding the newsprint situation, this was thoroughly discussed at the Imperial Press Conference in Montreal and but little new can be added. One favorable feature, which is being commented upon is the action of Premier Drury in granting certain concessions to the newly organized Spruce Falls Co., (who will erect a 150 ton newsprint plant and a chemical plant of equal capacity at Kapuskasing), wherein the Premier stipulated that, at least, fifteen per cent of the output must be furnished to Canadian newspapers. This will form a clause in all future concessions. Companies like the Fort Frances concern will thus not be able to override the Canadian authorities in future. As there will be, at least, three or four new mills go up in Northern Ontario during the coming year, the step taken by the provincial authorities has won warm approval.

Hon. Beniah Bowman, Minister of Lands and Forests, has returned from an extended trip through Northern Ontario and there has been a rumor in Toronto to the effect that the government may establish ground wood pulp mills at various points. It is reported that five are in view. It is a well known fact that the Minister has on more than one occasion remarked that he thought it would prove a good venture for the province, but whether he can get his colleagues to see things that way is quite another proposition.

Deliveries from United States mills on all lines of special papers are coming in better than they have for sometime. Business is slackening off in a number of lines over there and orders placed by Canadians months ago are now receiving attention. One Toronto firm, which sells for several new England mills stated this week that they were well satisfied with the manner in which deliveres are being made.

Board and tissue mills are still getting farther and farther behind in shipments and cannot promise filling present orders short of three months. The board prices, which went into effect about a month ago, are being continued during August, but whether there will be another raise in September depends very much on how the pulp situation looms up. There is a great deal of uncertainty regarding pulpwood, deliveries and the fall supply of labor. The high figures prevailing are causing more settlers than ever in the north to go into the business of cutting and there are more purchasers out, with the idea gaining ground that considerable speculation is being indulged in.

There is a rumor that the Eastern Lands Department of the Canadian National Railways, which has been operating a rossing plant at Foleyet, may establish a kraft pulp mill at that point, of one hundred tons capacity. Freight rates have risen to such a point that the wood cannot be taken out and shipped to Thorold and other points at a profit. The distance is too great.

Paper box manufacturers are running away behind in orders owing to shortage of board and the fact that help is at a low ebb. Many girls leave during the summer months either on a holiday or to take positions in hotels at Muskoka and will not return until the fall. Manufacturing stationers have the same complaint.

The new machine in the Sturgeon Falls plant of the Spanish River Pulp and Paper Mills is expected to be in operation late this fall and this will add sixty tons to the cutput of newsprint. There will be, at least, four new pulp plants built in Northern Ontario during the coming year and when, these are in operation, it is expected that the present acuteness in the pulp and paper area may be to some extent ameliorated. The freight movement has somewhat improved during the past few days, but the fuel outlook is still causing considerable apprehension on the part of some mills.

The Ontario government is taking action against the Russell Timber Co. for the recovery of money in connection with the timber probe. The plundering of limits by taking out a mining license and then cutting off the pulpwood will be checked. The writ just issued by the Attorney General is for the cancellation of certain patents in various districts alleged to have been wrongfully obtained for the value of pulpwood, or other wood, removed illegally, and the Government will seek to restrain the Russell Timber Co., of Port Arthur, from further cutting on patented or Crown lands.

There has been an innate feeling in pulp and paper circles for some time, that the dearth of many lines of paper will this fall be greater than ever. No one cares to make any predictions and, in the meantime, mills and jobbers are doing their best to cope with the situation and that is the best which can be put forth to overcome a state of affairs, the like of which has never been faced in the trade and a repetition of which will not eventuate again unless there is another war in Europe.

The American Paper and Pulp Association now has a regular bulletin. Our readers will frequently have an opportunity to read the good things we shall quote in the Pulp and Paper Magazine.

NEW YORK MARKETS

New York, August 7.—(Special Correspondence)—The mid-summer lull in demand for most kinds of paper continues in New York, and, according to all reports, in other leading consuming centres of the States, yet prices are being well maintained with no visible signs of quotable weakness in any corner of the trade. Buyers are still confining their purchasing activities to hand-to-mouth lots of paper, absorbing merely supplies that they directly need, and there isn't near the snap to the demand that there was recently. Manufacturers and dealers view the prevailing situation as one that was well nigh inevitable at this time of the year, and are mostly confident regarding the future of the market. On all sides one hears predictions of an even tighter supply condition in the fall than existed in the spring and of higher prices on virtually all grades of paper. Trade factors cannot see what is going to prevent values from rising to new heights when consumers resume buying on a more normal scale, as they invariably do in the autumn, especially since unsold stocks of paper the country over are almost negligible. That buyers will increase their operations in the market as usual this fall seems assured. The consumption of paper in every direction continues heavy and there is every indication that the customary jump in consumption will occur again this autumn. Under the circumstances it is therefore not surprising that sellers of paper are pursuing a policy of waiting at the moment and are not exerting pressure on consumers.

Probably the feature of the current newsprint situation is the demand for sheet news. Buyers are actively seeking supplies of print paper in sheet form and are finding few sizable accumulations available, with the result they are meeting the prices asked without stopping to haggle over their fairness. Sheet news for prompt delivery is readily fetching 14 cents per pound, and even this price has been exceeded in some cases. Jobbers have practically no stocks to speak of and are anxiously inquiring of mills for shipments. The movement of newsprint in rolls into consuming channels continues at a steady pace and prices, both on contract and spot deliveries, rule firm. Transient buyers are paying 11 to 12 cents per pound and are absorbing the great bulk of supply offered in the open market, while the contract basis is maintained at from 5.75 cents upward at mills.

The book paper market is firm to a pointed degree. Most manufacturers are altogether out of the market, having their output foresold and being unable to accept additional orders, and there is a tremendous potential demand going unfilled. Mills are shipping out their product on a pro rata basis as quickly as it becomes available and there is no question that a much larger business in book papers could be easily done were the necessary paper to be had. Super book is selling in the open market at 19 to 20 cents per pound, machine finished at 17 to 18 cents and coated book papers at from 21 cents upward.

Demand for boards is on the increase and prices display firmness. Board mills are in much the same position as book paper manufacturers. Most of them are outsold for several months and have but small lots to offer for nearby shipment. Prices range around $125 per ton at mills for news board and $115 for plain chip. Fine papers are quotably steady and are moving toward consumers in consistent fashion. Wrappings and tissues enjoy a good demand and rule firm in price.

GROUND WOOD.—There is still a large unfilled demand for ground wood and offered supplies are finding a ready market at high prices. Dealers and mill agents in New York are frank to say that they are unaware what actual market values are owing to their having little or no pulp to sell and because of the lack of transactions by which to gauge values. It is known, however, that sales have been accomplished at well in excess of $150 per ton in some instances, while $140 to $150 is freely bid by consumers, who are locating but small tonnages at such prices. Unsold accumulations are very light and those mills having stocks are generally holding pulp for their own use.

CHEMICAL PULP.—Paper manufacturers are still limiting their buying of chemical wood pulp mainly to tonnages actually required for direct consumption, and current demand consequently does not begin to be as keen as it was some time ago. Nevertheless the price tone is firm and efforts to discern some sign of easiness have been fruitless. But little sulphite of any grade is being offered in the open market and the scattering lots made available to transient buyers do not remain long unabsorbed in the market regardless of the prices asked. Receipts of pulp from Scandinavian countries are somewhat heavier than earlier in the year yet nearly all of this supply is against contracts and therefore is unobtainable by buyers looking for fresh supplies. Foreign unbleached sulphite of No. 1 quality is quoted at around 10.50 cents a pound on the docks here, while imported bleached sulphite is priced in the neighborhood of 17 cents and Scandinavian kraft at 7.75 to 8 cents. Domestic pulps are quotably unaltered but it is significant that most sales are made at the upper edge of quoted ranges.

Arrivals of foreign chemical pulp at New York this week included 800 bales of sulphite from Christiania.

RAGS.—Demand for papermaking rags is quite characteristic of the season. Mills are purchasing in hand-to-mouth fashion, generally confining their orders to stock directly needed, and, with the exception of new cuttings and some specialty grades, rags are available to paper manufacturers at very nearly any prices they care to bid so long as they are within reason. A strong item is white shirt cuttings. There have been sales of No. 1 white shirt cuttings at as high as 25 cents per pound at mills, and offers of 24 cents are described as numerous. Old whites also are quotably firm at a price basis of from 13 cents upward per pound, depending on the packing, while washables, new unbleached muslins, white lawns and new silesias are in ready call and firm in price. Roofing rags are easy and felt manufacturers in the East are securing fairly large shipments at 2.25 cents at shipping points. Old thirds and blues are available to mills at around 4.25 cents f.o.b. shipping points for repacked stock.

Receipts of foreign papermaking rags at this port during the current week included 1,158 bales from Bordeaux, 345 bales from Glasgow, 581 bales from Rouen, 525 bales from Bristol, 220 bales from London, and 18 bales from Antwerp.

PAPER STOCK.—The waste paper market is active in nearly all its branches. There is a steady call for supplies from paper and board mills and prices on practically every grade of stock show a distinct upward trend. Some grades have scored further advances this week. White blank news cuttings



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which are sought by consumers in lots in excess of offered supplies, have sold at 7 cents per pound, while soft white shavings of No. 1 quality have fetched 7.50 cents, hard white shavings 8.50 cents and old No. 1 packing of kraft 6 cents. Demand for folded newspapers holds up well and mills in frequent cases are paying better than 2.30 cents per pound at shipping points. There is also a good movement of mixed paper at around 2 cents for No. 1 packing. Manila papers, both old and new, are sought by consumers and are bringing high prices, while the situation in flat stock seems to be looking up after a period of relative quietness.

Arrivals of miscellaneous paper stock at New York from foreign sources this week included 667 bales from Rotterdam, 657 bales from Belfast, 253 bales from Manchester, 120 bales from Dublin, and 38 bales from Liverpool.

OLD ROPE AND BAGGING.—There is but little demand emanating from consuming sources for old ropes and bagging and prices on these commodities evince a downward tendency. No. 1 scrap bagging is readily available to mills at 2.60 cents a pound at shipping points and No. 1 gunny bagging is offered at 3 cents. Old No. 1 Manila rope is selling in the neighborhood of 7 cents per pound, with some purchases by consumers recored at lower levels.

Arrivals of foreign rope at New York this week were 178 coils from Rotterdam, 47 bales from Bordeaux, 844 coils from Hull, 107 coils from Bristol, and 93 bales from Copenhagen. Receipts of foreign bagging were 210 bales from Antwerp, 231 bales from Manchester, 63 bales from Rouen, 110 bales from Copenhagen, and 67 bales from Liverpool.

VISITED CANADIAN PULPWOOD OPERATIONS.

New York, August 6.—E. A. Sterling, manager of James D. Lacey & Co., of New York, has just returned from an extended business trip to the province of Quebec. As the guest of James Playfair, of Midland, Ont., who is a well-known lumberman and ship owner of Canada and President of the Great Lakes Transportation Co., Mr. Sterling visited and and inspected the properties of the Canadian Pulpwood Corporation, Ltd., on the Gaspe Peninsula, P.Q. Mr. Playfair took the party down the St. Lawrence on his steam yacht "Pathfinder," stopping first at Oswego and Cornwall, at the pulpwood distributing yards of the Cornwall Terminal Company, then on around the Gaspe Peninsula to New Carlisle and Gascapedia, on the Bay of Chaleur where the docks and pulpwood producing operations of the company are located. The timber holdings on the Gaspe Peninsula cover an area of 275 square miles. The pulpwood is loaded at New Carlisle at the company's docks and shipped by steamer to the terminal yards in cargoes of 1,000 cords each. Mr. Sterling is a director of the Canadian Pulpwood Corporation, Ltd., which has recently been refinanced by James D. Lacey & Co., through a $250,000 bond issue. Included in the party were Walter Meigs, president and general manager, Stanley D. Pearce, vice-president of the company; D. L. White, of Midland and John Burnham, and Edward P. Farley of Chicago. The party also enjoyed the unusual sport of salmon fishing on the Grand Gascapedia River.

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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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-:- EDITORIAL -:-

ONTARIO AND HER FORESTS.

Ontario has a so-called Farmer Government, elected largely by the influence of the United Farmers of Ontario and the Labor Unionists of that province. The laboring men of Ontario, as elsewhere in Canada, are largely dependent on the forest for raw material with which to work. The workingman has yet to learn how much his job depends on plenty of trees. The farmer has looked on woodland from two points of view, with the idea either of getting rid of it so as to plant the land in other crops, or of turning it quickly into as much cash as would pay a little profit on the cutting of it. He has not, in Ontario or elsewhere, in Canada, looked on the forest as a national asset, of which a part has been entrusted to him.

The Ontario government has already had the forestry problem of that province brought up for attention in several forms. First, there was the investigation of cases where timber operators did not pay their full dues for timber taken out. The result, so far, seems to indicate that there has been a lack of proper administration of Crown lands, a laxness in making returns and a tendency on the part of certain lumbermen to report less timber than was actually taken out. Something will probably be done to any who may be found guilty of misconduct, and there will likely be more careful work in the future on the part of the government.

Another case that has attracted some attention, and even drawn a little fire, is the lease of timber rights on lands granted to the Grand Trunk by the province of Ontario, but which were to revert to the province in the event of the railway being absorbed by the federal government. Cutting rights had been given for a ridiculously low figure. Now the Canadian Government Railways own the Grand Trunk and Ontario claims the extensive lands. But a pulp company has bought the pulpwood without the formality of public tender. Opponents of the provincial government maintain that the Premier and Minister of Lands, Forests and Mines have agreed to a proposition which is cheating the people. The Premier has replied that the lands have not been returned to the province as yet, and that his government has agreed to the best terms that could be made in the circumstances and that the pulpwood will return practically a dollar a cord instead of forty cents as was stated by an opponent. That is little enough, even if a rail haul will furnish some additional revenue. Despatches fail to mention what cutting regulations must be complied with, which is really the most important phase of the matter. In this case, however, the Ontario government is not altogether a determining factor.

Two other cases have come up where the Ontario government has had a chance to show its attitude toward the forest and its conception of a forest policy that will really benefit the people without hindering the growth of industry or discouraging private enterprize. It must be said that the Farmers' Party is showing a considerable discrimination and, with some encouragement from the people, will develop a really good forest policy. A large part of the discrimination is no doubt the result of careful attention and considerable advice from the newspapers of the province, and shows that if the papers will take a determined and intelligent stand for the best possible administration of the forest, Ontario may catch up to, and even pass, Quebec in this regard.

To be more specific. Certain American interests, which have a mill in Ontario and some time ago obtained a concession of some 1,860 square miles of timber, have applied for an additional grant of 2,500 square miles, including water power rights. The government is being urged to inquire why the first grant has not been developed as stipulated in the agreement before making further leases. Here, again, the question of public tender comes up, but this time it is purely a provincial matter, and the Premier has declared for a policy of competition in such cases. There is a lot of newspaper opposition to the granting of further pulpwood leases under conditions which do not give the maximum protection and benefit to newspaper publishers and the public. Some fear seems to have arisen that leasing an additional 2,500 square miles would be unduly concentrating Ontario timber under control of one set of interests. If these so-called English River limits are obtained by the company, the town of Kenora, which has already voted some concessions and seems very anxious to get the industry, will doubtless be the site of the new mill. The province is inclined to go slowly and cautiously in the matter, especially as the limits, which are applied for as pulpwood, contain one of the best stands of white pine in Ontario.

The last big deal is the transfer of concessions made some time ago from the Spruce Falls Pulp & Paper Co. to the Spruce Falls Company, a new Canadian concern, backed by the Kimberly-Clark Co. of Wis-

consin. The old company was to pay 75 cents per cord for spruce pulp wood, but in transferring the concession, the rate is increased to $1.15 for spruce and $1.60 for certain wood along the railway. In addition, the company is required to destroy all brush in a manner satisfactory to the government, and to reserve up to 15 per cent. of its newsprint production for sale to Canadian papers. From the discussion of slash disposal at the Forestry Conference last winter, the company is really paying an additional 50 or 75 cents a cord. This is one of the most important steps that has yet been taken in Canada in the administration of Crown lands, and Ontario is to be heartily complimented for taking this stand. We hope a real forester will have oversight of the operation, one with sense as well as training.

The clause reserving newsprint for Canadian consumption is another mile-stone that will delight at least the publishers, and will hardly cause paper makers to worry.

Another interesting clause in the Spruce Falls agreement is that retention of control of the townsite to the people.

It looks as if Ontario is at last awake to the value of her forests and the need for scientific, sensible administration.

THE CONSUMER PAYS THE FREIGHT.

A prominent railway man in Canada recently made a public statement to the effect that the proposed increase in freight rates would add only six cents to the price of a suit of clothes, and other things in about the same proportion. He evidently took the extra freight charge on a 500 pound case of garments, and divided by the number of suits, which is not the whole story by any means.

A similar tale might be told of paper. If it were only the couple of cents per hundredweight on the finished product the burden would be easy, but the manufacture of paper involves the receipt of about four tons of material for each ton of finished product, and some of this is on long haul traffic of heavy commodities. It must also be borne in mind that each contributing industry has to pay freight on its coal and other raw materials, coal, iron ore, steel, wool, cotton, oil and also materials of construction. Furthermore, in the calculation of profits, a percentage is added because of these increased costs, and when these are made up to even cents and multiplied at each step, the ultimate increase is considerable. An instance may be given from a recent editorial in the Canadian Mining Journal, in which it is shown that an increase of 27 cents per ton in the cost of producing coal may properly amount to $1.50 or more by the time the consumer gets his black diamonds.

With everybody asking for better railway service the public has little reason to refuse to pay it, but it won't help matters to look at the increase through an inverted telescope.

THE PULP AND PAPER HANDBOOK.

For nearly a year the Canadian Pulp and Paper Association has been collecting authentic data on the industry. This appeared in print last week under the title "A Handbook of the Canadian Pulp and Paper Industry." It is largely the work of Mr. Edward Beck, who has charge of the publicity work of the Association and is an excellent publication, both for what it contains and the appearance. The book is 6 by 9 inches on coated stock, with an embossed cover in two shades of gray. The printed page is enclosed in a thin red border rule. There are 121 pages and 21 illustrations. The chapter headings are as follows: Paper-Making in Canada; A Census of the Pulp and Paper Industry; Pulp and Paper Securities; Exports of Pulp and Paper; Imports of Pulp and Paper; Canada's Pulpwood Resources; Canada's Water Powers; Newsprint Production in Canada; How Paper is Made; Pulp and Paper Facts; Pulp and Paper Mills in Canada; The Canadian Paper Trade Association; The Canadian Pulp and Paper Association.

There is one curious mistake, but no one will notice it who hasn't been there, and as it does not affect the accuracy of the statements we shall leave it as a puzzle. We can't laugh because a friend has just pricked a hole in our pride in the International Number by pointing out that cypress trees are not pulpwood as yet.

BOTHWELL IN NORWAY.

On a hot day in August the editor received a card from J. A. Bothwell showing the snow and ice about a Norwegian fishing village. It nearly gave us a chill. Mr. Bothwell's message will interest our readers: "We (J.A.B. and G.F.S.) are having a most entertaining and instructive trip, and so far we have seen nothing which would lead us to believe that we in Canada will have to go out of the paper business any time in the near future."

COBWEBS.

The average cut per acre in Quebec for the last twenty years has been about six cords per acre. As the wood is noticeably smaller each year, the next ten-year average will be less than six cords. The *thinning* cut of a properly conducted forest would be about five cords, and the final cut, after 50-75 years, 30 to 40 cords.

Agitation continues for a pulp and paper mill in the Kootenay district, near Nelson, B.C. A stand of 13,700,000 cords of available pulpwood is claimed.

The Newsprint Situation

By JOHN M. IMRIE.

Manager, Canadian Daily Newspapers Association, Toronto.

The newsprint situation in Canada is so closely related to and affected by the newsprint situation in the United States that any intelligent discussion of the former must include consideration of the latter and the use of figures covering supply and demand in both countries.

Relation Between Supply and Demand.

The present demand in Canada and United States is about 600 tons per day in excess of the combined production. Part of that production is not available for use in North America as 400 tons per day is exported to other continents. On the other hand, approximately 80 tons per day is now coming into the United States from Norway and Sweden. Therefore, treating Canada and United States as one unit from a supply standpoint, the demand exceeds available supply by approximately 900 tons per day or 270,000 tons per year. That disparity would be much greater but for the fact that 300 tons per day is being produced temporarily on machines that have been diverted from other grades of paper because of the highly profitable prices now obtainable for newsprint in the spot market in the United States.

Until recently a small portion of the excess demand was being met through the depletion of stocks on hand at the mills and in newspaper offices. A few newspapers had accumulated reserve stocks against such a situation as developed. But what relief was obtainable from such sources has been exhausted, and stocks on hand and in transit are now below the safety line.

The great bulk of the excess demand is simply not being filled. Certain mills have cut the requirements of their customers in the United States by from 10 to 15 per cent. Some newspapers thus affected have been able to secure additional tonnage in the spot market, but many of them, and others which have been caught without contracts, are making drastic temporary reductions in consumption.

Effect of Excess Demand on Selling Prices.

These conditions have created a seller's market as regards price. Whereas newsprint was selling as low as $35 per ton at the mill in 1916, present contract prices, except in the case of three mills, are at an average rate of $120 per ton for the second half of 1920. Newspapers without contracts or with contracts for insufficient supply are, in effect, bidding against each other in the spot market for what little tonnage is available there. Individual sales in the spot market have been made at as high as $360 per ton, but current prices for the bulk of the sales are around $250 per ton. Large newspapers with contracts at $120 per ton for 85 per cent of their requirements could pay $250 per ton in the spot market for the other 15 per cent and get off with an average cost of $140 per ton. And with advertising offering in unprecedented quantities, or faced with the competition of a newspaper that has an ample supply, many publishers have been willing to increase their average cost to that extent in order to secure 100 per cent. of their requirements.

In Canada newsprint prices were under judicial control for the three years ending April, 1920. For the first eleven months of that period the price was $50 per ton; then, during the early part of 1918, it was $57 per ton. An increase to $66 per ton went into effect on July 1, 1918, and another increase to $69 per ton became effective December 1, 1918. That price remained in effect to December last, when the publishers and most of the manufacturers got together, composed their differences and agreed upon a price of $80 per ton to July 1st, and the lowest export price thereafter.

As the Canadian consumption is less than 15 per cent of the domestic production, Canadian newspapers on the whole have not had as great difficulty in securing supplies as the newspapers of the United States. There was extreme difficulty on several occasions in Manitoba and Saskatchewan. In January all the daily newspapers of Winnipeg were suspended for five consecutive days, while other newspapers in Western Canada were on the verge of suspension.

Subsequently, in June, 25 per cent. of all the daily newspapers in Canada were facing the possibility of suspension after July 1st owing to inability to secure any assurance of supply after that date, even at current contract prices for export to foreign countries. The trouble then was largely confined to three mills. Two of the three agreed later to continue supplies and other manufacturers stepped in at great inconvenience to themselves to take care of the Canadian customers of the third mill.

It is generally recognized and frankly admittted that present contract prices bear little relation to cost of production. Reports of the Government Auditor under the recent Newsprint Control indicated that during the latter part of 1919 production costs in the more efficient Canadian mills were running around $50 per ton. December last is the latest month for which audits were made, and undoubtedly there has been a substantial increase in cost since then. But present prices are such as to take care of all increases in cost and yield hitherto undreamed of profits to the manufacturers. I am not saying that in a spirit of complaint. Canadian publishers agreed last fall to pay the current export prices after July 1st. They are good sports and will not welch on their agreement.

Immediate Cause of Present Situation.

The immediate cause of the present situation as regards both supply and prices is an unprecedented increase in advertising during 1919 and 1920 to date, following closely upon a substantial increase in circulation during the war years.

In the United States during the first two years of the war, 114 daily newspapers, each with a circulation exceeding 50,000 copies, had an average increase in circulation of 19 per cent, while ten foreign language

* An address at the sessions of the Imperial Press Conference, Ottawa, August 5—7, 1920.

daily newspapers, each with a circulation exceeding 50,000 copies, had an average increase of 67 per cent. Circulation continued to increase during 1917, the average increase during that year being about 13 per cent. There was a falling off during 1918, but towards the close of that year a period of unprecedented advertising volume commenced.

The total advertising lineage in the newspapers of New York and Brooklyn was 37 per cent greater in 1919 than in 1918; in Chicago the increase was 40 per cent; in Detroit it was 42 per cent.

Individual newspapers in each of the cities mentioned had much larger increases than the average for the city as the following figures show:

	Per Cent.
New York Times	44
New York Sun	55
New York Tribune	95
Chicago Tribune	49
Chicago American	70
Detroit News	45
Detroit Free Press	53

Grouping the eighty-nine daily newspapers in the eighteen leading cities of the United States, the increase in advertising volume during 1919 as compared with 1918 was 39.3 per cent.

That increase is being continued and enlarged during 1920. Grouping again the eighty-nine daily newspapers in the eighteen leading cities in the United States, the volume of advertising in the first quarter of 1920 was 39 per cent greater than in the corresponding period of 1919.

But these increases, first in circulation and then in advertising, are but two phases of a gradually developing situation that has ultimately created the present disparity between supply and demand.

Development of Excess Demand in the United States.

In 1880 the newsprint production in the United States was approximately 110,000 tons and the consumption was about 75,000 tons. By 1899 production had increased to 570,000 tons, by 1904 to 900,000 tons and by 1909 to 1,175,000 tons, consumption during 1909 being about equal to production. It was at this point that newsprint consumption in the United States began to exceed domestic production. By 1914 production had increased by only 129,000 tons and the demand during that year necessitated the importation of 278,000 tons, exports being only 44,000 tons. During the next five-year period, ending December last, the increase in production averaged only 1 per cent per year, and during 1919 imports exceeded exports by over 500,000 tons. Production in the United States during 1920 will be about 1,475,000 tons. At the present rate, consumption will be about 700,000 tons greater, and there will be an unfilled demand of about 270,000 tons.

The Newsprint Service Bureau is authority for the statement that the annual consumption of newsprint in the United States has increased from three pounds per capita in 1880 to nine pounds per capita in 1894 and thirty-three pounds per capita in 1919.

Consumption by Sunday Newspapers.

The development of the Sunday newspaper was an important factor in this increased consumption in the United States. The term "Sunday newspaper" has quite a different meaning in Great Britain and the United States. In Great Britain it is possible for one to buy a Sunday newspaper that is a **newspaper.** In the United States, if one desires a Sunday newspaper he must accept with it a heterogeneous mass of illustrated pages, fashion plates, automobile supplements, book reviews, magazine sections, etc., aggregating in some cases as many as 150 or 160 pages.

The Chateau Laurier news stand has copies of only four of the latest issue of the Sunday newspapers of the United States. Those four do not include all the more bulky ones, but at that they average 90 pages of standard newspaper size and their average weight is 1¼ pounds. Having regard to their respective circulations, they represent an aggregate consumption of newsprint for the one issue of over 1,000 tons, or over 50,000 tons per year.

Other Factors Contributing to Partial Independence of United States on Imported Newsprint Supplies.

But certain factors in addition to increased domestic demand have operated to bring about the partial dependence of the United States on imported newsprint supplies, to which I have already referred.

The first of these was that as a result of wasteful cutting and lack of adequate fire protection or any measure of reforestation, the pulpwood forests of the Eastern States are rapidly approaching exhaustion.

Another factor was the growing differential in production costs in favor of competing mills in Canada. As the pulpwood forests of the Eastern States became more depleted, cutting and driving costs increased and power and water difficulties were multiplied. Canadian mills, on the other hand, had large supplies of raw materials at their doors. As far back as 1911 that differential in production costs in favor of Canadian mills according to the Tariff Board of United States was $4.50 per ton—equivalent to about 15 per cent of the then current production cost in United States mills.

These two factors acted as a deterrent on the extension of existing mills or the establishment of new mills in United States. As a result, production in 1919, notwithstanding the diversion of machines from other grades of paper, was less than 6 per cent in excess of 1913 figures—an average increase for the six years of less than 1 per cent.

Growth of Production in Canada.

The development of the newsprint industry in Canada during the past ten years is quite a different story.

The Provincial Governments having jurisdiction over the pulpwood forests of Canada have encouraged development by leasing Crown lands and water powers at nominal rates, by establishing fire protection systems, by building reservoirs at head waters, and by certain regulations as to the cutting of trees.

About ten years ago the Governments of Ontario, Quebec and New Brunswick amended the regulations covering leases of Crown lands so as to prohibit the export of pulpwood cut on such lands except in the form of pulp and paper. Up to that time Canada's exports of pulpwood to the United States had greatly exceeded her exports of pulp and paper to that country. In 1908, for example, the exports of pulpwood were 900,000 cords, while the pulp and paper exported to the United States represented only 250,000 cords of pulpwood. Since then the situation has been re-

versed until in the last fiscal year the exports of pulpwood were 840,000 cords while the pulp and paper exported to that country represented over 2,000,000 cords.

These various factors contributed to a rapid development and expansion of the Canadian Newsprint Industry. Production increased from 150,000 tons in 1909 to 350,000 tons in 1913, 608,000 tons in 1916, and 808,000 tons in 1919. The production in 1920 will be almost 900,000 tons. These figures include certain quantities of newsprint used for paper hanging.

Exports of Paper and Pulp from Canada.

Members of this conference will be interested in the ultimate disposition of this enormous production.

The latest official figures of exports are for the twelve months ending March 31, 1920. During those twelve months approximately 100,000 tons were consumed in Canada and 713,625 tons were exported; 23,564 tons went to the United Kingdom, 32,173 tons went to Australia, 10,526 tons went to New Zealand, 4,226 tons went to British South Africa, and 629,152 tons went to the United States.

Comparing this distribution of exports with the figures for the last fiscal year preceding the war, the exports to the United Kingdom show an increase of over 300 per cent, those to Australia an increase of 150 per cent, those to New Zealand an increase of 20 per cent, and those to British South Africa a decrease of 40 per cent. The increase in exports to the United States was 460 per cent.

Canada also exported during the last fiscal year 339,382 tons of mechanical pulp and 430,096 tons of chemical pulp. Of the mechanical pulp 202,269 tons went to the United States, and 96,911 tons went to the United Kingdom. Of the chemical pulp, the United States received 341,535 tons, and the United Kingdom received 42,308 tons. The exports to the United Kingdom compared with 1913 figures show an increase of 30 per cent in mechanical pulp, while exports of chemical pulp were practically nil during the years 1913-1916.

Remedies for the Present Situation.

And now as to the remedies for the present situation, particularly as regards supply:

There is, of course, the possibility of a general curtailment of business which would have an immediate effect upon the consumption of newsprint. No person desires that remedy.

Apart from that, the situation would probably right itself in the course of time. The enormous profits in newsprint manufacture at present and prospective prices would attract capital and bring about greatly increased production. On the other hand, if prices continue to go up, there must be eventually a contraction in consumption. With increases in subscription rates to 10 cents for Sunday newspapers and 3 cents or 5 cents for week day issues, there would be a lessening of duplication in circulation, particularly if the value of money were to increase and 10 cents or 5 cents were to mean anything like it did 6 or 7 years ago. There is a limit also beyond which advertising rates cannot be increased without materially reducing volume. As advertising rates are further increased there will be a tendency to scale down the size of advertisements and to use more discrimination in the selection of newspapers. These factors and the continuous and increasing pressure of rising costs would force many more newspapers out of business, releasing the tonnage they are now consuming. If the newsprint manufacturers were to take advantage of the present situation and that of the immediate future to pursue a policy of continually forcing up prices without regard to cost of production or ability of the newspapers to assimilate or pass on, they might find ultimately that they had killed the goose that had been laying the golden eggs.

But relief in that way is not a very pleasant prospect, particularly as it would be far distant and in the meantime one's own newspaper might be among the many to fall by the way.

Many are urging united action by publishers to reduce consumption arbitrarily. Personally, I have not much faith in that. The newspaper business is highly competitive in individual cities, and in many cities one or two newspapers will be in a preferential position as to newsprint supply either through a favorable contract or through the ownership of a mill. Such newspapers are in a position to set a rather fast pace, and in many cases other newspapers in the same city will feel they must follow suit at any cost.

The real solution in my judgment lies in such increase in production as would eliminate the spot market and create a surplus supply. Coupled with this, there should be adequate measures of pulpwood conservation and reforestation. Most Canadian publishers would welcome such measures even although they did involve increases in newsprint prices for a time. They would effect economies in the long run and ensure continued supplies.

Prospects for Increased Production.

Let us consider, then, the prospects for a remedy through increased production.

On the first of this month the rated daily capacities of Canadian and United States newsprint mills were 2,834 tons and 4,751 tons respectively—a total of 7,585 tons per day, or 2,275,500 tons per year. Three Canadian and two United States mills are scheduled to instal new machines during the last five months of this year, adding 190 tons per day to the Canadian capacity, and 150 tons per day to the United States capacity. During 1921 additional capacity of 580 tons per day is scheduled for Canada, and 225 tons per day for the United States. If these installations take place as scheduled, and all machines now running on newsprint are retained on that grade of paper, the aggregate daily newsprint capacity on January 1, 1922, will be 3,604 tons in Canada and 4,976 tons in the United States—a total of 8,580 tons, or 2,574,000 tons per year. That would represent an increase over present aggregate daily capacity of 995 tons per day, or approximately 300,000 tons per year. That increase is only 10 per cent more than the present excess of demand over available supply in Canada and the United States. It does not allow for any increase in demand during the next seventeen months, and, as already stated, it could take care of the present excess demand only if all machines now producing newsprint for consumption in Canada and the United States continue to do so and all the new machines referred to above are used in producing newsprint for consumption on this continent.

If the present excess demand were to fall away

to any appreciable extent, there would be withdrawn from the market part or all of the 300 tons per day now being produced temporarily on machines diverted from other grades. If that were not sufficient to maintain an excess of demand over supply, the manufacturers of this continent could easily do so under present conditions by yielding to the pressure for newsprint from other continents. I do not intend any offense to the manufacturers in that statement. Possibly publishers would do the same under similar circumstances. But it would be well for publishers to face the facts squarely and realize that there must by a very substantial increase in production before the present situation will be much improved.

As a matter of fact, it is reported that about 25,000 tons now being supplied in the United States is to be diverted to Australia on January 1st, while it is known that part at least of the product of one of the new machines is to be shipped to England.

How North America Production is Marketed.

In this connection a survey of the channels through which the newsprint production of Canada and the United States is marketed may be of interest as indicating what might be termed the potential mobility of the newsprint movement.

The export business of five Canadian companies, producing 32 per cent of the total Canadian production, is handled by and through the Canadian Export Paper Co., Ltd., which is an organization of the manufacturers themselves. The entire product of two other Canadian companies, producing 30 per cent of the total, is handled through Geo. H. Mead & Co., Dayton, Ohio. The export business of two other Canadian companies, producing another 17 per cent of the total, is handled through an associated newsprint manufacturer in the United States. These three groups represent 79 per cent of the total Canadian production. Another 7 per cent is produced by a mill owned by the Chicago "Tribune" and established to supply its needs; and another 5 per cent is produced by a company that is a subsidiary of a newsprint company in the United States and sells its export product through the parent company.

Turning now to the United States, one company produces 27 per cent of the total and another 15 per cent. Still another produces 7 per cent, but controls the distribution of half as much more tonnage made by a subsidiary company in Canada. These four companies therefore produce 54 per cent of the total production in the United States, while two of them control in addition the distribution of 25 per cent of the total Canadian production. It may be noted that another of those four companies is now building a mill in Canada that will commence operations next year and produce 7 per cent of the then Canadian production.

Apart from these four companies and the 54 per cent of the total production in United States which they produce, another 13 per cent of the total production is not a factor from an export standpoint as it is produced in mills owned by newspaper publishers.

Newsprint for the Empire.

These facts regarding the ownership of Canadian mills and the channels through which the production in Canada and the United States is marketed, coupled with the situation as to supply and demand, will throw some light on the question many members of this conference have asked, viz: Why the publishers of other parts of the Empire are denied newsprint supplies when Canada is exporting over 700,000 tons per year.

There are other factors of a purely commercial character operating against the exportation of newsprint overseas.

The market in the United States is close at hand, ensuring prompt deliveries, quick return of cores and quick collections. There is no trouble about selling, as the United States publishers are coming to the offices of Canadian manufacturers pleading for paper. Sales in the United States market are paid for in the funds of that country, which are at a substantial premium in Canada, and in most cases shipments are by rail, involving less trouble to the shipper and less cost in wrapping than shipments overseas.

Another factor is the partial dependence of the Canadian newsprint industry on the United States for coal.

The Real Solution of the Problem.

The real solution of the present situation and a means of providing for the future pulp and paper requirements of the British Empire are suggested by the general topic for to-day's discussions at this conference; "Empire Partnership." There should be a partnership in pulp and paper development between Canada and the other parts of the British Empire—Canada providing the pulpwood and water power, and her people joining with the people of the United Kingdom and the Overseas Dominions in providing the capital for the development of those natural resources.

With a few notable exceptions, British capital which has been such a factor in other phases of this country's development has played no part in the development of the Canadian pulp and paper industry. It has been stated by parties who should know that 75 per cent of the capital invested in that industry is American capital.

British and Empire Capital for the Development of Canada's Pulp and Paper Industry.

While appreciating to the full the benefits to Canada through the development of her pulpwood resources by American capital, the Governments and people of this country would welcome most heartily and co-operate in their further development through an Empire partnership such as I have suggested. And in promoting, and themselves entering into, such a partnership, the publishers of the Empire would be adopting what seems to be the only means of ensuring their future pulp and paper supplies. For I would like to emphasize this point: that serious as the present situation is, it will assuredly become more serious as time passes and the pulpwood forests of the world are further depleted and production in the United States diminishes.

Such a partnership would be a most profitable investment as well as an insurance of supply. I will not take of your time to go into that phase of the matter, but to those who are interested I would be glad to submit facts and figures that I am sure would convince the most skeptical.

This Empire partnership should be undertaken without delay. While Canada's pulpwood resources are vast, they are not by any means inexhaustible, and

the more easily accessible areas are rapidly being acquired. One of Canada's leading foresters, Mr. Clyde Leavitt, has computed that apart from annual growth and without allowing for further development, the commercially accessible areas of pulpwood in Quebec represent only 52 years supply, those of Ontario only 67 years' supply and those of Nova Scotia only 30 years' supply. Available supply in British Columbia is probably sufficient for a longer period at the present rate of cutting, but I have not at hand definite figures for that province.

In this connection one of the first statements of the present Premier of Quebec following his election to that office a few weeks ago, is very significant, and will be endorsed by most publishers who, while realizing that the policy forecasted would add to newsprint cost temporarily, realize also that it is the only means of insuring future supply. Premier Taschereau's statement was as follows:

"The time has come, it appears to me, to regularize the cutting on timber limits by fixing a maximum of the annual cut to prevent the destruction of the forests and a minimum to stop speculation, and to insure us a reasonable revenue from the cutting rights."

"Reforestation should be immediately undertaken and encouraged with energy."

A Vision of an Empire Industry.

And so in considering the present situation and future prospects and looking for a solution of both of these and of the difficulties confronting the newspapers of the United Kingdom and the Overseas Dominions in regard to pulp and newsprint supplies, I see as in a vision a series of pulp and paper industries springing up in the pulpwood forests of this country, controlled by British and Empire capital, sending their product to every part of the Empire, insuring continued supplies for the Empire Press, creating another bond of independence, and strengthening the community of interest and unity of purpose and action, among the component parts of the Empire. The opportunity is there: I commend it to your investigation, your consideration and your action.

Pulp and Paper Course at Syracuse

The plans for a college four year course in paper and pulp making have so far been completed by the New York State College of Forestry that a letter is being sent out to prospective students giving the complete details of the four year course by semesters and by branches. Prof. C. Earl Libby, in charge of the department, has been amazed by the large number of calls for information on such a course, and anticipates that there will a large number of freshmen this year who intend entering the paper industry as college trained paper makers. The number is, in fact, so large that the college is accepting for this, as for regular forestry courses, only those who are apparently well fitted for such a course. By the time the registration period ends it is probable that the college will be so flooded with applications that it will not have capacity for all who wish to enter.

Of the new course, Professor Libby says: "In comparing the paper and pulp course with that of the General Forestry Course, it will be seen that the first year's work in both courses is identical. The work of the second year is more specialized, the student continuing his work in chemistry and physics as both these sciences are fundamental to a student who desires to graduate as a pulp and paper engineer. During the third and fourth year the student will take up work directly bearing on the production of pulp and paper although it should be noted that the course outlined for 1920-21 in the Junior and Senior years differs but slightly from the established Forestry course for the reason that there are at present no students in the College who have had the proper preliminary training to allow them to take up this specialized work.

"Students who register in the pulp and paper department in September 1920 as Freshmen or Sophomores will be able to graduate as pulp and paper engineers as the plans of the College mature. To enable them to do this the work of the Junior and Senior years will be devoted almost exclusively to chemistry, mechanical and electrical engineering, and the more technical phases of pulp and paper manufacture, including the theory and practice of pulp manufacture by all processes, the design and operation of paper making machinery, the bleaching and coloring of stock, paper testing, etc.

"Students who are at present members of the Junior and Senior classes at this college or students in other colleges who desire to enter here with advanced standing will be required to complete all fundamental courses of the first two years, especially physics, chemistry, and mathematics, for which they have no credit, before they will be allowed to take the more advanced courses in pulp and paper chemistry and graduate from the college as pulp and paper engineers. At present, a minimum of two years' work would be required of any student whatever his standing, as the organization of the pulp and paper courses is so incomplete that he could not obtain the necessary amount of training in this field until he had completed the additional courses in pulp and paper technology, which will be given during the year 1921-22."

The curriculum for paper and pulp students, in detail, is as follows. (The numbers after the name of a course refer to the designation in the college catalogue):

FIRST YEAR.

Identical with General Forestry Curriculum.

	Hours
General Forestry I	2
English I	3
Forest Botany I	4
Forest Mathematics I	3
Modern Language	3
Chemistry I	4
	19

	Hours
Forest Zoology	4
English I	3
Forest Botany II	4

Chemistry I	4
Modern Language	3
	18

SECOND YEAR.

	Hours
Silviculture II	3
Wood Technology I	3
Physics I (or 23 or 24)	4
Chem. Qualitative Analysis	3
Mechanical Drawing	2
	15

	Hours
Wood Technology I	3
English II	3
Physics I (or 23 or 24)	4
Chem. Qualitative Analysis	3
Mechanical Drawing	2
	15

THIRD YEAR.

	Hours
Wood Technology III	4
Forest Chemistry III	4
English IV	1
Pulp Manufacture	5
Forest Utilization	4
	18

	Hours
Forest Economics I	4
Forest Utilization II	3
Forest Chemistry III	4
Paper Manufacture	5
Paper Testing	2
	18

FOURTH YEAR.

	Hours
Silviculture V	4
Forest Engineering VIII	3
Forest Zoology II	3
Forest Economics VI	2
Forest Economics V	3
Elective	4
	19

	Hours
Forest Engineering IV	3
Silviculture III	3
Silviculture VII	2
Silviculture VIII	3
Rhetoric IV	3
Elective	4
	19

It should also be noted that this Curriculum is effective for the college year 1920-21 only. Additional courses in Pulp and Paper Manufacture will be offered for the year 1921-22.

NORTHCLIFFE CONTROLS GULF PULP AND PAPER CO.

One of the most important transactions which has occurred for some years past in this province in connection with the pulpwood industry has just been completed, in virtue of which Lord Northcliffe, proprietor of the London Times and a number of other English newspapers, has acquired a three-quarter interest in the timber and pulpwood areas and allied industries on the North Shore of the Lower St. Lawrence, hitherto controlled by the Messrs. Clarke, of Clarke City.

The Quebec Telegraph states that the entry of Lord Northcliffe into the pulpwood industry of this province is of particular interest from the fact that the great Newspaper Magnate, some years ago, acquired enormous forest and pulpwood areas in Newfoundland, where he has been operating for some time past, not only in the production of pulpwood but also in the manufacture of paper upon a tremendous scale, producing not alone for the purposes of his own publications, which naturally consume enormous quantities but also selling large amounts of the finished products in the United States to the International Paper Company and other consumers. The fact that Lord Northcliffe has now decided, apart from his enormous holdings in Newfoundland, to enter the manufacturing business in this province, may of course be taken as indicating that Quebec offers advantages in the industry which are not to be found elsewhere.

It may well be that the quality of our raw material which is much sought by manufacturers of wood pulp is found superior to that of other countries and there is no doubt that in the large extent of our "white coal" for power purposes and in the conditions of the labor market our province certainly possesses advantages not to be found elsewhere.

The plant of the Gulf Pulp and Paper Company, at Clarke City, Seven Islands, turns out 150 tons of dry pulp per day and gives employment to nearly one thousand hands.

As soon as the deal was put through, a new board of directors was elected, consisting of Frank W. Clarke, of Quebec, J. Alex Cameron, of Montreal, and Kenneth K. Mac Kenzie, of New York. Frank W. Clarke was elected vice-president and general manager of the company and will continue in active charge of the operations of the company, as heretofore.

BACKUS BUYS KENORA POWER PLANT.

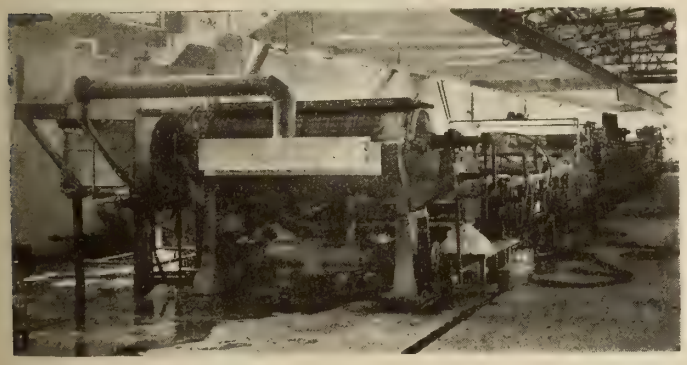
Another step has been taken, according to a despatch from Kenora, toward the establishment of a pulp paper mill by the Backus interests in Kenora, Ont. It is stated that the town, by a vote of 522 to 28, passed a by-law last Saturday, authorizing the sale of the municipal power plant to the Backus people and fix ing their present assessment at $300,000 for ten years and granting exemption from all, but school taxes for a like period on all additional lands, up to 125 acres, which they may acquire for their mills. The company agrees to sell power to the town at $20 per H.P. year. The agreement approved by the citizens is conditional upon the company securing the English River pulp wood limits. There is considerable effort being made elsewhere in the province to have these limits put up for public tender in the regular way, though the sentiment in Kenora seems to favor direct sale to the Backus company.

Seeing Paper Machines made in Canada

Several years ago the announcement was made by the Dominion Bridge Company Limited that they intended building paper machines. Some people doubted their ability to do so successfully. There is no doubt about it now. A machine has actually been built and is in successful operation. Four machines are now in process of construction. The editor's first visit to the extensive works at Lachine was while the Howard Smith machine was still in the designing room.

A second visit was made a few days ago and great changes were noted. The pulp and paper machinery department has been installed in the plant originally built for the construction of the Quebec bridge. According to the terms of incorporation the St. Lawrence Bridge Company died when that notable structure was finished, and as the plant could not again be used for a bridge contract, it was acquired by the recently organized Dominion Engineering Works, Limited, and put to use as stated. Many new machine tools and other equipment have been acquired and the plant has every facility, both in machinery and personnel, for turning out machines of the highest order of mechanical design, elegance and exactness. These terms are used advisedly, because if there is a paper machine anywhere, whose lines and finish surpass the new Laurentide wonders, we'll buy a ticket to that place right off.

Our editorial friend and neighbor, Mr. F. W. Gray of Iron and Steel of Canada visited the plant not long ago and wrote such a good description of it, that we



The wet end of the new machine of the Howard Smith Paper Mills at Beauharnois.

shall quote it rather fully in the following paragraphs, adding a few remarks from our own observation. This will give our readers an idea of what the place is like but anyone who has the opportunity should go to Lachine and meet Mr. Geo. E. Bell and Mr. Geo. D. Kilbury, who will be glad to show visitors what a Canadian plant can do.

"The Dominion Engineering Works has been formed to manufacture paper-making machinery and hydraulic machinery on a scale commensurate with the requirements of Canada.

The relatively important pulp-wood resources of Canada are a matter of contemporary notoriety. What is perhaps not so well known is the growth of the paper-making industry in Canada, as distinct from the exportation of pulp-wood and wood-pulp. The manufacture of the numerous and varied products of wood-pulp in the Dominion, of which paper is chief, is of rapidly growing importance, and is a natural result of the desire of Canadians to elaborate the raw materials of the country into finished products at home in preference to exporting the basis of profitable industries and employment. The demand for paper-making machinery is for these reasons likely to be heavy and well maintained in Canada.

The Dominion Engineering Works is closely connected with the Dominion Bridge Company, a company with a management that has, as we stated in a previous issue, "combined engineering ability and foresight as to the needs of Canada with a keen appraisement for the commercial opportunities," An account of the formation and directorate of the new Company has been published, and need not be repeated.

The Dominion Engineering Works is therefore organized to supply an insistent demand that will grow with the country, and it has the further advantage of a thoroughly competent technical management and a trained staff of workers of unusual ability and experience.

The Company has taken over the erecting and machine shops of the St. Lawrence Bridge Company at Rockfield—about a mile from the Dominion Bridge Works at Lachine—especially constructed in 1912 for the fabrication and assemblage of the members of the Quebec Bridge. These shops are of substantial fireproof construction, well laid out as to lighting and the transference of heavy parts, having rail connection with both the Canadian Pacific and the Canadian National systems and situated within a short transfer distance of the Lachine Canal. The works are connected with the power ducts of the Montreal Light Heat and Power Co., and possess in addition a stand-by steam plant.

Shops.

The main building is 660 ft. long and 220 ft. wide. There are two erecting bays with spans 85 ft. and 75 ft. each by 220 ft. long. The side bays are 60 ft. wide and 440 ft. long, and contain the boiler house, power house, tool room, blacksmiths' shop, flask making department, timekeeping offices, etc.

The crane equipment is particularly complete. It consists of two 35-ton cranes, running longitudinally, and four 40-ton cranes, with crosswise travel. The longitudinal craneways have a capacity of 75 tons, and a 75 ton crane has been ordered to replace one of those now in position. There are also seven 10-ton assembling hoists.

The erecting bays are equipped with six 6-ton jib cranes with longitudinal travel. One of the erecting floors will be reserved for the assemblage of paper-making machinery, and the other floor will be used for the hydraulic machinery.

Foundry.

The foundry as at present used, is a building 145 ft. by 181 ft. but will shortly be enlarged to 145 ft. by 330 ft. The cupolas comprise one of 84 inch dia., not yet installed but shortly to replace the 37 inch cupola now in place, and one of 54 inches. There are two casting pits, but the foundry extension will be equipped with a casting pit 120 ft. long by 30 ft. wide and 8 ft. deep, intended for pouring the large castings to be used for the water turbines. The equipment of the foundry further includes a modern sand-blast room, large and small core-ovens, jolt-rammer, etc. A cind-

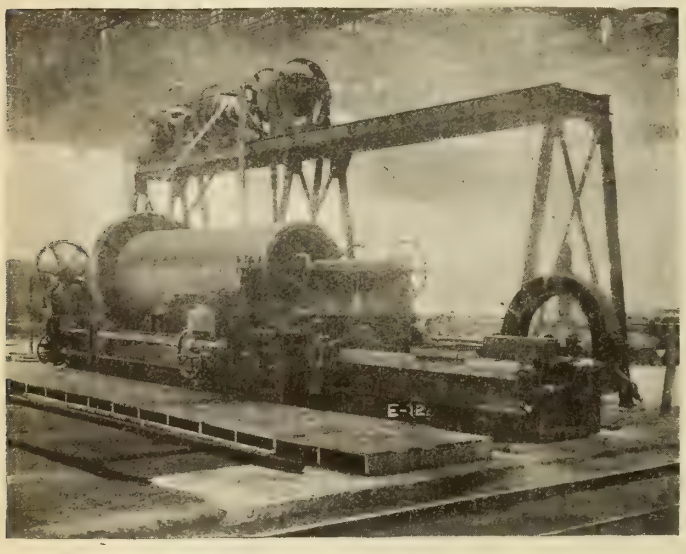
er-mill is used for reclaiming metal and coke from the cinders. The foundry is equipped with a 70-ton and a 15-ton crane.

The steam-plant consists of six Robb boilers aggregating 1,000 h.p., a 2,000 c. ft. air-compressor, 400 kw. d.c. generator direct-connected with a Bellis-Morcom engine, and a 500 kw. motor-generator set. The brick stack is 150 ft. high.

The pattern shop is a separate brick and steel building 176 ft. by 60 ft.

The machinery is not yet all in place, but it is intended to provide some very large tools so that it will be of sufficient capacity to handle the largest sized machinery parts that are expected to be used in Canda. Similarly the foundry is being equipped to make castings of the largest dimensions that can be transported in the country.

The machinery, already installed and to be provided, includes drills, slotters, boring mills, lathes, planers, key-seater, bolt-threaders, grinders and gear-cutting tools, wheel presses, etc. A Farrell grinder, 32 inch. by 240 inch. is in use for truing up the calender rolls of paper-making machinery, an operation requiring great precision.



Boring a 72 inch dryer roll.

The general equipment of the shops will be of a specialized and thoroughly adequate character.

The machine-tools are grouped around shafting supports erected from the floor, an arrangement that leaves the roof free from the movement of the cranes and hoists, and relieves the roof trusses of weight. The machine-tools are grouped according to type to facilitate the work and supervision.

There is ample floor space both for assembling and erecting, and for any additional machinery that may be provided.

At the present time the works are building two 166 inch high-speed newsprint machines for the Laurentide Company. These machines are of the latest type. The dryers, which weigh 16 tons in finished condition, and are 72 inches in diameter, revolve at a circumferencial speed of 1,000 ft. per minute, and require very exact balancing. Generally speaking, paper-making machinery is of simple design. It consists essentially of passing a film of wood-pulp over a series of dryers heated with steam, and through a number of rolls covered with rubber, felt, or made of polished metal, as required. This train of drums and rolls revolves very swiftly, and must be fitted with exactness and very small clearances, and, while the separate parts are not of intricate design, they must be made and fitted with precision.

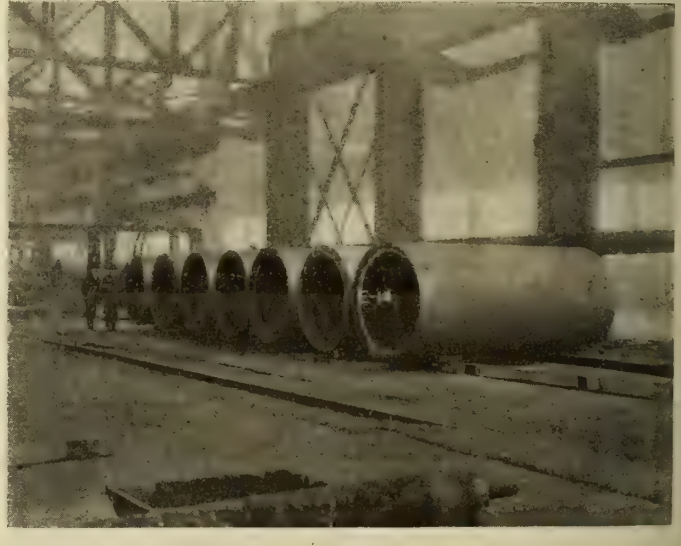
Paper-making machinery already made and delivered by the predecessors of the Dominion Engineering Works (The Dominion Engineering and Machinery Co.) includes one 84 inch fourdrinier writing-paper machine for the Howard Smith Co., Beauharnois, Que.

In addition to the Laurentide order there is also being built a 148 inch Harper tissue-paper machine for the Interlake Tissue Mills and a board machine for the Strathcona Paper Co.

Hydraulic Machinery.

The Company has obtained the exclusive Canadian rights for the manufacture of hydraulic machinery from the designs of the I.P. Morris Co. of Philadelphia whose patented designs and patterns will be available for use. The I.P. Morris Co. is the turbine-division of Wm. Cramp and Sons, Ship and Engine Building Co. of Philadelphia. Mr. H. B. Taylor, vice-President of Messrs. Cramps is a director of the Dominion Engineering Works, Limited.

At the present time the Company is building two 20,000 h.p. water-wheel units for the Laurentide Co.,



Rough dryer roll castings.

being a duplicate of the units now in operation at this Company's plant and two 10,800 H.P. units for the Cedars plant of the Montreal Light, Heat and Power Company.

The work already done by the Dominion Engineering Works, and that in immediate prospect, together with the large expansion which must necessarily follow an enterprise that opens up so specialized, and at the same time so undeveloped a field as this company has chosen for its activities, forecasts a noteworthy extension of the metal-working trades in Canada."

Some of the Sights.

A paper man looks at things somewhat differently from an iron and steel man, so Mr. Gray's remarks have the added advantage of giving another point of view. The editor saw a great many interesting things, so many, in fact, that only a few will be referred to.

The designing and drawing department is at the main office in Lachine and we spent considerable time there, discussing that part of the work, for which excellent quarters are provided.

The machine tool and erecting shop is bigger than

any paper machine room we can recall. The frames for the press parts of the Laurentide machines were in position so the rolls could be slipped in and tested and the great dryer frames stood like giant skeletons. All parts are fitted and bolted up in the shop, an important point, especially where a part must occasionally be made to the design of some one with a patented device. An interesting feature was the massive ball and socket joint which improves the alignment of the heaviest rolls. The frequent introduction of ball bearings was also observed.

Rolls of all kinds were seen in all stages of preparation, from building the brick core for the huge dryer castings to the final polishing of tube rolls. Mr. Kilbury explained the various methods of fastening the journals into the ends of the different rolls. This is rather a delicate operation because, as Mr. Gray has pointed out, even the most massive parts must work in perfect running balance; the slightest snap to the paper will sometimes cause it to break. We were told how many of the big 16 ton (finished) dryer rolls were cast consecutively without a failure and of the surprisingly large average of perfect castings of these difficult pieces. About a ton of extra metal is poured so as to give opportunity for impurities to rise. This makes a large rim to be cut off. The inside of the cylinder is carefully bored and the outside is turned and ground to an accurate measurement.

Preparations are being made for an exhaustive investigation as to what happens to the water inside the dryer at a variety of speeds. The results are to be published.

There was a big difference between the 6 ft. diameter dryers for the Laurentide 166" news machine and the 48 inch dryers for a board machine, but each part is just as carefully made.

The Dominion Engineering Works has quite a variety of machines to their credit, which is a compliment to Canadian versatility; the Howard Smith Paper Mills machine is already making high grade stationery at Beauharnois, the Interlake tissue machine is a Harper Fourdrinier which will soon be turning out tissues, the Strathcona Paper Co. will make various kinds of boards on their four cylinder machine, while the twin machines under construction for the Laurentide Co. will be high speed news machines of the most modern and improved design and construction. These machines are being elegantly finished. Some people will say it is a waste of money to fill and rub down the frames of a paper machine, but such people never heard of psychology. It may cost one per cent. (that is our guess) to put the best possible finish on the machine, but if that finish, and the knowledge that the company feels that way about its machine, will inspire the crew to take pride in it and care for it, we say it is not wasted. The men's opinion will be no higher than the company's.

There is much more to be told but this is enough for the present, except that, although all departments are busy at the present time, the acquisition of new machinery and the growing experience of the force will make it possible for customers to get excellent service and prompt deliveries.

The editor, as occasion offers, plans to visit other plants and acquaint the readers of the Pulp and Paper Magazine with facilities in Canadian shops for making pulp and paper mill equipment.

Recommended Specifications for Paper Makers Quicklime and Hydrated Lime

This is the first of a series of specifications for the lime used in various chemical industries. To assist in the development of these specifications, the Bureau of Standards has called together an Interdepartmental Conference on Chemical Lime, composed of representatives of the Geological Survey and Bureau of Mines of the Interior Department; the Bureau of Soils, Bureau of Chemistry, and Forest Service of the Department of Agriculture; and the Nitrates Division of the War Department. The present specification, based on a draft originally prepared by F. A. Curtis, chief of the paper section, Bureau of Standards, has been unanimously approved by the above conference, and has also received the formal approval of the National Lime Association and the Technical Association of the Pulp and Paper Industry.

1—GENERAL.

(a) *Use of Lime in Cooking Rags.*—Rags are cooked in a digester under steam pressure, with lime, soda ash, or caustic soda, or a mixture of soda ash and lime. They are then washed to eliminate as much noncellulose material as possible.

Either quicklime or hydrated lime may be used for cooking rags. The decision as to which to use is generally based on availability, cost, and present practice.

(b) *Definition of Quicklime and Hydrated Lime.*—Quicklime is the product resulting from the calcination of limestone. It will slake when water is added to it, and this slaking is accompanied by an evolution of heat and an increase in volume. It consists essentially of calcium oxide. Hydrated lime is a dry powder which is made by treating quicklime with enough water to satisfy its chemical affinity. It consists essentially of calcium hydroxide.

2.—REQUIREMENTS.

(a) *Quality.*—It is obvious that a clean lime, free from dirt and gritty substances, is desired.

(b) *Composition.*—Quicklime and hydrated lime, to meet the requirements of these specifications, shall not exceed the maximum percentages or fall below the minimum percentages given in the following table:

Ingredients.	Quicklime.		Hydrated lime.	
	Max. P.c.	Min. P.c.	Max. P.c.	Min. P.c.
Calcium oxide	..	95	..	72
Magnesium oxide	2	..	1.6	..
Oxides of silicon, iron and aluminum, and other insoluble matter	2	..	1.6	..
Carbon dioxide.	2	..	1.6	..

(c) *Packing.*—Quicklime is shipped either in bulk in carload lots or barrels holding 180 pounds net or 280 pounds net each. Hydrated lime is shipped in paper bags holding 50 pounds net each.

(d) *Marking.*—Each package, or each carload of

*Circular of the Bureau of Standards No. 96 issued June 15, 1920, by Department of Commerce, Bureau of Standards, S. W. Stratton, Director.

bulk material, shall be legibly marked with the names of the consignor and consignee, and with some means of identifying the particular contract on which the shipment is made.

This information is in addition to that required by the Federal lime-barrel law.

3.—SAMPLING AND TESTING

(a) *Sampling.*—The purchaser will bear all expense of sampling and testing. When quicklime is shipped in bulk, the sample shall be so taken that it will represent an average of all parts of the shipment from top to bottom, and shall not contain a disproportionate share of the top and bottom layers, which are most subject to changes. The sample shall comprise at least 10 shovelfuls taken from different parts of the shipment. The total sample taken shall weigh at least 100 pounds, and shall be crushed to pass a 1-inch ring, mixed thoroughly, and "quartered" to provide a 15-pound sample for the laboratory.

When quicklime is shipped in barrels, at least 3 per cent of the number of barrels shall be sampled. They shall be taken from various parts of the shipment, dumped, mixed, and sampled as specified in the above paragraph.

In the case of hydrated lime, the sample shall be a fair average of the shipment. Three per cent of the packages shall be sampled. The sample shall be taken from the surface to the centre of the package. The material so obtained shall be thoroughly mixed and quartered to provide a 2-pound sample for the laboratory.

When sampling quicklime or hydrated lime, it is essential that the operation be conducted as expeditiously as possible, in order to avoid undue exposure of the material to the air. The sample to be sent to the laboratory shall immediately be placed in an air-tight container in which the unused portion shall be stored until the shipment has been finally accepted or rejected by the purchaser.

The sample may be taken either at the point of shipment or at the point of destination, as agreed upon by the contracting parties. The maximum limit for carbon dioxide as given in these specifications holds only when the sample is taken at point of shipment. If it is desired to take the sample at point of destination, due allowance must be made in order that the lime manufacturer shall not be penalized for the carbon dioxide absorbed in transit.

(b) *Testing.*—The following directions are a brief summary of the analytical methods which are recommended. For more complete information on this subject reference should be made to The Analysis of Silicate and Carbonate Rocks, by W. F. Hillebrand, United States Geological Survey, Bulletin No. 700.

Blast 0.5 g of the sample for 15 minutes in a platinum crucible. Cool, and transfer to an evaporating dish. Mix to a slurry with distilled water. Add 5 to 10 cc. concentrated HCl. Heat gently until solution is complete, breaking up lumps if necessary. Evaporate to dryness on water bath. Add 5 to 10 cc. concentrated HCl, and dilute with an equal volume of distilled water. Digest on water bath for 10 minutes. Filter, and wash with hot water. Evaporate the filtrate to dryness. Dissolve in acid and water as before. Filter, and wash with hot water. Ignite the two precipitates together, and weigh as silica and insoluble matter.

Dilute the above filtrate to 250 cc. Add HCl if necessary to insure a total volume of 10 to 15 cc. Make alkaline with NH_4OH. Boil until odor of NH_3 is barely noticeable. Filter, and wash slightly with hot water. Dissolve the precipitate with hot dilute HCl, and repeat the precipitation as before. Filter, and wash thoroughly with hot water. Ignite, and weigh as oxides of iron and aluminum.

To the filtrates from the above add a few drops of NH_4OH and bring to a boil. Add 25 cc. of a saturated solution of $(NH_4)_2C_2O_4$. Continue boiling until the precipitate becomes granular. Let stand until precipitate settles clear. Filter, and wash with boiling water. Ignite the precipitate, dissolve in dilute HCl, and dilute to 100 cc. Add excess of NH_4OH, and boil. Filter out any insoluble matter, ignite and weigh, and add its weight to the oxides of iron and alumina found previously. To this filtrate, add $(NH_4)_2C_2O_4$, proceeding as before. Filter, and wash with boiling water. Ignite and blast to constant weight as calcium oxide.

Acidify the filtrates from the above with HCl. Evaporate to 150 cc. Add 10 cc of a saturated solution of $NaNH_4HPO_4$ and boil. Cool. Add NH_4OH drop by drop, with constant stirring, until the precipitate starts to form. Then add moderate excess of NH_4OH. Stir for several minutes. Let stand overnight. Filter, and dissolve the precipitate excess of dilute HCl. Dilute to 100 cc., add 1 cc. of saturated solution of $NaNH_4HPO_4$, and precipitate as before. Filter, and wash with an alkaline solution made by diluting NH_4OH until it contains about 2½ per cent NH_3 and then adding a few drops of HNO_3. Ignite, and weigh as $Mg_2P_2O_7$. Multiply this weight by 40/111 to find the weight of MgO.

Place 5 g of the sample in a small Erlenmeyer flask and cover with hot distilled water. Connect this flask into a carbon-dioxide train, set up as follows: Next to the flask is a reflux condenser, to which is connected a calcium-chloride drying tube, followed by a tube containing anhydrous $CuSO_4$, then another tube of $CaCl_2$, then by two tubes filled with soda lime, and finally by another tube of $CaCl_2$. The entire train must be so arranged that a stream of CO_2 free air can be kept passing through it. Start this stream of air. Weigh the tubes containing soda lime and replace them in the train. Add to the sample in the flask about 25 cc. of 1 :1 HCl, being careful that no gas is lost and that the effervescence is not too violent during the operation. When the effervescence diminishes, heat the flask, bringing the liquid gradually to boiling. Boil for 1 minute. Remove the flame and allow the flask to cool while the stream of air is still flowing for 30 minutes. Disconnect and weigh the soda-lime tubes. Their increase in weight is recorded as carbon dioxide.

(c) *Retesting.*—Notice of the rejection of a shipment based on these specifications must be in the hands of the consignor within 10 days after the receipt of the shipment at the point of destination. If the consignor desires a retest, he shall notify the consignee within 5 days of receipt of the notice of rejection. The original testing laboratory shall keep the sample sealed air-tight from the time they have taken out enough material for the original test until the expiration of the 15 days noted. The original testing laboratory shall agree to transmit the sample to any other laboratory for a retest at the direction of both of the contracting parties. This retest shall be at the expense of the consignor.

Technical Section

REVIEW OF RECENT LITERATURE.

A-1. Reaction products of alkali-sawdust fusion; acetic, formic, and oxalic acids and methyl alcohol. S. A. Mahood and D. E. Cable, Forest Products Laboratory Madison, Wis. J. Ind. and Eng. Chem. **11**, 651.5, (1919). 17-20 per cent. of acetic acid can be obtained from hardwood sawdust by fusion with NaOH. A simultaneous production of oxalic acid amounting to approximately 50 per cent. of the dry weight of the wood is obtained. If the reaction is carried out in a closed vessel, a simultaneous production of methyl alcohol results amounting to 2.4 per cent.; but as the temperature is increased beyond 200°C, the yield of oxalic acid is considerably reduced. At lower temperatures both formic and acetic acids are produced amounting to approximately 15 per cent .each. It appears that the yields of oxalic acid obtained from pine with NaOH will more nearly approach those obtained with KOH if the temperature is kept at approximately 200°C, the heating prolonged, and the ratio of alkali to sawdust maintained at 3 to 1. It has been found possible to recover as much as 91 per cent. of the alkali used.—A.P.-C.

A-1. Modification of the phenylhydrazine method for determining pentosans. Paul Menaul and C. T. Dowell, Oklahoma Expt. Sta. J. Ind. and Eng. Chem., **11**, 1024-5, (1919). The distillation is carried out with H_2SO_4 instead of HCl. No NaCl is added to the distillate, and Na_2SO_4 may be added or not. After the addition of the phenylhydrazine to an aliquot part of the distillate, the solution is stirred for the required time by bubbling CO_2 into it. An aliquot (50cc) of the filtrate from the hydrazone is put, by means of a dropping funnel, into a 250cc Fresenius nitrogen bulb, which has been previously filled with a 10 per cent solution of ammoniacal copper sulphate and heated to expel the air. A 100cc burette is connected to the tube of the Fresenius bulb and a glass tube provided with a stopcock connects the neck of the bulb with a Schiff's nitrometer containing H_2SO_4. The aliquot of the filtrate is brought into the bulb by closing the cock leading to the nitrometer and lowering the burette. The bulb is heated so as to keep the reaction mixture near the boiling point until the reaction is complete. The method gave the same results as the phloroglucinol method on 3 samples of grain sorghum cut at different stages of growth.—A.P.-C.

A-1. The proximate analysis of wood. W. H. Dore. J. Ind. and Eng. Chem., **11**, 556-63, (1919). Methods for the summative analysis of woods are described and analyses of 5 California woods by these methods are given. Sawdust is found to be the most satisfactory mechanical condition of wood for analytical purposes. Cellulose in wood is determined by a modification of Cross and Bevan's method involving chlorination in vacuo. The cellulose residues are tested for the presence of lignin and corrections applied when necessary. Lignin is determined by Koenig's method with 72 per cent. H_2SO_4. The probable relation of lignin so obtained to true lignin is discussed. In the analysis of coniferous woods by these methods 96-7 per cent. of the wood constituents are accounted for. In the case of the hardwoods examined, the lignin determinations fail and only 83-91 per cent. of the wood constituents are obtained. Cutin is not a constituent of importance in wood tissue. —A.P.-C.

A-3. New process for obtaining paper pulp (from gorse). Fr. patent No. 495,367. J. C. Dauzene, A. F. F. Robert, and C. Fabre, Toulouse, France. Papeterie, **41**, 496, (Nov. 10. 1919).—A.P.-C.

A-3. Blady grass, new source of pulp. Paper, **25**, 596, (1919). A mill has recently been established in the Cairns district, Queensland, which manufactures about 10 t. of pulp a week from blady grass (Imperataarundinacea), for the manufacture of coarse papers. The raw material is abundant and the demand large, so that the prospects are encouraging.—A.P.-C.

A-3. Notes on some new fibres. Albert Janvier, Directeur Technique des Papeteries de l'Indo-Chine. Papeterie, **41**, 482-6, (Nov. 10, 1919). Notes on the various kinds of bamboo, and on the methods actually used for obtaining pulp from them.—A.P.C.

A-12. Proximate analysis of commercial casein. F. L. Browne, Forest Products Lab., Madison, Wis. J. Ind. and Eng. Chem., **11**, 1019-24, (1919). A system for the proximate analysis of casein, consisting of determinations of color, odor, moisture, fat, ash, N, and acidity, is described. The results of the analysis of some 200 samples of casein of different types and methods of manufacture are reported and discussed. —A.P.-C.

A-12. An improvement in casein making. J. L. Sammis. J. Ind. and Eng. Chem., **11**, 764-7, (1919). A study of the optimum conditions for obtaining a casein having low ash and acidity. The method recommended is as follows:—Heat skim milk to about 95°F., stir vigorously while adding dil. acid slowly until a clear whey is obtained, avoiding excess of acid. The curd obtained at this temperature is just coarse and coherent enough to settle rapidly and permit draining the whey, but sufficiently loose and open to permit ready washing with water.—A.P.-C.

A-14. A paper tearing resistance tester. H. N. Case. J. Ind. and Eng. Chem., **11**, 49-51, (1919). A very simple apparatus is described for measuring the resistance of paper to tearing. Its advantages are:—(1) The comparative length of the fibre and its peeling qualities are shown in the result. (2) Sizing does not increase the tearing resistance to such an extent as it does the other tests. (3) The apparatus is simple and depends on no springs and gauges. It is applicable to both light and heavy papers. (4) The amount of grain in the paper is shown. (5) The load is applied with an unchanging rate of increase. Its disadvantages are:—(1) The testing is tedious. (2) There is an apparent disadvantage due to the sensitiveness of the test in that the individual tests on the same sample vary so greatly that even the average of these tests appears unreliable until it is observed that the tearing resistance numbers of different grades of paper show much greater distinction between the grades than the corresponding Mullen, Ashcroft, or Schopper tests.—A.P.-C.

British Trade News

(From our London Correspondent)

July 31, 1920.

The International Number of the "Pulp and Paper Magazine" has just reached London. It is a great triumph in the progress of journalism and pulp and papermen have read it with extreme pleasure. I think one paper man summed up the whole view of the International Number when he said: "From the greatest pulp manufacturer down to an eight-year old child in a home can sit down and read it and enjoy it." There is no doubt this International Number can show what Canadian enterprise means—editorially, typographically, and in the difficult task of illustration production, not to speak of the 3-color work.

Edward Lloyd, Ltd.

At the 30th ordinary general meeting of Edward Lloyd, Ltd., Mr. Frank Lloyd was again welcomed as chairman and governing director. In a concise speech he said the profits for the year past showed an increase of £45,091 18s. 7d., as compared with 1918, after making provision for taxes and expenses, and the directors recommended a dividend of 13¾ per cent. on the ordinary shares, carrying forward £130,976 16s., as against £52,690 4s. 11d. brought in. That would bring the average distribution since the outbreak of war up to 9 1/3 per cent. on the nominal capital of £600,000. If, however, the real capital employed in the business be taken into account, the average return over the last six years only worked out at about 7½ per cent. Larger dividends could have been paid, but it had been the policy of the company to strengthen the business and provide the necessary funds for further expansion by the setting aside of ample reserves and by a very conservative policy in the distribution of dividends.

Pulp and Paper Expension.

As regards the working of the past year, Mr. Frank Lloyd mentioned that the production of pulp in Norway and paper at Sittingbourne both showed a remarkable expansion. Owing to the adoption of the 3-shift system in August last year, a sensible slowing down in the growth of production was experienced, with a gradual improvement during the remaining months of the year. The current year would show a still greater improvement, the pre-war standard of production having now been passed with the prospect of further improvement in the future. The change over to the 3-shift system was a serious handicap to production for the time being, but thanks to the determination of the men, all difficulties had been overcome, a result he ventured to predict at the last annual meeting. In conclusion, Mr. Lloyd paid a high compliment to their staff and the retiring directors, Mr. Harry Lloyd and Mr. E. Raynham were re-elected.

Swedish Pulp Transport.

Everything points to the fact that there is something good in store for the transport of pulp from Sweden to England. There is a war-time relic known as the North Sea steam ferry and Mr. Montagu Villiers, who has recently been on a visit to London, has been discussing the proposal to use the ferry between Sweden and England. Swedish representatives are shortly coming to England to discuss the project with British traders and manufacturers, and there is a growing belief that a North Sea steam ferry would so quicken the transport of goods as to revolutionise the whole trade between the British and Scandinavians. Naturally the Scandinavian pulp and paper men are keen on the proposal and Sweden has already given support to the scheme. It means a big thing for pulp and paper consumers in England. The present sea route is slow and at times uncertain. There is also heavy freightage and Scandinavians are out for the cheapest sea route.

Imperial Paper Mills.

Subscriptions have been invited, at 98 per cent, for an issue of £800,000 7½ per cent. guaranteed 15 year mortgage debenture stock by the Imperial Paper Mills Ltd., Gravesend. The capital was very soon realised and the demands for shares very great. The company was formed in 1909 by the Amalgamated Press, London, for the purpose of erecting and equipping an up-to-date paper mills capable of supplying the needs of the Amalgamated Press and other large consumers of paper. The Press alone had, or has, something like 70 odd magazines and periodicals. The company also supplies paper to "The Times" (London) "Daily Mail", "Mirror", "Sunday Pictorial", and other prominent papers. The directors are Sir Geo. Sutton, Bart. (chairman of the Amalgamated Press Ltd.) Mr. A. E. Linford, Mr. Stanley Cousins, Mr. C. L. Stevens, (of A. E. Reed & Co.), and Mr. E. A. Swisham (of the Anglo-Newfoundland Development Co.) The mills at Gravesend are of the most modern type and the paper-making machines range from 94 inch. to 166 inch. wide on the wire. The oldest machine was erected 9 years ago and the newest machine was put down quite recently. The Imperial Paper Mills are on the river Thames, with a frontage of 1,200 feet, and they have their own wharves and piers. There are also railway sidings which facilitate the mill paper being easily rushed into London. The great point in the mills favor is the close proximity to London. It is simply a case of make the paper and in less than an hour it is in the hands of the consumer. Operations are now in progress to bring the capacity from 1,500 tons a week to 1,800 tons a week.

Paper Clothes.

Most of us by this time have seen some of the paper clothes used by the German Army for diverse purposes. The lean years have not come to an end with the end of the war, and the "Ersatz" materials are more needed than ever. But the latest development must be confessed surprising. Germany is putting on sale in London, if anyone can be found to buy, suits of men's clothes "of the very best class of paper texture" and the prices range from ½ dollar to 5 dollars. They appear to be a sort of flexible strong kraft. One can fancy a Canadian paper mill in another 50 years time announcing that it produces paper texture of the very best class, and paper fabrics, suitable for "ready-for-service' garments. Realise how the fair-sex will caste a lynx eye on the salesman of the mill.

The Pulp Market.

The market for chemical and ground-wood pulps is dull. There is a holiday-feeling existing. Mills, however, have fair stocks. Quotations are about as follows :—

Bleached Sulphite	£85	£90
Easy Bleaching	57½	62
Newsprint Sulphite	53½	55
Unbleached Soda (No. 1)	50	52½
Soda Kraft (No. 1)	40	42
Ground-wood (moist)	17½	18
Ground-wood (dry)	34	34½

PULP AND PAPER NEWS

Mr. A. L. Dawe, Secretary of the Canadian Pulp and Paper Association, Montreal, was in Toronto this week.

Press Day at the Canadian National Exhibition will be on Friday, September 3rd and September 9th will be given over to the Imperial Press delegates.

Mr. Ben Logie, who for many years has been connected with the E. B. Eddy Co., has been appointed manager of the company's Toronto branch.

Mr. Arthur Jewitt, of the office staff of the Provincial Paper Mills, Limited, in Toronto, has returned from an enjoyable holiday trip to the French River.

Mr. M. W. M. McElheran, a former well-known Western Ontario printer, now with the Stovel people in Winnipeg, was a caller on the trade in Toronto this week.

Mr. E. G. R. Clarke has removed from Toronto to Peterborough, where he will in future reside, and where he has been appointed salesman for the Canadian Nashua Paper Co., Ltd., of that city.

One hundred and twenty-six cords of pulpwood are being cut and loaded every twenty-four hours at the Hydro plant on the old Rathbun property in North Hastings. Night and day shifts are being employed.

No. 1 paper machine of the Provincial Paper Company's mill at Georgetown is closed down this week owing to the blowing out of a cylinder head. The machine will be interrupted in its operation for possibly ten days.

Mr. U. M. Waite, President and General Manager of the Kamistiquia Pulp and Paper Company of Port Arthur, inspected the work at the new mill this week and expressed himself as being well pleased with the progress that has been made. His intention is to push the work at as high a speed as possible in order that operations may be started within a few months.

The current issue of the Ontario Gazette contains the notice of incorporation of the Kaministiquia Lumber Co., Ltd., with head office at Fort William. The company is empowered to engage in the lumber and pulp business and is capitalized at $200,000. The provisional directors are D. E. McKay, E. B. Sutherland, N. M. Paterson, H. P. Burnyeat and H. W. Robinson.

Canadian Opinion Publishing Company, Limited, with head office at Toronto, is a recent incorporation under the Ontario Companies Act. The company is authorized to engage in a general publishing business and is capitalized at $40,000. The provisional directors are Charles Cox, C. H. Morris and C. H. Hawthorn.

The Toronto Carton Club held its regular luncheon at the Country Club at Guelph on Tuesday last, and it proved to be the most largely attended of any of the out-of-town luncheons yet held. Twenty-eight members of the club sat down at the table, representatives being present from Toronto, Hamilton, Galt, Brantford, Kitchener and Guelph. The gathering proved a thoroughly enjoyable one.

With fine pitching by Johnson and good support and hard hitting from the team, Laurentide won the first game of the new series with Three Rivers. A series of five games between the two clubs is being played to decide the championship of the St. Maurice Valley, the St. Maurice team from Cap Madeleine is out of the old league.

Mr. Fred Abraham, of Montreal, died last Friday. He was for many years secretary-treasurer of the Herald Co., and lately was president of the Atlas Bond and Security Corporation, which is interested in the development of the pulp and paper industry. He was also active in civic affairs, philanthropic work, protection of birds and other good movements.

In connection with the visit of the delegates to the Imperial Press Conference, an interesting feature in Toronto was an address given before the Empire Club at the King Edward Hotel by Mr. Robert Donald, of London, Eng., Chairman of the Empire Press Union, on "After-war Peace Complications from the Viewpoint of Empire."

The visiting members of the Imperial Press Conference spent the first three days of this week in Toronto, where they were the guests of the City Council and various civic and social organizations by whom they were lavishly entertained. On Tuesday they were entertained at Hart House at luncheon by the Governors of the University of Toronto, after which a special convocation was held at which the following received honorary degrees at the hands of Sir Robert Falconer: Mr. Robert Donald, Mr. Geoffrey E. Fairfax, Chairman of the Australian Section of the Empire Press Union and part proprietor of the Sydney Morning Herald; Sir Robert Bruce, editor of the Glasgow Herald and Right Hon. Sir Gilbert Parker, Bart. Other features of the visit were luncheons by the civic body, the Harbor Commissioners and the Royal Canadian Yacht Club. The delegates are now touring southern and western Ontario.

The Strathcona Paper Company, manufacturers of building papers and light boards, Strathcona, Ont., report that they are busy in the sheathing line and that they cannot keep up with their orders. The company have just installed another machine, which was started up this week. It is a one-cylinder machine with a 72-inch trim, and has 21 driers 42 inches in diameter. The company also has on order with the Dominion Engineering Co. of Montreal a four-cylinder board machine of 84-inch trim. The present wet Fourdrinier is being discarded and they are adding the equipment of their board machine to their present machine, so that they will have a complete board machine consisting of four cylinder over-head felt, three baby presses, three common presses, 36 driers 84 x 48 inches and other necessary equipment. It is not expected that the new plant will be in operation before next spring. The company have also added new motors in the beater room and two new boilers have been installed.

The Royal Securities Corporation has issued a map in colors, showing the location of the limits of the Riordon Company and their water powers and pulp and saw mills. From the map it appears that this company controls 10,590 square miles of timber, or about a third of the area of the Ottawa River basin.

The latest color card of the Sandoz Chemical Works, Basie, Switzerland, for dye stuffs for paper manufacture has been received by McArthur, Irwin, Ltd., Montreal. Copies will be sent to any who may be interested.

Lieut.-Col. Thomas Gibson, Vice-President of the Spanish River Pulp and Paper Mills Co., Ltd., the Secretary Mr. J. J. Gibson and Mr. H. T. H. Watson, President of the Canadian Machinery Corporation of Galt, one of the directors of the company, are with the directors and officials this week on a regular tour of inspection of the Spanish River mills at Sault Ste. Marie, Espanola and Sturgeon Falls.

The first Board of Directors of the Kaministiquia Pulp and Paper Company, recently organized, consists of the following: U. M. Waite, President and Managing Director, A. E. Osler, John Ball, C. D. Howe, F. R. Graham, Hon. T. W. McGarry, K.C., and J. A. Regan, Secretary-Treasurer. The mills of the company are to be at Port Arthur, and the first unit is expected to be in operation in about four months.

Mr. A. P. Costigane, Secretary of the Canadian Pulp and Paper Makers' Safety Association, has returned to Toronto after visiting the mills in Northern Ontario and other parts of the province. The visit was made with a view to stimulating and further developing the safety organizations already in existence among the pulp and paper mills of Ontario. Meetings and conferences with the safety committees and other organizations were held and the situation as to accident and near-accident prevention thoroughly discussed. Mr. Costigane states that the general situation improves daily, and that the existing machinery for protecting the employees is becoming increasingly efficient.

The Ninth Annual Congress of the National Safety Council will be held in Milwaukee, September 27 to October 1 inclusive, at which the Canadian Pulp and Paper Makers' Safety Association will be represented by the Secretary, Mr. A. P. Costigane. From advices received by the Canadian secretary, the gathering promises to be the best attended and most enthusiastic yet held. All Canadian pulp and paper mills interested in accident prevention are being urged to send representatives in order to help along the good work. Many interesting papers and discussions will feature the gathering.

KAPUSKASING MILL ASSURED.

The Spruce Falls Company, a new Canadian concern, backed by large American interests, have completed arrangements with the Drury Government for taking over 24,727 acres of pulpwood limits in O'Brien Township, a 1,740 square-mile limit granted to Mundy and Stewart in 1918, 400 acres of the Kapuskasing colony farm, and the farm buildings and water-power rights on the Kapuskasing River.

It is expected that a very large industry will shortly develop in the Kapuskasing settlement.

"We expect within a month or so to lay out a Government townsite," said Premier Drury. "We are not going to let them do what was done at Iroquois Falls, where the company laid out the townsite and controlled the town."

An important clause in the agreement binds the company to reserve for the use of Canadian publishers up to 15 per cent. of its total output of newsprint, to be sold at the current market rates. "I might say that this clause will be inserted in all future agreements where pulpwood limits are sold," stated Premier Drury. A reservation of 10 per cent. of all water power developed by the company is also made for the use of the town which may spring up on the Government townsite.

The right of the Government to raise the pulp dues on the old Mundy and Stewart limits has been recognized by the new company.

Under the original grant the flat rate was 75 cents a cord. The new company will pay $1.15 for spruce, and for other pulpwood 95 cents a cord. Saw-log timber used for lumber will be paid for at timber rates.

In O'Brien Township $1.60 a cord for spruce and $1.30 a cord for other pulpwood are to be paid. The company must destroy the brush to the satisfaction of the Department of Lands and Forests.

For 400 acres of the Government settlement farm south of the Transcontinental track and east of the river, upon which the company will erect its plant, the price agreed upon was $100 an acre. The company is to take over all buildings on this area at a valuation set by the Government. If this valuation is not satisfactory a board of arbitration is to be agreed upon. This excludes the settlement schoolhouse, which is to be moved at the expense of the company to a point designated by the Government.

Six hundred men are ready to commence operations in the work of erecting the power house and mill buildings. The company undertakes to erect a saw mill with a capacity of 70,000 square feet daily, running in two shifts, by January next; a pulp mill with a capacity of 50 tons a day by January, 1922, and a paper mill with a capacity of 75 tons of newsprint daily by January 1, 1928. When in full operation, the plant will employ about 2,500 hands.

Mr. F. J. Sensenbrenner, the president of the new company, is vice-president of the Kimberley, Clark Co., of Neenah, Wisconsin, a company owning several other paper and pulp mills in the United States. With him are associates S. A. Mundy, of Bradford, Penn., and E. Stewart, of Toronto, (the two original lessees).

George F. Hardy of New York is the engineer in charge and the contract for construction has been let to Fraser, Brace Co., of Montreal.

THE PRICE OF NEWSPAPERS.

Sixty-one of the 111 daily newspapers in Canada now have a copy rate of 3 cents.

The New York Evening World and the Cleveland Plaindealer have increased their price to 3 cents a copy.

All the evening newspapers of New York in the English language now charge 3 cents a copy.

The per copy rate of the Toronto Weekly Star is 10 cents instead of 5 cents as heretofore.

Timber from insects or fire killed trees is just as good for any structural purpose as that from live trees of similar quality, providing the wood has not been subsequently injured by decay or insects. Market dead trees before they suffer injury.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, August 14.—While a number of Canadian industries are beginning to feel the effect of quieter times and while automobile-buying is slackening and manufacturers of various lines of goods are laying off hands by the hundreds, the prosperity of the pulp and paper trade continues with no sign of abatement. Several of Toronto's big factories and others throughout the province have been decreasing their production of late by reducing their working staffs by hundreds, but whether this action is the result of business necessity or a settled policy on the part of manufacturers to bring down the present high cost of production and increase output later on when it is hoped labor may be had more cheaply, is a point that is being freely discussed. The pulp and paper trade, however, it not similarly affected and efforts are being directed towards getting all the help possible. Business demands it and promises to demand it for many months to come. Aside from a slightly quiet period in the printing trade and a consequent lessening of enquiries for stock among the jobbers there has been no slackening in the paper trade. The mills are just as busy as ever and a visit to the paper warehouses in Toronto reveals low stocks and quick turn-over of goods as they arrive from the mills.

Jobbers in a Quandry.

Jobbers and manufacturing stationers, while manifesting great faith in the continued prosperity of the trade, are being called upon to do some close figuring as to buying policy and admit that there is some uncertainty as to the wisdom of buying heavily at the present time. For instance one big manufacturing stationer who used to pay about 8 cents a yard for binder's cloth for the book bindery and is now paying 45 cents a yard, some few months ago placed an order in England aggregating $7,000. This order carried with it the privilege of cancellation just about now, and the manufacturer this week was called upon to decide whether or not to cancel it and run chances of getting easier prices later on, or to take it while he had the opportunity and ensure his supply. His decision was to take the goods at the price, rather than be caught short, as has been the case in some similar instances in the past.

Freer Shipments.

Shipments of various lines of paper from the mills are reported as slightly freer, although jobbers report that in no one line can adequate supplies be secured. One Toronto house received a car load of box board this week, but it didn't come direct from the mill. The jobbers and manufacturing stationers are continually on the look-out for supplies and in the particular instance under notice the car load of box paper was bought from a man who was not going to use it right away and was willing to let it go at a price considerably in advance of the one which he paid for the goods and which netted him a nice profit on the transaction. The house had to have the goods at once and as they could not be had from the mill, the deal was made in the open market with results satisfactory to both parties.

Now is the Buying Time.

In a few quarters among the jobbers there has been a disposition to ease off a bit in their buying but the consensus of opinion in the trade is that the market and the outlook for the future does not justify timidity in stocking. This view is based on the argument that so long as the present shortage of paper exists —and there is no indication of a diminution in the demand—there can be no reduction in the price lists, particularly in view of the high costs of raw material and paper ingredients generally. It is pointed out that the advance in the United States freight rates is likely to add still further to the cost of laying down paper to the buyer and it is freely predicted that prices will go higher still before the downward trend sets in.

August Prices Unchanged.

Paper dealers have been advised that there is little likelihood that the prices set at the beginning of this month will be interfered with before September 1st at least, although practically everything is being sold at prices prevailing at date of shipment. Book papers continue to be exceedingly scarce and no house is able to get adequate supplies and in this and other lines of paper, the goods that are wanted this fall will have to be ordered now.

Box Board Increases.

Ten per cent increases on July and August prices goes into effect September 1st on all lines of board, the new prices being as follows: Manila lined chip board $150: manila lined news, double, $183; No. 3 pulp, chip, straw and straw chip $133: No. 3 pulp board, lined two sides, $150: News board $146: grey folding $192: pulp folding $172: filled wood board $154: white vat-lined chip board, $146.

General Market Notes.

Flat news is selling in the open market at 17 cents but some has been sold for a few cents lower. Roll news is quoted in spot lots at 14 cents and both are very hard to get.

The cheaper grades of bond papers are a scarce article on the market and for the most part stocks of both bonds and ledgers in the hands of the jobbers are very low.

Shipments of import stuff have not improved any during the week and wholesalers in Toronto could use considerably more high grade cover stock, bristols and printer's blanks than they are able to get across the line.

Conditions in the wrapping paper and paper bag trade remain unchanged. Jobbers report an increasing demand for their goods and continued difficulty in securing stock.

No. 1 coated book, under the recent two cents a pound increase, is selling at 19 cents and No. 2 at 18 cents a pound, f.o.b. mill and makers are experiencing great difficulty in getting enough paper to run through the coating machines. All grades of tinted stock is up in proportion.

Roofing Stock.

Roofing rag stock is quoted at $50 per ton for No. 2 and $46 a ton for No. 3 and 4. No. 1 stock is practically off the market. Roofing paper is quoted at $45 to $48 per ton f.o.b. Toronto.

Rag and Paper Stocks.

The market for mixed papers, newspapers and print manilas is strong, with a good demand from consuming mills. Books and magazines are slightly weaker as the mills have a good stock on hand. White shavings, both hard and soft, are in demand and there are numerous orders that cannot be filled. White blanks continue to advance in price under an urgent demand from mills. Cotton rags are slightly easier although there have been no further reductions in prices.

Rag and Paper Stock Prices.

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$19.00—$20.00
No. 1 unbleached cotton cuttings	$10.00—$16.50
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$13.00—$13.50
Bleached shoe clip	$15.00—$15.00
White cotton hosiery cuttings	$16.50—$17.50
Light colored hosiery cuttings	$13.50—$14.00
New light flanellette cuttings	$12.50—$13.00
No. 2 white shirt cuttings	$12.50—$13.00
City thirds and blues (repacked), No. 15	$3.50—$4.00
Flocks and satinettes	$2.00—$2.50
Tailor rags	$2.00—$2.25
Gunny bagging	$2.25—$2.50
Manila rope	$7.00—$8.00
No. 1 white envelope cuttings	$7.50—$7.75
No. 1 soft white shavings	$6.50—$6.75
White blanks	$5.25—$5.50
Heavy ledger stock	$3.75—$4.25
No. 1 magazine	$3.50—$3.60
No. 1 book stock	$2.75—$2.90
No. 1 manila cuttings	$5.00—$5.25
No. 1 print manila	$2.25—$2.50
Folded news	$2.25—$2.35
Over issue, news	$2.50
Kraft	$5.25—$5.50
No. 1 clean and mixed papers	$2.10—$2.15

NEW YORK MARKETS.

New York, August 14.—The fact that it is the middle of the summer is quite apparent in the paper trade. There is a comparatively large volume of business being done but the market does not commence to be as active as it was not long ago, and buyers in numerous quarters show conclusively that they are absorbing at the moment only such amounts of paper as they directly need. Prices rule firm to strong, and the tendency in every case where there is a definite trend is distinctly upward. Manufacturers and jobbers are not pushing sales. In the first place they realize that this is the time of the year when the average user of paper holds aloof from buying; in the second place few mills or dealers who have unsold accumulations of paper to amount to anything. Such stocks as are in sellers' hands are firmly held and no one is resorting to price-cutting to effect business. Exactly the opposite condition exists. With nearly every factor pointing to higher prices, owners of unsold lots of paper either are insistent on receiving full asked prices or, else they are holding supplies in the calm belief that they certainly will secure the values wanted later on.

A factor that is likely to prove an important one in fixing prices on paper in the future is that of railroad freight rates. The advance in freight tariffs that has been granted by the Intersite Commerce Commission and due to become effective about the last of this month—the definite date not having been announced as yet—will materially increase the production cost of paper, together with other manufactured commodities, and will consequently make it necessary for paper manufacturers to revise prices on their product accordingly. As an example of this increased cost may be taken the opinion of President Philip T. Dodge of the International Paper Company, who says that the heavier cost of hauling raw material and fuel to mills will add at least $3 per ton to the cost of manufacturing newsprint paper. That the increase on other grades of paper will be relatively as great is evident, and that manufacturers will of necessity be obliged to tack this additional cost onto the prices of paper is also evident. Here, then, is almost definite proof that paper prices will undergo revision upward within the near future if prevailing market conditions continue to obtain.

The newsprint situation discloses no new feature of any moment, neither is there any change reported in prices. Spot offerings are absorbed rather freely although demand for quick deliveries does not equal that of several months ago. That newspaper publishers are consuming less paper at present than earlier in the year is conceded, moreover this is the usual status of consumption at this season. Most publishers, and particularly the important ones, can therefore keep much out of the open market for a time and they are doing so not alone because they have current requirements covered but presumably because they hope that by doing so they may succeed in lowering prices. Standard news in rolls for spot delivery is selling at 11 to 12 cents per pound, and sheets readily command 13 cents a pound and higher. Demand is largely concentrated on sheet news and transient buyers seem to be having difficulty in acquiring all the supply of this kind of paper they want.

The book paper situation continues to be the strongest branch of the market. There is a serious scarcity of paper of this sort in seemingly every direction, and consumers, unlike those using other grades of paper, are doing all in their power to unearth available supplies, which means that a very active inquiry prevails. Prices are strong and buyers are not letting the stiff figures quoted stand in their way of getting paper when they locate unsold stocks. Machine finished book is freely bringing 17 to 18 cents a pound for spot delivery, while super-calender book is selling at 19 to 20 cents and coated book from 21 cents upward.

Fine papers are in steady call and are moving in consistent fashion on contracts. Mills, with the exception of those shut down temporarily for repairs, are operating at close to maximum capacity and are shipping out their production about as rapidly as it becomes available. Locally the supply situation has improved somewhat owing to the freer movement of freight and the resultant receipt of larger amounts of paper from mills. Jobbers, however, have little stock on hand and are finding it a hard matter to fill their shelves for the reason that they have about all the supply under contract from mills sold to customers.

Tissues and wrapping are quotably steady and are moving in a volume quite satisfactory to mills and dealers at this juncture of the year. The board market is firm and demand is gradually increasing as boxmak-



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INQUIRIES SOLICITED.

ers cover autumn requirements. Quotations on board are unaltered at around $125 on news and $115 per ton on chip but there is an upward tendency clearly apparent.

GROUND WOOD—There isn't as heavy a demand for mechanical wood pulp at present as prevailed a short time ago; still the market is attended by much activity for this period of the year and buyers freely admit it is just as difficult as ever to locate sizable tonnages of pulp. Producers have but scant lots to divert to the transient trade. Most of them have their output foresold for some months and those fortunate enough to have a surplus on hand are either saving the pulp for their own use of else to insure keeping regular customers supplied. Spruce ground wood for prompt delivery is settling at $140 to $150 a ton, and there is little question that a good deal more business could be easily consummated at these prices were the pulp to be had.

CHEMICAL PULP—Buyers of chemical pulp are generally pursuing a waiting policy at the moment and are keeping out of view as far as possible while limiting their purchases to pulp actually needed for immediate consumption. Of course some paper manufacturers are placing contracts, and there is, on the whole, a comparatively good spot inquiry, but generally speaking, demand does not commence to approximate that recently prevailing. Pulpmakers are not exerting pressure on buyers and are waiting for the latter to come to them, and such supplies as are obtainable in the open market are realizing prices close to the upper edge of present quoted values. Newsprint sulphite is quoted at 8 to 8.50 cents a pound at pulp mills, domestic easy bleaching at 9.50 to 10 cents, domestic No. 1 kraft at around 7.50 cents and bleached sulphite of domestic origin at from 12 cents upward.

RAGS—Trading in papermaking rags is very characteristic of mid-summer, yet in the aggregate there is a good movement into consuming channels and prices are marked by firmness in most cases. Some grades, notably roofing stock and other low-priced qualities, are being bought by mills at relatively low prices, but even in this end of the market there is a tendency toward advancement plainly visible. Dealers lay much stress on the dearth of large accumulations the country over and also on the decreased shipments from Europe to this market, and maintain that this will undoubtedly result in higher prices when papermakers resume buying on a broad scale in the fall.

New cuttings are quoted at strong figures, No. 1 white shirt cuttings being held at 23 to 24 cents, new unbleached muslins at 17.50 cents, new washables at 10.50 to 11 cents, white lawns at 19.50 to 20 cents and fancy shirt cuttings at 13.50 to 14 cents. Old No. 1 repacked whites are worth around 13 cents, repacked thirds and blues about 4.50 cents and No. 1 roofing rags in the vicinity of 2.25 cents.

Arrivals of foreign rags at New York this week included 1,977 bales from Havre, 281 bales from Hamburg and 33 bales from Liverpool.

PAPER STOCK—Most grades of old paper are sought in consistent fashion by paper manufacturers and prices are quotably maintained. One of the strong market factors at present is that collections are light, packers claiming to be getting no more than half of the tonnages usually available and laying the blame for this condition on the economy practiced by printers, department stores, and other extensive users of paper. Old folded newspapers are an active grade and board mills have difficulty in buying at less than 2.30 cents a pound at shipping points, while this price has been exceeded in some instances. Mixed paper of No. 1 quality is selling at 2 cents f.o.b. New York, heavy No. 1 book stock at 3.25 cents, old No. 1 kraft at 5.50 cents and No. 1 manila paper at 3 cents. White shavings are scarce and firmly held at around 8.50 cents New York for No. 1 hard white and 7.50 cents for No. 1 soft white shavings.

Receipts of miscellaneous paper stock from foreign sources at this part this week included 611 bales from Rotterdam and 24 bales from Liverpool.

OLD ROPE AND BAGGING—Old rope is off in price, with sales of No. 1 manila to mills reported down to 6.25 cents a pound f.o.b. New York. Most current business is against back orders and manufacturers are doing little new buying. Old bagging is in slight demand and buyers are obtaining wanted supplies at much their own prices. No. 1 scrap is quoted at as low as 2.25 cents per pound at shipping points.

Arrivals of foreign rope at New York this week consisted of 92 coils from Rotterdam.

PAPER MILL FOR OGDENSBURG.

A new paper manufacturing plant will be located at Ogdensburg, N.Y., in connection with the ground pulp mill of the Ogdensburg Paper Mills, Inc. The paper plant will be placed in operation as soon as the ground wood pulp mill is in full swing is the report.

Just where the paper making plant will be located has not been decided. The Ogdensburg Paper Mills, Inc., own land to the south of their pulp mill, but this may not prove suitable.

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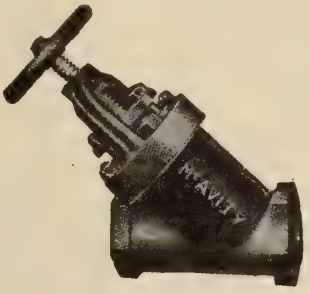
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EXPORTS GAINED 60 PER CENT FOR APRIL.

Pulp and paper exports from Canada for April, the first month of Canada's fiscal year, reached a total value of $8,172,356, as compared with $4,968,939 for April, 1919, an increase of $3,203,417. They were made up as follows:

Month of April.	1919.	1920.	Gain.
Chemical pulp	1,120,990	2,936,633	1,815,643
Mechanical pulp	217,711	506,369	288,658
Paper and mfrs. of	$3,630,238	$4,729,354	$1,099,116

The greatest gain was in unbleached sulphite, of which 397,359 cwt. valued at $1,587,236 were exported in April this year as compared with 87,786 cwt. valued at $352,485 last year. Of bleached sulphite, 131,161 cwt. valued at $728,669 were exported this year, as compared with 80,259 cwt. valued at $363,732 last year. Exports of sulphate (kraft) pulp for the month amounted to 163,533 cwt. valued at $620,728 this year, compared with 131,375, valued at $404,773 last year. Exports of mechanically ground pulp for the month were 198,664 cwt, valued at $506,369 this year, and 161,449, valued at $217,711 last year.

Newsprint formed the principal item of the paper exports for the month. There was, however, a falling off in quantity, although an increase in value, there being 899,342 cwt., valued at $3,827,541, exported this year, compared with 920,592 cwts., valued at $3,160,318 last year.

Exports of pulpwood for the month amounted to 40,433 cords, valued at $420,741, a decrease from 68,680 cords, valued at $629,189, a year ago.

The distribution of the month's exports was as follows:

	United Kingdom.	United States.	Other Countries.
Total paper.....	$344,517	$3,730,682	$ 654,155
Total pulp.....	514,568	2,506,825	421,509
Pulpwood.....	$859,085	$6,658,248	$1,075,664

A Chinese trust controls the dye used on firecrackers, made from cibucao, a Philipine wood. The same dye is used for sealing wax and Chinese ink.

THE CHILDREN OF TREES.

The birches that dance on the top of the hill
Are so slender and young that they cannot keep still.
They bend and they nod at each whiff of a breeze,
For you see they are still just the children of trees;
But the birches below in the valley are older,
They are calmer and straighter and taller and colder,
Perhaps when we're grown up as solemn and grave
We, too, will have children that do not behave.

—*John Chipman Farrar.*

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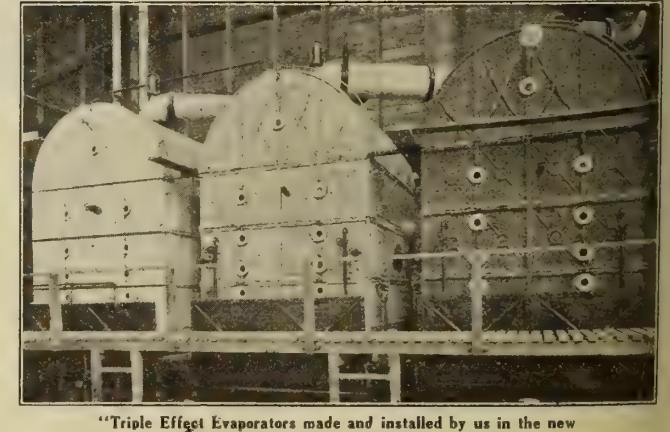
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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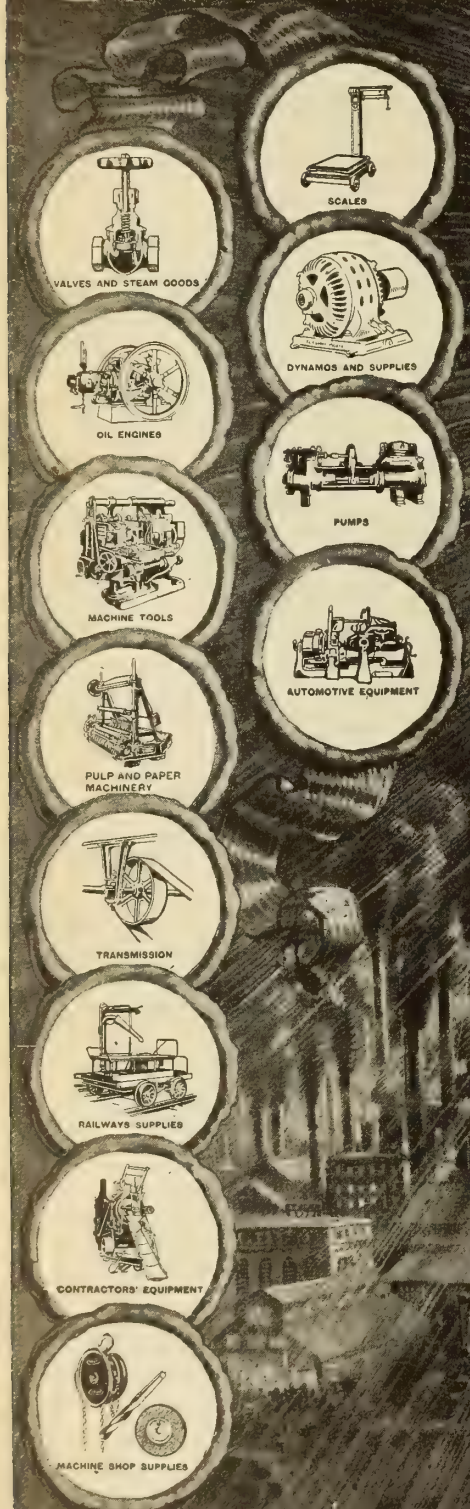
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-:- EDITORIAL -:-

EDUCATING PAPER MAKERS.

There will never be a time when experience and practical knowledge of paper making will be entirely replaced by any kind of education outside of the mill but the movement is rapid toward appreciation of the need for supplementing this practical knowledge and skill with a knowledge of the principles, materials and processes which underlie the manufacture of pulp and paper. Much of this knowledge is obtained by continued contact with materials and their manufacture into finished products but some of the underlying principles cannot be stumbled upon in any such uncertain fashion. Paper, of course, can be made, as it has been made, according to rule of thumb methods by men who have given little or no thought to what they were doing except to repeat mechanically what they had seen someone else do. But this lack of thought cannot possibly bring any improvement or progress in the industry. The men who have held positions of responsibility have been elevated largely because of their superior skill or their ability to get the maximum work from the employees over whom they have been made foreman or superintendent. These men have made good paper and no one will disparage their ability nor the results they have obtained. The time is now upon us, however, when these men who are for the most part well along in years, must be succeeded and because of the development along scientific lines in all kinds of manufacture it will be necessary to have men in charge, who have not only a practical knowledge of the industry, but who have, in addition, a training in the fundamental principles on which the industry is based. The possession of such knowledge in no way detracts from a man's practical ability as a paper maker but gives him the additional advantage of a view point which is elevated in proportion to the broadness of his educational opportunities and in consequence of which his horizon is the more extensive.

Seven years ago the University of Maine enrolled students in the first classes offered on this continent in a definitely planned pulp and paper course. Since that time more than 100 students have gone forth from that University, having studied both in the class room and the laboratory the characteristics of materials used in pulp and paper manufacture and the principles underlying the processes by which they are converted into the finished product. The University of Maine is admirably situated in a pulp and paper region but there is room for more than one institution of this character and consequently the New York State College of Forestry, some years ago, began to make plans for a somewhat similar curriculum.

Just before leaving the College of Forestry to undertake the work of Secretary of the American Paper and Pulp Association, Dean Baker secured the services of Mr. C. Earl Libby as Professor in charge of the new work. Professor Libby graduated from the University of Maine in the pulp and paper course and since then has had considerable experience in the manufacture and testing of paper materials and products. The course which he has laid out in consultation with pulp and paper men is set forth in the last issue of the Pulp and Paper Magazine. It will be seen that New York State appreciates the forest as the foundation of its paper industry and forestry studies are made the backbone of the curriculum. It is probable that changes will be made in the curriculum as more extensive work and more complete equipment is possible and at the present time an excellent basis has been provided for those who wish to enter the work of the pulp and paper mills, particularly in New York State.

It is gratifying to the college, as well as to those who have assisted in planning the work, that a very large number of prospective students have inquired with regard to the pulp and paper course. Professor Libby will have his hands full. From the editor's recollections of the work at Maine he will have an experience that will bring great satisfaction and an opportunity of serving both the industry and the individual student which cannot easily be matched in any other line of work.

MR. GREAVES PAYS US A VISIT.

The editor was delighted last Saturday afternoon to have a visit from Mr. J. L. Greaves, Editor of the "Paper Maker" and "British Paper Trade Journal." Mr. Greaves came over to take part in the deliberations of the Imperial Press Conference and accompanied the party part way on their trip across Canada. The time available at Ste. Annes was all too short to discuss the many subjects of mutual interest. It looks as if we shall have to continue the conversation by accepting a very cordial invitation to visit England and see the paper industry and meet the paper makers on the other side. This is a trip that we have long anticipated and hope soon to enjoy.

THE PRESIDENTIAL CANDIDATES AND THE PAPER QUESTION.

(By the Associate Editor.)

The fact that the next President of the United States, in all human probability, will be a newspaper publisher has an interest for paper manufacturers, since it is by no means certain that the newspaper publishers of the United States, any more than those of Canada, have abandoned permanently the efforts they have put forth during the past five years to control the price and supply of newsprint paper by legislation. Both Senator Harding, the Republican nominee, and Governor Cox, the Democratic nominee, are owners of minor daily newspapers. They have both been affected by the abnormal conditions of the paper market during the past year and both are familiar, by actual experience, with the difficulties that beset the newspaper publisher as a result of these conditions.

Both Governor Cox and Senator Harding have expressed their views, as newspaper publisher-presidential candidates, for the benefit of their fellow publishers. These views were printed as authorized statements in *The Editor and Publisher* of New York, and indicate what sort of treatment newsprint manufacturers may expect from the White House after March 4th next if any of their problems should come before the next president for executive action.

James M. Cox, the Democratic candidate, says that he looks for continued prosperity for the publishers, "for the reason that the world continues to advance, and in proportion as this advance be made there will be certain increase in the eagerness of the people to keep abreast of the times. The popular agency is the newspaper." On the paper question, Governor Cox says:

> "I think the white print situation has been created in considerable measure at least by the very elements that have upset the normal conditions of life generally—the excess demand for labor beyond the supply, inadequate transportation facilities, etc. The quicker peace be legally realized, the sooner normal times will come."

And here is what Senator Harding, the Republican candidate and owner of the Marion, Ohio "Star" has to say about it:

> "The newsprint prospect is improving. For illustration, I bought a carload of paper in the open market the other day at 6 cents. Six weeks ago I paid 11 cents. My contract, like most others, was reduced the first of the year, and I have been forced into the open market for four carloads. I have paid 5¼, 5¾, 11 and now 6. I notice that our railroads are restoring to Canada several thousands of her box cars, and this is easing paper shipments to us; it must also ease the supply of materials to the mills.
>
> "But we must keep a sharp lookout for the newsprint future. We will never again see paper at 2 cents, but we will see it at a price that is fair and in supply that is sufficient for all reasonable needs. I have seen it stated that 80 newspapers consume 60 per cent of our total print. On the face of it this is not a fair division. Publishers themselves should get together in commitments that will give all a just share. I shall be opposed, even when I myself am president, to any form of government control that might in any degree curtail the independence of the press. But the Government can help publishers to get a square deal, and it is my expectation that it will.
>
> "There is the important element of reforestation to insure pulp supply, which is decidedly within the rightful province of the Government. This has been too long neglected. Twenty years are required to grow spruce trees, and the end of the available supply is not much further than that in the future. There must be a practical program of reforestation framed on a large scale and then it must be carried out.
>
> "All this, of course, is close to my own heart. We are striving desperately to hold down the circulation of the *Star* to 10,000, having already reduced the size 30 per cent, while refusing many thousands of dollars' worth of advertising."

From all of which it would appear that whatever eventuates, the newspaper publishing interest in the United States is certain to have during the next four years "a friend at court."

Senator Harding's solicitude for a reforestation program is something that will commend itself to every publisher and every papermaker, although his estimate of the time it takes to produce a pulp-yielding spruce tree does not accord with our experience in Canada. Perhaps spruce attains a much more rapid development in Ohio.

COBWEBS.

The excellent tables on another page, compiled by Mr. E. H. Naylor show the capacity increase of new machines for United States paper mills. Canadian mills will find something to guide in choosing the best future outlet directions for some lines.

American papers, especially The Sun and New York Herald are giving special attention to Canadian news, and this feature is said to be very popular.

We haven't heard much lately regarding Mr. Brown's case against the Canada Paper Co., which was "arrested for fragrancy," as it were.

The value of the product of the paper industry in the United States is over $100,000,000 yearly.

Canada's Pulpwood Restrictions*

When you were good enough, through Mr. Ayres, your Forester, to extend an invitation to the Canadian Pulp and Paper Association to send a representative to attend this conference, your letter of invitation intimated that you were particularly desirous of having presented at this meeting a "full and frank statement of the Canadian point of view as regards the export tariffs placed upon timber entering the United States from the Crown lands in three of the Canadian provinces." You were also kind enough to suggest that such a candid statement as you invite would be of assistance in bringing about a mutual understanding between the two countries and, perhaps, in helping to clear the atmosphere of some of the misconceptions that appear to be abroad.

To me, as an official of the Canadian Pulp and Paper Association, has been assigned the pleasant and agreeable duty of coming to your meeting and responding to your invitation. In what I propose to say I can assure you that I have no other motive than to contribute, as far as may be, to bringing about that mutual understanding and to increasing, if possible, the goodwill that now, perhaps more than ever, should dominate our international relations.

At the outset I am tempted to paraphrase Sydney Smith's historic essay on the subject of "Snakes in Ireland," which, as you will recall, began and ended with the interesting but somewhat conclusive sentence, "There are no snakes in Ireland." With equal brevity and truth I might say, "There are no export tariffs upon timber entering the United States from Crown lands of Canada." But that would not be quite all of the story.

When the Canadian provinces were confederated into the Dominion of Canada, in 1867, one of the articles of Confederation conferred upon the respective provinces sovereignty and control over their own natural resources. In-so-far as the original provinces are concerned that condition still prevails. The same authority confers upon the Dominion Parliament the sole power to legislate on matters affecting tariffs, both as to exports and imports. Consequently, while the provinces control their public domain, including the forests and the products therefrom, they have no power to pass tariff legislation and have never attempted to exercise any. The Dominion Parliament, on the other hand, while it is without power to control the administration of the natural resources of the respective provinces, has the power to pass tariff legislation, but has never sought to exercise it in the direction of reducing the exports of timber to the United States.

Regulations have been adopted, it is true, by the Provinces of Ontario, Quebec and New Brunswick, which require that pulpwood cut from the Crown lands in those provinces must be manufactured into pulp or paper in Canada. These regulations certainly do operate to restrict, in a measure, the exportation of unmanufactured pulpwood from Canada to the United States. It is doubtful, as I shall endeavor to show you later, whether their ultimate effect has been to deprive American pulp and paper consumers of their full share of Canada's forest products.

The regulations are not, contrary to some expressed beliefs, confiscatory or discriminatory in their character. They apply with equal force to all licensees without regard to nationality or other qualification. While admittedly based upon a policy of self-interest and self-protection, they are believed to be justifiable on both moral and legal grounds. They violate no contract, written or implied, and they deprive no one of any duly acquired right, vested or otherwise.

Provincial licenses to cut timber are issued for the period of one year, and while in practice they are automatically renewable when their conditions have been complied with, the courts have held that they confer no rights in perpetuity. Furthermore, they have always contained a provision making them subject to any future regulations the issuing government may, in its own interests, choose to impose. The requirement as to "home manufacture" is merely one of the applications made of this provision.

The chief argument of those who are challenging these regulations is that they unlawfully abrogate vested rights. We, in Canada, dispute this assertion. First, on the ground that, as stated, the licenses give the lessees no permanent rights in the property; second, that the rights were acquired subject to certain provisions which the provincial governments have since seen fit to avail themselves of, and, third, because we maintain that the complaining lessees have suffered no real loss by reason of the regulations, but, on the contrary, have profited greatly by the increment of value in their holdings. They could to-day sell their leases for many times what they cost. They can also sell their pulpwood, if indisposed to manufacture it themselves, at a price representing an enormous profit on their original investment.

It has been stated as a cause of special grievance in some of the arguments advanced that, "American manufacturers had expended hundreds of thousands of dollars improving the rivers, building dams and piers, constructing taking-out and wood-preparing plants," and, that, "all this investment was, in four days' time, made dormant and unproductive," by the imposition of the "home manufacture" regulation by the Quebec Government. The facts are, however, that at the time the restrictions were first imposed, the American manufacturers who were then affected went before the Quebec Government and complained that it would be unfair to make the restrictions operative at once as they had large quantities of logs in the process of making which could not be turned into lumber. The Government, recognizing an element of justice in the complaint, asked the companies to make a statement as to the quantity of logs on hand at their mills as well as the amount hung up in the drives and in the upper countries, and, on the basis of the estimates submitted, allowed uninterrupted exportations to proceed. The impression prevails in Canada that some of the companies' estimates were extremely liberal and included not only the wood already made, but all they could hope to make for several years to come. (River improvements, logging accessories, etc.

*An address delivered by Edward Beck, representing the Canadian Pulp and Paper Association, before the Annual Forestry Conference of the Society for the Protection of New Hampshire Forests, New London, N.H., August 25, 1920

are just as useful in getting out wood for domestic conversion as for export in the raw state.—Ed.)

I have also seen it stated that the sole opposition to removing these restrictions at this time comes from the paper-manufacturers of Canada who are said to desire to monopolize the newsprint market, to keep up prices and to "destroy the American newsprint industry." This, again, is very far from being the truth. Canadian pulp and paper men, naturally, are interested in preserving their raw material as far as possible, but they are not responsible for the policy of which complaint is made. Most certainly they are not trying to monopolize the market nor to injure their fellow paper manufacturers on this side of the border. Doubt, indeed, has been expressed as to whether the Canadian paper mills would not be better served, from a competitive standpoint, by permitting the exportation of sufficient Canadian pulpwood to keep the paper mills in the Eastern States in operation, rather than to accept the alternative of seeing the owners of these mills come into Canada and erect new, modern and efficient mills, as they are now doing, to compete with the Canadian manufacturers on even terms. It is generally conceded that the American mills in question are operating at a disadvantage as to production costs compared with Canada's more modern establishments. It is conceivable that it might be to the Canadians' advantage to have them so continue.

The regulations complained of were adopted in response to the outspoken demands of public opinion in Canada and for the purpose, as already stated, of conserving Canada's raw materials and of building up home industry. They are kept in force for these precise purposes. That there is little likelihood of their being modified or repealed is plainly evidenced by recent statements on the subject given out by the responsible heads of the different provincial governments concerned, as well as by the editorial expressions in the Canadian press which regards their maintenance as of vital concern to the country's welfare.

Another alleged grievance that I see lodged against the Canadian paper manufacturers is that they require payment for their products when sold in the United States to be made in United States funds, so that, to use the words of our detractors, "you are giving the Canadian manufacturer a price of from 12 to 18 per cent higher than your own manufacturers receive." This extraordinary and obviously misleading assertion is based upon the existence of a discrepancy in exchange between the two countries which during the past year has ranged from 12 to 18 per cent in favor of American funds. Payments to both Canadian and American manufacturers for paper sold in this country are made in identical funds. If the American manufacturer thinks it any advantage to increase the numerical measure of the dollars he receives he can do so by transposing them into Canadian funds. The rule, of course, works both ways. The Canadian paper manufacturer, however, does not complain when he is required to pay for his coal, his sulphur, his kaolin and his dyes which he buys in the States, nor his carriage charges to American railroads and express companies, in American funds, obviously to his financial disadvantage.

In the general trade between the two countries Canada falls short by approximately three hundred million dollars a year of selling to the United States as much as she buys from this country. In our last fiscal year, to be exact, Canada bought from the United States merchandise to the value of $746,937,509 and sold her merchandise to the value of $454,923,170, thereby creating an adverse balance against Canada of $292,014,339, which Canadians paid in their depreciated funds on the basis of from $1.12 to $1.18 for every dollar's worth of goods bought.

Despite this enormous discrepancy in trade between the two countries and the overwhelming advantage enjoyed by the United States, some critics appear to think that we ought to sell our paper—which is one of the few commodities we have to barter—to American consumers on the basis of payment in Canadian funds! Not content with coveting our forest resources they would deprive us of whatever small advantage we may have in the commodities which we have to sell. Their contention reminds one, involuntarily, of the fabled patriarch who, while possessing flocks and herds in abundance, still envied his neighbor his lone ewe lamb, and who incurred the wrath of God by the desperate means he took to gain possession of it. Perhaps your wise president had the simile in mind when he withheld his approval from the so-called Underwood Resolution.

However, I did not come here to discuss in detail, or to attempt to refute all the arguments that have been advanced by those who are striving to make our provincial timber laws a political issue between the two countries, nor do I propose to do so. In my opinion, the issue between certain American lessees of Crown timber limits in Quebec and the authorities of that province, which is at the bottom of all this agitation, is one for judicial determination, if at all, rather than for political action. The fact that the limit-holders, after allowing twelve years to elapse while evading a legal test, are now busily engaged in a campaign to make the issue political, merely, again in my opinion, emphasizes the weakness of their position. At any rate, it is generally felt in Canada, that neither the Dominion as a whole, nor any of the provinces, has any reason to avoid the strictest enquiry into the justice and equity of their timber laws by any impartial and unbiased tribunal. Certainly we should feel it to be a cause for great regret if these laws were made the excuse for embroiling us in an international wrangle with our good neighbors to the South. It is true that up there we have heard echoes of talk in Washington concerning "retaliation," "strong arm methods" and the application of the "big stick" to the back of the Dominion, but we haven't taken it very seriously. We refuse to believe it represents the true spirit of the American people.

What I have said about declining to undertake in detail a justification of the provincial timber regulations, so far as they affect American licensees, for the reasons I have set forth, will not, I take it, preclude me from giving you a brief statement as to just what the regulations consist of, and telling you how, when and why they were brought into being.

It was the Province of Ontario which led the way in adopting restrictive legislation for the protection of its forests and as a means of encouraging home industry. The great bulk of the timber berths of Ontario front on Lake Huron. With the depletion of the pine lands of Michigan and Minnesota and other lake States it became the practice of American saw mill owners to draw their supplies of pine timber from Ontario, the logs being floated across the lake in their

rough state. In time it became apparent to the people of that province that if they were going to avoid the complete destruction of their pine forests, and if they were going to obtain a more adequate return for the use of their natural resources than was represented by the practically nominal ground rents and stumpage dues paid by those who were then exploiting them, they would have to adopt some measure of self-protection. Consequently, an Order-in-Council was passed January 13th, 1900, which was later amended by a law (63 Vic. Chap. 11), requiring timber cut from the Crown lands in that province to be manufactured in Canada. The almost immediate result was that a substantial lumber industry was built up in Ontario and that the provincial treasury, enriched by greatly increased returns from the disposal of the forest products, was able to provide a better system of fire protection, to enforce stricter cutting regulations and generally to prevent needless forest waste.

It was not until 1902 that this regulation, which had been found of so much benefit to the province when applied to pine timber, was also applied to pulpwood.

In the Province of Quebec, which is the seat of the dispute we are discussing, licenses to timber Crown lands are disposed of at public auction. In the terms of the law (R.S. Quebec, Act, 1597) the license thus acquired entitles the holder, "to cut timber on ungranted lands of the Crown at such rates, and subject to such restrictions as may, from time to time, be established by the Lieutenant-Governor in Council, and of which notice shall be given in the Official Gazette."

Article 1598 provides that "No license shall be granted for longer than twelve months from the date thereof. . . . ."

Article 1600 stipulates that "such license shall vest in the holder thereof all rights of property in all trees, timber, and lumber cut within the limit of the license during the term thereof, whether cut by authority of the owner of the license, or by any other person with or without his consent."

The Regulations now in force by virtue of the first cited article of the law are embodied in an Order-in-Council under date of April 26th, 1910, revoking all previous regulations "incompatible with the present" and amended in its turn by an Order-in-Council of June 13, 1918.

Other clauses having a bearing upon this discussion are:

"1.—All licenses to cut timber are subject to a yearly ground rent of five dollars per square mile or fraction of a square mile, dating from the 1st September, 1910. They are granted for twelve months from the first of May to the thirtieth of April and after their issue, no claim shall be admitted for the repayment of any overcharge for ground rent or fire tax due to the incorrect measurement of the area of the limit."

"2.—Licenses expire on the thirtieth of April following the date of their issue, but the licensee having complied with existing regulations is entitled, up to the first of September following, to a renewal of his license. He shall forfeit such right through any infringement of the law and of the regulations. The Minister of Lands and Forests may, however, permit the renewal of the license on payment of the ground rent and of any other penalty he may be pleased to impose."

Besides increasing the stumpage dues, the amendment adopted in 1918 also raises the ground rent to $6.50 for the years 1919-20 to 1923-24, and to $8.00 for the years 1924-25 to 1928-29 inclusively, and provides that such ground rent may at any time be augmented in the case of licensees who do not exploit their limits, the Crown to determine the quantity of wood to be cut for constituting sufficient exploitation.

It is unnecessary to quote the whole of the Clauses 4, 5, and 6 of the Order-in-Council, but they stipulate that "transfers of limits or of divided or undivided portions thereof are effected in writing, subject to the Minister's acceptance and to the payment of a transfer bonus of four dollars for every square mile or fraction of a square mile. . . ."

Regarding the right of renewal, while some license holders are wont to contend that their licenses are tantamount to a permanent grant so long as they comply with the terms of the licenses, Canadian courts, in analogous cases, have held to the contrary, maintaining that they are merely annual leases and nothing more. The courts have also held, in similar cases that the State, in its capacity as proprietor of the land, "may do, what any subject proprietor may do, when proposing to dispose of his property, viz.: attach to the contract a condition not impossible of performance or unlawful *per se*, or prohibited by any existing law."

At the present time, some prospective investors in Quebec's pulpwood limits are asking the Government to change the law and to issue leases for a given term of years, instead of on the year-to-year plan as at present, holding that capital would be easier to obtain and better satisfied with such an arrangement.

In conformity with its expressly reserved rights to make such regulations as to the use of timber cut under license, the Quebec Government adopted a regulation on April 26, 1910, which reads:

"All timber cut on Crown lands after the 1st of May, 1910, must be manufactured in Canada—that is to say, converted into pulp or paper, deals or boards, or into any other articles of trade or merchandise of which such timber is only the raw material. The following shall not be considered as manufactured within the meaning of the present regulation: Timber simply cut into lengths, piled, barked, or otherwise worked preliminary to the manufacture of pulp or paper, deals or boards, or any other articles of commerce." New Brunswick passed similar legislation on April 26, 1911.

There are no statutes prohibiting or regulating the export of pulpwood from Nova Scotia or British Columbia.

This, in brief, is a summary of the legislation affecting the export of timber from the various provinces.

It is, of course, clearly to be understood that the existing regulations do not affect the exportation of pulpwood cut from lands in private ownership. These exports, for many years past, have averaged around one million cords annually. They provide approximately one-fifth of the annual pulpwood consumption in the United States. Nor do they affect the export from Canada of manufactured pulp or of newsprint.

During the Canadian fiscal year 1918—the latest for which official returns are available—the quantity of pulpwood cut in Canada amounted to 3,560,280 cords, of which 2,210,744 cords were used in domestic manufacture and 1,349,536 cords were exported to the United States. During the same period 234,000 tons of chemical pulp, representing 468,000 cords of wood; 215,084 tons of mechanical pulp, representing 215,084 cords of wood, and 560,000 tons of paper, representing 825,000 cords of wood, were exported from Canada to the United States. Thus the United States, during this period, imported from Canada in the form either of wood, pulp or paper the equivalent of 2,857,620 cords out of a total cut of 3,560,280, or approximately 80%. This does not bear out the charge that Canada is discriminating against the United States in with-

holding her pulpwood supplies from this country. On the contrary, it shows that the United States is benefiting practically to the same extent as though the forests were her own. Returns for the later years, when available, will only serve to emphasize this point.

The real question at issue is not whether this material shall be available for the use of American publishers, but whether it shall go forth in the form of raw pulpwood to the United States, or shall be put through at least one stage of manufacture in Canada.

A word may be permitted as to the fundamental purpose behind these restrictive regulations. It is nothing more nor less than the same purpose, which is, I take it, the motive spirit behind your organization and behind this conference, namely, the conservation of our forests and the inauguration of measures looking to a permanent supply of timber therefrom.

There was a time, not so very long ago, when the belief was quite general that the Dominion of Canada and particularly the Province of Quebec possessed illimitable forest resources. In fact, much of the argument in favor of lifting the export restrictions today rests on this erroneous proposition. It was a commonly accepted theory that no matter how prodigally those resources were used there would still be a vast supply sufficient to meet every requirement for practically all time to come.

If this sounds like an exaggeration to you, I should like to quote from a report made by one, Paul Blouin, Superintendent of Forests of Quebec, to the Minister of Mines and Fisheries of that province, March 31st, 1903—just seventeen years ago. It was used as the basis of a speech by the Hon. S. N. Parent, at that time Premier of Quebec, before the Legislative Assembly of the province on April 25th, 1903, in reply to a demand made by some of the members that the Province should impose a stumpage fee of $1.90 a cord on all timber cut on the Provincial Crown lands and rebate $1.50 of the amount for each cord of wood manufactured in the province. (It may be said in passing, that this method had previously been tried out and had been found unworkable.) ,

This, then, was the report of the Forester in question :—

"There are at present 62,952 square miles of land under license to cut timber.

"If the quantity of pulpwood contained in that territory is estimated at 3,000 cords per square mile, then we obtain a total of 200,000,000 cords. This number contains only the pulpwood which it is lawful to cut according to the regulations, that is to say, trees measuring 7 inches or more at the stump.

"To exhaust these 200,000,000 cords of pulpwood at the rate at which it was cut in 1901—1902, that is at about 50,000 cords per year, it would require about 4,000 years, and this is without taking into account the trees of under 7 inches in diameter.

"If we take into account the constant growth of trees, it would take a far greater number of years to exhaust our supply at the present rate of cutting.

"If we wish to take into account all pulpwood, including trees which are not of the required size at present, we see that we could easily arrive at a total of a billion cords, which would last over 20,000 years.

"And there still remain 100,000 square miles of forest which are not under license."

Commenting on this, Premier Parent said :—

"To use up these 200,000,000 cords, not including the small trees which are growing and which would provide for the renewal of the forest in the course of 25 years, it would require the space of about 4,000 years, at the rate at which pulpwood was exported to the United States in 1901—1902, that is 50,748 cords. In the year 1900—1901, there were only 30,360 cords exported from our Crown lands.

"Now that the resources of our forests are known, it may be well to ascertain how many cords of pulpwood were exported from Crown lands last year. There were 50,748 cords exported.....And this, is what is called the giving away of the products of our forests to the Americans! The 250,000 cords which form the balance of the exportation to the United States (for there were about 300,000 cords exported) came either from the seigneuries of from lots held under letters patent, which cannot be affected by the rules regulating Crown lands. The right of which I spoke could only affect about 50,000 cords, and yet we are accused of causing the destruction of our forests!"

You will observe that this more or less official estimate of the life of Quebec's Crown land pulpwood resources—that they were sufficient to meet all requirements for 4,000 years, or, if the maturing of the growing stock was taken into account, over 20,000 years—practically forever—was made only seventeen years ago. In view of these exaggerated and since totally discredited ideas as to the extent of Quebec's pulpwood resources, held by those in authority in those days, is it to be wondered at that in the early days they were only too anxious to exchange the people's forest heritage for whatever mess of pottage was offered.

Paul Blouin's estimate was based upon an annual cut of 50,000 cords. To-day the annual consumption of pulpwood in Quebec, exclusive of that cut for exportation, exceeds 1,100,000 cords while the "expectancy," to use an insurance term, has dwindled, according to the best authorities, to at the most 50 years' supply at the present rate of use, and the ratio at which the wood is being consumed is increasing every year.

In contrast to the optimistic utterance of Premier Parent in outlining Quebec's timber policy of less than two decades ago I should like to call attention to that of the present Premier, the Hon. L. A. Taschereau, announced just a few days ago, and based upon a knowledge of to-day's conditions.

He said :

"The time has come, it appears to us, to regularize the cutting on limits by fixing a maximum of the annual cut, to prevent the destruction of our forests, and a minimum to stop speculation and to assure us a reasonable, revenue from the cutting rights. Reforestation should be immediately undertaken and encouraged with energy."

Arguments put forth in Washington as to the extent, duration and annual increase of Quebec's pulpwood resources, and which seek to convey the idea that 24,300,000 cords of wood could be harvested annually without impairing the capital stock are entirely fallacious and have been authoritatively exploded in documents, copies of which are placed at your disposal. The facts are that the Canadian Provinces are under just as great a necessity for conserving their timber resources as are any of the States which you gentlemen here represent.

From an economic point of view you will agree that the cutting of raw pulp wood for export involves no permanent industrial development. The home manufacture of pulp and paper, on the other hand, means the building of factories, the employment of skilled labor, the development of new towns, the growth of cities, scope for increased immigration, better home markets for agricultural and manufactured products, the increased investment of domestic and foreign capital, and the increase of national prosperity in general. Under the regulations complained of Canada has built up an industry now capitalized at $300,000,000, with

an annual production of nearly $120,000,000 and an export business of well over $100,000,000. There are upwards of one hundred establishments engaged in the industry. Consequently the question of the conservation of Canada's pulpwood resources to maintain the industrial plants already established and to induce the establishment of others in the future is a pertinent one. The necessity of providing permanent supplies for the industry requiring so great an investment of capital is also an important factor and necessitates conservative forest management. Many millions of dollars of United States capital are already invested in the pulp and paper industry of Canada. This will be jeopardized, together with much native capital, unless the continuity of supplies of raw material can adequately be maintained, which would be impossible were unrestricted exploitation to be permitted.

Canada's great need to-day, like that of the New England States, is the inauguration of a reforestation policy which will insure a permanent supply of timber for her wood-consuming industries. Without it the Canadian pulp and paper industry will be confronted within a comparatively few years with a similar fate to that which is now said to be threatening the American industry.

In conclusion, let me repeat that there is no need for any bitter controversy over this question. There is a most cordial and friendly community of interest between the United States and Canada, not only in the newsprint matter, but also in regard to many other matters, which should be sufficient to prevent any such dispute continuing further, so long as neither party commits any act of injustice. The Crown Land Regulations of the Canadian Provinces are not an act of injustice; they are merely a natural exercise of the landlord's right to secure the fullest development of his own property. It is not the fault of Canada that certain United States pulp and newsprint mills, owing to miscalculation or mistreatment of the United States' wood supplies, now find themselves in a position where they cannot obtain pulpwood, except at a greater cost than if they could bring it from Canada. The Canadian Provinces have never bound themselves to supply pulpwood from their Crown lands to such mills. The Canadian Provinces are under no obligation to make up for the lack of domestic supplies, or to conform with their mistaken expectation that they would always be permitted to remove pulpwood from Canadian Crown Lands without performing any manufacture upon it within Canadian borders.

Canada, as you know, came out of the war with a public debt of more than two billion dollars, as compared with some three hundred millions in 1913. With a population of something over eight millions, the burden is no light one to carry. Her sole source of public revenues is the taxation of her people and the wise utilization of her raw materials, one depending upon the other. In the words of Sir John Willison, President of the Canadian Reconstruction Association:—

"We must either manufacture the raw materials of Canada within the country, thus employing labor, rearing new communities, providing local markets for merchants and producers, strengthening the national structure, making the back of Canada strong to bear its accumulating burdens, or the sons of Canada will follow these raw materials out of the country, establish themselves in foreign industrial centres, and, more and more, from year to year, the national burden will become heavier and the issue of the great political experiment in which we are engaged become more difficult and uncertain. Every sound economic and natural reason, therefore, demands that the raw materials of Canada shall be manufactured in Canada and the Canadian people protected in the possession and control of their natural inheritance."

Citizens of the United States, we feel satisfied, who will study the subject as you are doing, will come to appreciate this situation, and will realize that whatever the politicians may say or do for political effect or political profit, and whatever self-interest may prompt others to allege, there is no real basis for the charge that Canada is doing any more than wisely utilizing her natural resources, so far as she is able, for the upbuilding of her own country and for the well being of her citizens, and that in the doing of it she is violating no principle of equity or justice, is imposing no hardship upon anyone, and is breaking no covenant entered into in good faith with citizens of a neighboring and friendly country.

MUCH TIMBER IN THE TROPICS.

Tropical lumbering possibilities in lower Mexico and South and Central America are enormous, both in hardwoods and yellow pine, and in most cases, contrary to the opinion of those unfamiliar with the situation, the timber is easily accessible if operated under modern methods, according to H. C. Kluge, who has just returned from British Honduras, where he investigated a half million acre tract of yellow pine timber owned by an American corporation, for James D. Lacey and Co., of New York. The Lacey company conducts investigations of this character in all parts of the world.

Mr. Kluge, who has devoted about sixteen years to tropical timber cruising, spent about three months on the particular tract mentioned, his investigations being made from the standpoint of operating possibilities. On the tract he picked out approximately 500,000,000 feet of merchantable yellow pine timber which was admirably located for logging and transportation. Describing the character of timber found, Mr. Kluge said it compared favorably with the Cuban pine of Southern Florida.

With the exception of mahogany and cedar, Mr. Kluge said, the vast forests of tropical hardwoods have scarcely been scratched and there are billions of feet of excellent merchantable hardwood timber, most of which can be profitably operated under modern methods of transportation. The hardwood forests extend through lower Mexico, Guatamala, British Honduras, Spanish Honduras, Nicaragua, Costa Rica and the Panama Republic. In some localities, he said, there are found large tracts of yellow pine timber such as the tract he inspected for James D. Lacey and Co., in British Honduras, but as a general rule, hardwoods predominate throughout the tropical region.

As to conditions in the Tropics, Mr. Kluge said there are numerous small rivers winding through the forests but in a very few cases are they suitable for logging purposes. An operation to be made successful, he pointed out, should be carried on under modern railroad methods, and in many regions the lay of the land is admirably suited to this character of operation and development.

FIRE DESTROYS PAPER STOCK IN PITTSBURGH

Fire early Sunday morning destroyed the warehouse of the Pennsylvania Paper Stock Company on First avenue, Pittsburg. The blaze was a spectacular one, and the loss is estimated at $50,000.

CHINA CLAY UNDER THE MICROSCOPE*

Its Tenacity as a Paper Making Ingredient.

When a well-defined crystal, not too thin, is examined under a microscope, in oil formed by a mixture of oil cassia and oil cloves, of about the mean refractive index of the mineral (1,563 D. light at 60 Fahr.), it is almost invisible in monochromatic yellow light, but may be located between crossed Nicols. In ordinary lamp light or daylight it is more readily observed. By racking back the microscope from the focus the image fades away in a reddish-brown light, and racking forward in a sky-blue light.

The refractive index of the mineral is about as follows in lights of different refrangibility:—

Red	1.562
Yellow	1.563
Green	1.571
Blue	1.582

These figures were obtained by mixing oils of cassia and cloves till the mineral showed the Becke effect, when immersed therein, alternately higher and lower after rotation through 90, the polariser being in the axis of the instrument. The refractive index of the oil in the particular light was then determined on the refractometer, using combined glasses, or the gelatine films employed for near approaches to monochromatic light in color photography. The same glasses or films were used over the eye-piece of the microscope in making the observations. The results are given as near approximations to the truth. They were obtained in sunlight concentrated by an achromatic condenser N.A. 0.2 from a plain black glass reflector. The observations were quickly made before the sunlight could raise the temperature of the oil. The red light proved most difficult. There may be an error of one of two units in the third decimals, especially at the ends of the spectrum.

Changes After Grinding.

It may be here noted that kaolinite (contained in china clay) undergoes a curious change by grinding. The refractive index falls from about 1.563 to about 1.52 for D. light as it is higher than 1.515 and lower than 1.522. This change was observed in trying to make an artificial clay by grinding well-crystallised kaolinite in an agate mortar for the purpose of studying plasticity. It was found that the fine powder no longer gave a good ultramarine in oil of 1.563 and only a pale color in oil of 1.52, but oil of the color well in a mixture of ethyl cinnamate and olive oil about that refractive index, or, solution of mercury-potassium-iodide, must be employed. Not only does the mineral fall in refractive index, but it seems to become isotropic even when examined in sunlight between crossed Nicols, though a doubtful reaction is got from the scales when seen edge on.

Ultramarine.

That the lower refractive index is not due to the minuteness of the particles is certain, because, when china clay is suspended in water until the coarser part has settled, it is found that the clay remaining in suspension is fine enough to pass through filter paper has exactly the same refractive index and gives as good an ultramarine as the coarser part when dark ground illumination is employed.

As Paper Fibre Adherent.

When china clay is viewed by dark ground illumination and mounted in a suitable liquid, the blue color may be no longer discernible, on account of the white light reflected from foreign matter. In a sample of paper known to contain 30 per cent. of china clay, the mineral could be detected when the paper was immersed in oil of 1.563. So obstinately does the clay adhere to the fibre that it cannot be washed out after teasing in water. After boiling in water containing some caustic potash, a rough separation of the greater part of the fibre can be effected by teasing. The residual clay then shows the typical color in suitable oil on dark ground illumination. It is further probable that the alkali removes some of the size used in the preparation of the paper, and cleans the surfaces of the particles of the clay.—China Clay Trade Review.

*Extract from an article by Mr. Allan B. Dick on "Some of the Optical Properties of China Clay" in the Government Handbook of Practical Geology.

U. S. TRANSPORTATION CONDITIONS.

Discussion of the effect of the forty per cent. increase in freight rates granted to the railroads of the nation by the Interstate Commerce Commission was the most important feature of the general paper market here. The concensus of opinion was that the freight rate increase will add to the costs of production and distribution, with the producer, jobber, dealer and consumer sharing the additional expenses.

That the cost of producing newsprint paper will be increased by $3 per ton, is the opinion of Philip T. Dodge, President of the International Paper Company.

"It requires about four tons of raw material to manufacture one ton of paper," said Mr. Dodge, "and the increased cost of shipping supplies not only to the freighting of the finished product but to the shipping of raw materials to the mills."

There were strong, steady and weak spots in the general paper market. The best demand and strongest tone were evident in the markets for book paper, kraft, bonds, ledger, newsprint and pulp and slightly higher prices have been established. The rag, bagging and rope markets continued very weak with further price declines being noted on all grades.

Dealers here have expressed the belief that there will be a big buying movement in an endeavor by many consumers to secure as much paper as possible before the increased freight rates go into effect.

The railroads, with the exception of the Pennsylvania Lines, continue to show steady improvement, although there is still some congestion at the terminal and switching points. With increased revenue, however, it is believed that the railroads will be in a better position to settle labor difficulties, obtain new equipment and make necessary repairs and improvements, all of which will make for better transportation facilities. And with the coming of more nearly normal shipping conditions business generally will improve.

MADE FIRST PULP AT BATHURST IN 1915

The Bathurst Lumber Company Limited, was organized in 1907. The capital stock is five million dollars of which three millions have been issued. It was primarily purely a lumber company, but in 1915 it began the manufacture of pulp and now turns out over one hundred tons of sulphate and sulphite pulp per day. A paper mill which will carry the manufacturing process a step further is now in contemplation and may become a reality in the near future.—(The Busy East).

The Import of Paper into the West Indies and British Guiana

Trade Commissioner E. H. S. Flood.

Barbadoes, June 8, 1920.—From time to time inquiries have been made by Canadian firms for information in regard to the paper trade in the West Indies and British Guiana. I have therefore prepared a memorandum dealing with this matter, and have given statistics showing the imports for the pre-war year 1913 and the ensuing years to 1918 from the various colonies, with the exception of Grenada and the Leeward Islands, where the figures for 1918 are not yet available. The statistics show the value of the import of paper of all kinds, but in this connection it is somewhat unfortunate that the quantities are not available, as all paper imported into these colonies is either free under the preference or subject to an advalorem duty, and the quantities are not given in the blue-books.

In 1913 the value of the total import of paper—including printing, writing, etc.—was £99,326, nearly half of which was credited to the United Kingdom. The value credited to Canada and the United States was £2,908 and £24,321 respectively, and the amount to other countries being about the same as that from the United States. It will be seen that the total import of paper from "other countries" in 1913 was £24,533, which was nearly one-quarter in value of the total supply. The bulk of this paper came from Europe, the value from Holland being about £12,000, and from Germany £6,000, and France next in order. During the period of the war Holland continued to supply a certain amount of paper, but Germany dropped out entirely, except a small amount in 1914.

In the last year for which there are available statistics, that is 1918, the value of the import had about doubled, being £198,360. The value credited to the United Kingdom was about the same as in 1913, but as paper up to that time had increased to over double the value, this would indicate that less paper had been imported into the West Indies for that year, and that the quantity from the United Kingdom had dropped about one-half. The increased imports were from the United States, valuing £120,793. There was an increase also from Canada, the value of the total import being £10,050, which would indicate that Canada had also sent more paper irrespective of the price to the West Indies. In this year the total import under "other countries" was £16,844, out of the total import of £198,360, the countries of origin being for the most part France and Holland.

In will be seen that in Trinidad, the Windward and the Leeward Islands, all paper is included under one head, without being divided into printing, writing, etc., and that the same classification is adopted in Barbadoes, with the exception that in this island "manufactures of paper" are classified separately, which is, however, only a small item. In the colonies of Jamaica and British Guiana, however, the imports are divided into "printing," "writing," and "other sorts of paper," which gives exporters information of a more definite character in regard to the trade.

In 1913 printing paper was sold here at 2½ to 3 cents per pound, and during the first two years of the war there was only a comparatively slight advance in the price of about 4 cents. This continued to the middle of 1917. A steady advance took place in 1918 and

1913.

	United Kingdom £	United States £	Canada £	Other Countries £	Total £
Jamaica	18,358	16,047	530	7,008	41,943
Barbadoes	2,609	1,413	355	3,726	
				633	8,736
Trinidad	9,925	2,989	1,161	5,560	19,635
British Guiana	12,611	1,849	547	5,878	20,885
Leeward Islands	1,792	1,509	249	1,121	4,671
Grenada	929	281	50	250	1,510
St. Vincent	843	107		173	1,123
St. Lucia	397	126	16	284	823
	47,464	24,321	2,908	24,533	99,326

1918.

	United Kingdom £	United States £	Canada £	Other Countries £	Total £
Jamaica	10,387	29,266	1,339	2,567	43,559
Barbadoes	5,743	11,409	1,976	1,407	
				989	21,254
Trinidad	12,596	44,111	4,130	1,552	62,389
British Guiana	18,045	27,531	1,162	7,728	54,466
Leeward Islands	819	5,384	917	2,112	9,232
Grenada	929	281	209	38	3,134
St. Vincent	727	239	101	159	1,226
St. Lucia	1,170	1,152	216	292	2,380

continued to rise, and to-day the price of newsprint is at the abnormal figure of 18 cents per pound, owing to the difficulties of transportation and the general shortage of this commodity.

Jamaica.
1918.

	Enumerated £	Writing Paper £	Printing Paper £
United Kingdom	5,861	2,776	1,750
United States	12,623	4,343	12,300
Canada	534	805	
Spain	2,032		
Other countries ...	501	34	
	21,551	7,958	14,050

Trinidad.
1918.

United Kingdom	£12,596
Canada	4,130
United States	44,111
Holland	867
France	355
Other countries	330
	£62,389

Barbados.
1918.

	Paper	Paper Manufactures
United Kingdom	£ 5,743	£265
United States	11,409	413
Canada	1,976	
France		249
Other countries	1,407	62
	£20,535	£989

Grenada.
1918.

United Kingdom	£1,186
United States	1,701
Canada	209
France	38
	£3,134

St. Lucia.
1918.

United Kingdom	£1,170
United States	1,152
Canada	216
Other countries	292
	£2,830

British Guiana.
1918.

	Printing Paper £	Other $
United Kingdom	3,797	82,816
United States	22,580	109,572
Canada		5,581
Holland		13,724
France		15,408
Other countries		7,962
	£26,377	$235,063

St. Vincent.
1917.

	Paper and manufacturers of paper	Printing Paper
United Kingdom	£ 568	£30
United States	239	
Canada	101	
Other countries	104	
	£1,012	£30

Leeward Islands.
1917.

United Kingdom	£ 819
United States	5,384
Canada	917
Other countries	2,912
	£9,232

SAFETY MEN TO MEET IN MILWAUKEE.

The annual convention of the National Safety Council will be held in Milwaukee during the week of September 27th. Following is the interesting program of the Paper and Pulp Section, of which Mr. G. W. Dickson, of the Riordon Co. is vice-chairman.

Wednesday Morning.
September 29, 9.30 o'clock.

1. The Safety Game as it is Played in One Plant.
   a. The Man on the Job.
      Mike Corcoran, Kimberly-Clark Co.
   b. The Foreman.
      Henry Bongers, Kimberly-Clark Co.
   c. The General Superintendent.
      Earnest Mahler, Kimberly-Clark Co.
   d. The Employment Secretary.
      Miss Mary Barker, Kimberly-Clark Co.
   e. The Safety Director.
      M. G. Hoyman, Kimberly-Clarke Co.

Thursday Morning.
September 30, 9.30 o'clock.

1. Paper Mill Records.
   R. H. Guerrant, Safety Engineer, National Safety Council.
2. What is Being Done in the Pulp and Paper Industry to Bring Education Within the Reach of Every Employee.
   J. N. Stephenson, Editor, Canadian Pulp and Paper Magazine, Quebec, Canada.
3. The Economic Aspects of Safety Work and Kindred Efforts.
   H. T. Carruth, General Manager, Mead Paper and Pulp Co., Chillicothe, Ohio.

SPAIN TO CANCEL DUTY ON PAPER.

Import duties on news print paper and paper for books will be abolished by a royal decree which the Minister of Finance of Spain has decided to issue. The Minister expressed the opinion that the measure would have little influence on the price of paper, but said he consented to the experiment in order to meet the demands of publishers and authors.

To hear patiently and answer precisely are the great perfections of conversation.—Disraeli.

Sweeping the Air and Water Out of Dryers on Paper Machines

By F. C. Farnsworth.

It is needless to say that air and water in dryers have been the cause of a loss of millions of dollars annually in paper mills, because the accumulation of air and water in dryers causes breakage of paper, cockling of paper and numerous other troubles which tend to prevent the maximum production of paper from a drying standpoint.

The accumulation of air and water in dryers has led to the installing of complicated and expensive steam control devices and hundreds of various types of steam traps and expensive experimental piping layouts for paper machines that are unnecessary with the Farnsworth method of heating paper machine dryers.

The Farnsworth method is simple engineering sense combined with simplicity in apparatus and piping and has been tried and found true in many of the large paper mills in the United States, Canada and Europe.

With the Farnsworth Differential System relieving the return line header, water and air in the dryer are forced through the syphon or buckets out into the return line header, because the steam in this return line header is utilized to heat a few dryers of the wet end section. Naturally we produce the desired reduction in pressure between the steam and return header necessary to force the water out of the dryer, or in other words, we might say that the dryer becomes a part of the steam line necessary to supply 25 per cent. of the dryers on the wet end of the paper machine .

The steam must pass from the main steam header through the dryers out through the syphon pipes or buckets into the main return line header through a steam separator which separates the steam from the water; the steam is then passed over into the dryers of the wet and at a reduced pressure and temperature.

A high velocity of steam pouring out of the syphon pipe into the main return line header carries with it all water and all air that would otherwise accumulate in the dryer, thus providing a high circulation of dry steam in the dryers. It is, however, understood that the steam must be condensed in the dryer to throw off the latent heat, but after it has been condensed it cannot possibly lie in the dryers with the Farnsworth system, as shown in Figure 1.

When the dryers are filled with steam naturally water accumulates in the bottom and must be lifted to the centre of the dryer so that it will flow into the return line header. It is well understood that more steam is used on the wet end of a paper machine than on the dry end. Hence the syphon pipe of the dryers on the wet end is required to handle more water than those on the dry end, with the common result that steam passes through the syphon pipes of the dryers on the dry end of the paper machine and out into the main return line header, building up a pressure of steam in the return line header which is practically equal to the steam pressure on the steam header.

With this condition there is no differential pressure between the steam header and the return header. It is, therefore, not possible for the water in the bottom of the dryer to rise through the syphon pipe which ranges anywhere from 15 to 30 inches in height; for

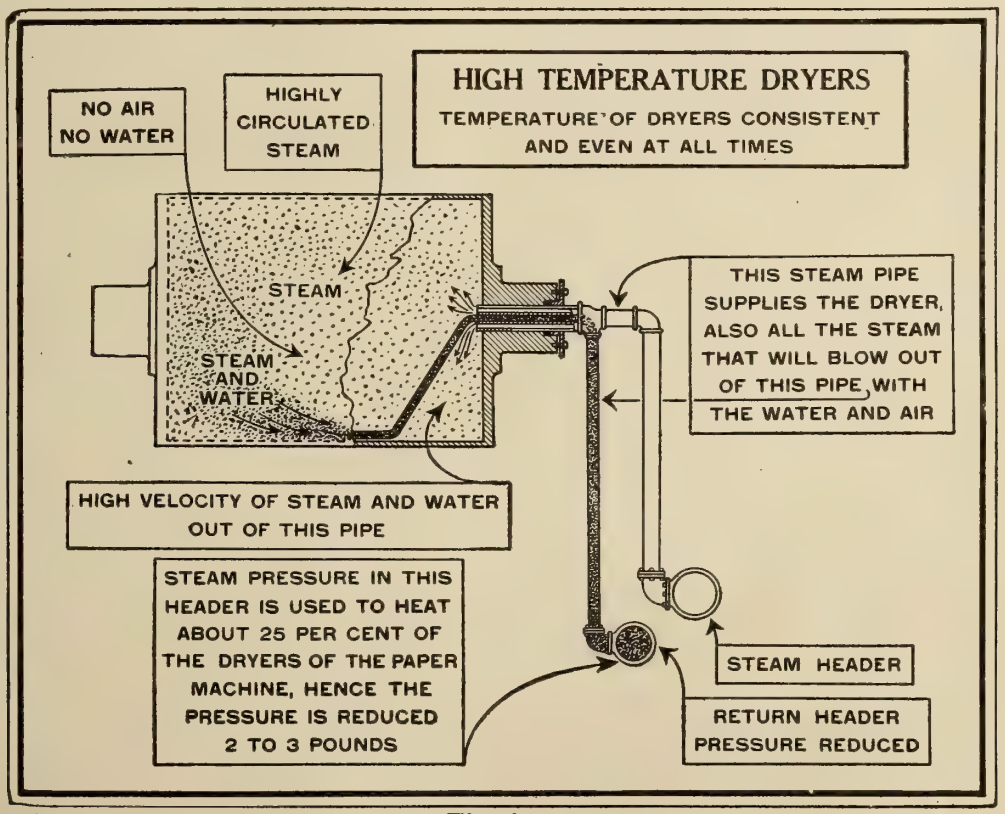


Fig. 1.

this reason, a difference of at least ½ a pound pressure is necessary to overcome a static head of the syphon pipe between the bottom of the dryer and the center of the trunnion.

Hence the water cannot be lifted out of the dryers without sufficient differential or reduction in pressure on the main return line header to cause the pressure in the dryers to force the water out of the syphon pipe against the static head. In other words, water cannot be syphoned out of the dryer when the same pressure is maintained on the return header, until the dryer first fills with water to the center and starts the syphon. Then only are the dryers entirely emptied, which causes the uneven drying conditions; these uneven conditions are verified by the uneven slugs of

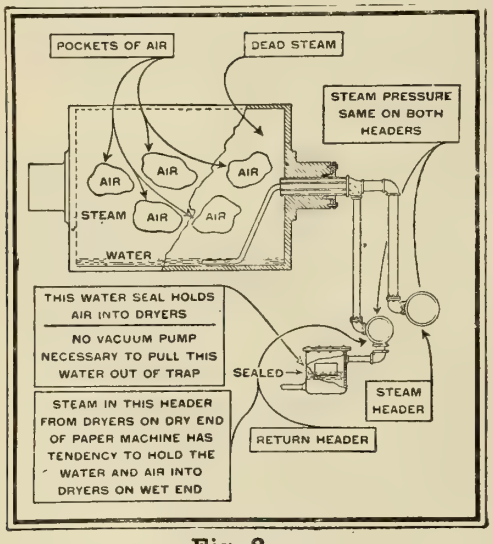


Fig. 2.

water coming from the paper machine which is drained by one or more traps connected to the one common return line header.

The cut, Figure 2, shows the old or the most common way of piping up dryers with a trap draining the main return line header. The water in this trap necessary to raise the float or bucket forms a seal and prevents getting out of the dryers of the paper machine any air excepting that which might leak out through defective packing or poorly packed stuffing boxes of the dryers.

With the piping and stuffing boxes tight as they should be, the seal of water in this trap draining the the header with the type of job shown in Figure 2, there surely will be sluggish conditions in the dryers for three reasons:

1. The steam stands dead because the only steam admitted into the dryers is that which is necessary to replace that what has been condensed.
2. No air can escape through the water seal in the trap, (must go out through air vent in dryer head.—Ed.)
3. The water leaves the dryers in slugs as explained heretofore.

If the dryers are equipped with buckets instead of syphons and a trap of any type is used to drain the main return line i.e. header as shown in Figure 2, the air will remain in the dryers. This is due to the seal of water in the trap and also to the fact that water is not relieved freely from the dryers since, with the same pressure on the return line header as on the steam header, the water flows out of the dryer due to the static head only. There is no pressure difference to increase this velocity for the same reason as explained heretofore, that the pressure on the return line header has been built up through the dryers on the dry end of the paper machine.

A dryer equipped with a small trap is shown in Figure 3. Note the seal of water in the trap necessary to lift the float or bucket. With this construction there is sure to be the same pressure on the syphon pipe up to the trap as is on the steam header. With the same pressure on each of these pipes it is quite impossible to get a free flow of water up through the syphon pipe, for the reason that water must accumulate in the bottom of the dryer until the end of the syphon pipe is sealed. Only when the pressure has reduced enough between the end of the syphon pipe and the trap to cause the proper differential, and with sufficient pressure on the dryer, can water be forced out of the dryer with this system.

It is absolutely impossible to get any air out of the dryers owing to the seal of water in the small trap. Furthermore, there is the disadvantage of maintenance of a number of small traps and the possibility of leakage of steam through these small traps.

Many paper mills are using a vacuum pump to drain the water from these small traps, while in the majority of cases the water would flow from the trap by gravity. Some paper mills have the opinion that the vacuum pump attached to the small traps effects a vacuum in the dryers. This could not be done because first of all, a vacuum pump will not pull a vacuum when any vapor is coming through, and secondly, the seal of water in the small trap to raise the float control to open the valve absolutely prevents any vacuum within the dryer; in other words, there is a tightly closed valve between the paper machine dryer and the vacuum pump, only opened as suf-

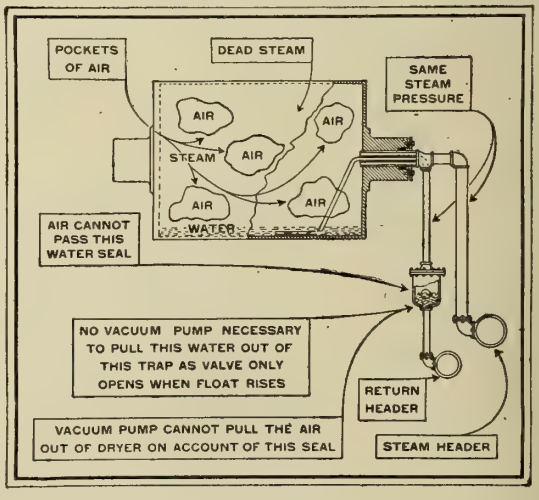


Fig. 3.

ficient water rises in the small trap to operate the float that opens the valve.

Furthermore, in most cases where a vacuum is used a cold water spray is used in the suction line to cool down the high temperature condensate discharged from the small traps. This condensing spray is what creates a vacuum in the majority of cases rather than the vacuum pump, and the enormous amount of cold water used cools down the condensate and causes a big waste of heat, thus a loss in fuel.

With the above mentioned system a higher back pressure on the engines, and some additional live steam is usually necessary to get the required temperature and yet does not produce the desired results.

A PAPER CHASE, NOT A JOY-RIDE.

Describing the Imperial Press Conference as more of a paper-chase than a joy-ride, H. F. Gadsby, who writes satirical articles from Ottawa for the Toronto **Saturday Night**, thus relates some of his encounters with the delegates:

The latest and greatest bond of Empire, if I am to believe the Imperial Press Conference, also the strongest, would be of newsprint paper.

It was my good luck to fall in with an Irish journalist from London, and being Irish he had that in his bones which made him a frank critic of his fellows. The Irish newspaper man, I may say, is the saving leaven of the British press—if he can't get the truth out any other way he blurts it. When I met him on the Chateau terrace he was gazing hungrily at the Laurentian hills, bearded to the chin with goodly trees.

"Pulpwood?" he asked, jerking his thum toward the blue horizon.

"No," I said. "Wooden legs. We can make more money out of 'em that way."

I remembered the last Imperial Press Conference some seven years ago, and the new lake that was formed in North Ontario when the visitors allowed their mouths to water at the sight of our spruce forests, so I hastened to steer my Irish friend away from the subject. But, alas, he would not be steered—his nose turned ever in the direction of newsprint.

"We have no mission," he explained, "except friendliness. We would develop your resources and our bank accounts. Our pilgrimage combines pleasure and pulpwood. If pleasure stands in our way we will let it go and take the pulpwood instead. I heard somebody the other day call this little excursion a joy ride. A joy ride it may be, but it is also a paper chase."

"Too late!" I sighed. "It's the tail of the hunt. You should have got here sooner. Three-quarters of the money in the Canadian pulp business is American. That's why we have got to go short ourselves."

"This," said my Irish friend, "must be remedied. You speak a great deal of the ties of Empire. You must translate your words into deeds and give us more newsprint. The solidarity of the Empire is in your hands—pulpwood. You have the greatest available supply in the world. The Lion and the Lion's Whelps cry for it—we must be fed."

My Irish friend was getting his metaphors mixed—you do not feed lions on pulpwood—but I could see his drift. Just a little while before a hard-bitten Australian had complained to me that four hundred and fifty dollars a ton for British Columbia newsprint laid down at Melbourne was a bit thick. (The $450-a-ton paper came from Sweden not from British Columbia.)

"You have," continued my Irish friend, "the desire of our hearts, plenty of pulpwood and easy to get at. As citizens of the Empire you must admit that we should share this precious heritage in common, giving the outsiders only what is left. If you love the Empire you must supply the pulpwood out of which the edifice of inter-imperial good will is to be built. There is nothing," he added, "that will compare with your spruce as the raw material of newsprint paper. The colah boolah tree of Australia is not fibrous enough for the purpose, while the wamba-wamba tree of South Africa, which is little better, does not cohere sufficiently. You have the cream of the market and you're damned selfish about it."

"If you were real patriots now"—this with a twinkle in his eye—"if you really want to bring the Empire together, you would do something about it—produce a pulp tree, for example, that would grow about ten times as fast as the present sort does. It's the one thing that will save the Empire—Canadian pulpwood of commercial value at, say, two years' growth.

"We can do better than that," I challenged, "We can produce a print paper tree. All you'll have to do is to back your spindle into the bush and unwind the stuff like birch bark. To go a little further, we might have two kinds of paper trees—Liberal and Conservative—the sentiments being ingrained, as it were. This would save setting up in the office and would do away with a great deal of expense if we could get the Typographical Union to agree to it. The paper tree, tapped at the proper season, would also supply printers' ink, and thus solve another problem."

"You're spoofing me," said my Irish friend, and sure enough I was. Not having an English sense of humor he saw it at once.

"As a binder of Empire," I explained, "I yield to none, but I suppose you have a job printing end to your newspaper?"

"What has that to do with it?"

"Well, as a job printer, you ought to know that if you bind too tight the binding rips. I'm in favor of the loose leaf system—when you can slip 'em in and out."

"The disadvantage of that," commented my Irish friend, "is that once they slip out you can't slip 'em in again. They go blowing around."

"True!" I agreed sadly. "Look at the United States of America. They're blowing yet."

FORESTS BETTER THAN FIFTY YEARS AGO.

If one were looking for evidence of what reforestation can accomplish in perpetuating the timber supplies against the drain of continued exploitation, he would probably be satisfied in going to Sweden, where, notwithstanding unabated encroachment on the timber, for commercial purposes, in their own manufactures and for export, the forests are in better condition today than they were fifty years ago.

In Sweden they have the greatest match factories in the world, and they are conspicuous in the manufacture of pulp and paper. They are also exporters of lumber to a very considerable extent. The forests being one of their greatest assets, they have given exceptional attention to their preservation and have developed a very intelligent and effective system of reforestation. Dr. W. E. Enright, of Westmount, Que., who has just returned from Scandinavia, observed that in one small province of Sweden alone twelve or thirteen times as many trees had been planted as in the whole of Canada. Anyone cutting timber in Sweden must replant the area cut over, this practice being required by law. The result is, that although Sweden cuts and exports a great amount of timber, the forests are not only preserved but are in better condition today than they have ever been since modern encroachments have been made upon them.

BEVERIDGE IN OLD VIRGINIA.

James Beveridge, one of the best known authorities on pulp and paper manufacture, who has specialized in alkaline processes, is now general manager of the Hummel-Ross Fibre Corporation, Hopewell, Va. This concern manufactures kraft pulp and paper.

Technical Section

REVIEW OF RECENT LITERATURE

A-3.—The proximate compositions of Korean hemp and ramie. Yoshisuke Uyeda, Univ. of Cal., Berkeley, Cal., J. Ind. & Eng. Chem., **12,** 573-6, (1920). The proximate compounds of Korean hemp and ramie were determined by modifications of the analytical methods proposed by Dore. (See J. Ind. & Eng. Chem. **11,** 556, 1920) and were found to be:

Sample	Hemp	Ramie
Loss on drying	8.83%	10.50%
Benzene extract	1.92	0.86
Alcohol extract	1.20	0.75
Water-soluble	4.50	3.79
Soluble in 1% NaOH	18.53	17.27
Cellulose	62.42	65.88
Lignin	3.32	0.66
Total	100.71	99.71

The analytical results are discussed from the textile chem. standpoint for the benefit of future investigations. A. P.-C.

A-3.—Possibilities of African grasses in paper manufacture. Clarence J. West, Arthur D. Little, Inc. Paper, 10, 28, (June 23, 1920). A condensed analysis of manu grasses growing in Africa, summarizing their possibilities in the manufacture of paper, based on **Industries Bulletin Series,** No. 7, by C. F. Juritz, Agricultural Research Chemist of the Union of S. Africa. A. P.-C.

A-3.—New papermaking fibers. Papier, **23,** 15-7, (Jan. 1920). Notes on the early attempts to make pulp from pine-needles and on the advantages of this raw material, and on vine-shoots, Algerian mallow, and French colonial plants and trees as sources of pulp.—A. P.-C.

A-3.—Ramie and textile nettles. Ch. Groud. Papier, **23,** 73-6, (April 1920). Discussion of the possibility and advisability of utilizing native species and of introducing foreign species into France—A. P.-C.

A-5; D-0.—Decay of woodpulp. A chemical investigation of sound and infected groundwood pulp. S. A. Mahood and D. E. Cable. Paper, **25,** 1149-50, (1920). Comparative analyses of sound and infected ground wood are given. The methods used were those of Schorger (J. Ind. & Eng. Chem., **9,** 556, 1917), except in the case of lignin which was determined by the method of Ost and Wilkening ("Researches on Cellulose" Cross & Bevan, Vol. III, (1905-10) p. 39). On an equal-wt. basis the difference is small, the greatest being in cellulose and lignin contents; but the results do not show the loss of wood due to decay. Chemical decomposition of the pulp had apparently not progressed as far as the physical condition of the pulp might indicate.—A. P.-C.

A-14; K-0.—Causes and action of dendritic growths in paper. James Strachan, F.R.M.S. Paper, **26,** 890,-894, (1920). The dendrite starts with a nucleus of bronze or brass embedded in a felted sheet of cellulose fibers containing other substances comprising paper. The nucleus is dissolved by H_2SO_4 formed from $Al_2(SO_4)_3$, etc., with formation of $CuSO_4$. This creeps along the moist cellulose fibers by capillary force. The $CuSO_4$ is reduced to CuS by H and oxidizable matter. The CuS is reoxidized to $CuSO_4$ by atmospheric 0, and thus by alternate oxidation and reduction insoluble. Cu compounds may be deposited along the fibers in the form of a dendritic growth containing CuS pseudomorphous with $CuSO_4$. The final action in very old dendrites is oxidation resulting in the formation, with complete solution of the metallic nucleus, of a basic $CuSO_4$. The dendrite may be tested for the presence of CuS by applying a drop of a solution of the double cyanide of K and Cd, containing a slight excess of KCN, the CuS going into solutions and CdS precipitating out.—A. P.-C.

A-14. The Webb paper tester. A New instrument for testing corrugated fibre board. J. D. Malcolmson, Mellon Institute of Industrial Research. J. Ind. and Eng. Chem., **11,** 133-8, (1919). A comparison of the Mullen and Webb testers, tried out on several hundred samples of corrugated board, representing practically all the varieties known to the trade. The tests showed that the Webb tester is correctly designed and constructed from a mechanical point of view, and that is gives a more accurate measurement of the value of paper products (especially corrugated fibre board) than is possible by the use of the Mullen tester. In addition to the puncture test, the Webb machine may be used for tensile tests, elongation tests and compression tests. The tensile test, especially when "across the grain," is an important index of the value of a fibre box as a shipping container. This "across the grain" value may also be found more quickly by a puncture test, using a "wedge" plunger. The pocket-size model makes it possible to test corrugated boxes under conditions which are impossible at present. Besides corrugated products, the Webb machine can be used for testing many other flat substances, such as paper, cardboard, "solid fibre" board, gummed tape, fabrics, etc.—A.P.-C.

B-4. A new textile fibre. Z angew. Chem., June 14, 1918; J. Ind. and En. Chem., **11,** 244, (1919). A. manufacturing company in Chemnitz has succeeded in producing a useful substitute for cotton and jute from pine tree needles. These needles are treated chemically and then prepared by machinery. The finished material can be spun on any cotton spinnning machine. The spun yarn breaks less easily than paper yarn and is also more elastic. This company also manufactures a very serviceable watertight and pliable substitute for shoe leather.—A.P.-C.

B-9.—The Alaskan forests. W. B. Greeley, chief of Forest Service. Paper, **26,** 831-2, (1920). A description of the large timber resources of Alaska and of the advantages of establishing pulp and paper mills there. A. P.-C.

D-3, 4.—Cutting grinding power costs with pulp load regulator. Paper, **26,** 11-2, (June 16, 1920). Brief description of the General Electric Regulator for maintaining a constant load on motor driven grinders. It consists of a torque motor, series transformer, and piston type balanced throttle valve, and is installed in the main water line to the grinder.—A. P.-C.

D-4. Groundwod Pulp. Factors influencing the quality and yield. Bois et Résineux; Papier, **23,** 1-4, (Jan. 1920). Summary of results obtained at the F.P.L., Madison, Wis., in the course of various studies on groundwood. The various factors are : 1) sharpness of the stone; 2) pressure on the wood in the pockets; 3) velocity of the stone; 4) temperature during grinding; 5) condition of the wood; 6) variety of the wood. 1) The sharper the stone the greater the output and the coarser the fiber. 2) The greater the pressure the greater the power required to drive the grinder, the greater the output, the greater the yield per cord, and the less the power consumed per ton of pulp. Above 80 lb. per sq. in. the increase in yield and output is more than offset by the falling off in quality. 3) The output increases with increase in velocity. 4) High temperature gives a browner pulp. The relative advantages of cold and hot grinding have not been satisfactorily established. 5) Fast growing woods are more easily ground but give a coarser and weaker fiber than slower growing woods. Dry wood requires more power and gives higher colored pulp than green wood. If the wood is steamed previous to grinding, the lower the steam pressure, the higher the yield and the whiter the stock. 6) The advantages of the different varieties of spruce and pine are discussed.—A. P.-C.

E-4.—What liquefied sulfur dioxide is. Guy C. Howard. Makin' Paper; Paper, **25,** 1164, (1920). A brief description of the method of preparing liquefied SO_2 from smelter gases—A. P.-C.

F-4.—Electrolytic recovery of soda and by-products in the manufacture of pulp. Fr. Patent No. 500,454, Société dite Cellulose et Papiers, France, Dec. 17, 1919. Papier, **23,** 101-2, (May 1920). The NaOH is recovered by concentrating the liquor and passing an electro current through the solution. Na is amalgamated with the mercury cathode, while various organic compounds separate at the anode which is so constructed that these compounds may be removed and recovered without interrupting electrolysis. The electrodes are separated by a porous diaphragm. In the case of continuous cooking with a stabilized liquor, electrolysis is conducted concurrently with the cooking, and the cathode is of Fe or other suitable metal, so that the NaOH is not removed from the liquor. The organic compounds which separate at the anode are periodically removed. The loss of NaOH is only about one-third to one-half that by the usual process of recovery.—A. P.-C.

G-11.—The theory of decantation applied to save-alls. J. Rigaud-Morin, Ecole Française de Papeterie de Grenobale. Papeterie, **42,** 482-91, (June 10 1920). A brief mathematical discussion of the theory of decantation showing that the movement of a particle of pulp in the save-all is the same as that of a projectile travelling in a medium the resistance of which is proportional to the speed of the projectile.—A. P.-C.

H-1.—The rapid determination of hypochlorites. L'Industrie Chimique; Papier, **23,** 104-5, (May 1920). The chemical constitution of hypochlorites is briefly discussed to show that the general formula is XOCl+ XCl, or X_2OCl_2. The Mueller apparatus for the determination of the available Cl evolved on treatment with H_2O_2 is described, together with the mode of operation.—A. P.-C.

K-4.—A new rag cleanser. D.R.P. No. 314,569, class 55a, Oct. 20, 1918, Jos. Morsche, Bocholt, Westphalia. Paper, **25** 1164, (1920). The apparatus consists of a conical centrifugal drum revolving within a casing and employing a current of air for the removal of the impurities.—A. P.-C.

K-0.—The manufacture of paper in Japan. Paper, **26,** 836, 840, 846, (1920). A description of the various kinds of papers manufactured in Japan together with notes on the method of manufacturing some of them. A. P.-C.

K-7.—Notes on the defibering of rags. A. Noel. Papeterie, **42,** 501, (June 10, 1920). The work must be done according to the nature of the rags and in such a manner that the fibers will be separated and gradually shortened, but not cut up, so that they may be properly beaten afterwards. It may be determined, if the cylinder is properly placed by putting a piece of sheet Zn over the bedplate and letting down the cylinder, thus showing if it bears on the whole surface of the bedplate.—A. P.-C.

K-7—Notes on the beating of pulp. J. G. Varlot, Papermaking engineer. Bull. Synd. Fab. Papier et Carton, No. 3, 40-4, (Feb. 1, 1920). The quality of the beaten pulp depends entirely on the pressure of the cylinder per unit area of the working surface of the bedplate, irrespective of the number of knives of the latter which come in contact with those of the cylinder. Hence to obtain a given quality in a given time it is best to use a bedplate with as small a working surface as possible to reduce the power consumption; i.e., to increase the output per H.P. hr. For a 1200 kg. cylinder (about 60 kg. beater) the minimum working surface allowable is about 200 sq. cm.—A. P.-C.

K-7.—Three-compartment beater. Papier fab.; Papeterie, **42,** 500. (June 10, 1920). The length of a beater of given width is limited owing to the inertia of the stock which slows down the speed of circulation. This can be overcome by building the beater in 3 compartments, with a propeller at each end, so that the stock is forced in one direction in the middle compartment and back in the 2 outside ones.—A. P.-C.

K-12.—Kraft paper: its speed of manufacture. Papier, **23,** 90-1, (April 1920). Description of the treatment to which kraft pulp must be subjected and of a machine which can make kraft paper at the rate of 835-900 ft. per mim., according to J. Corcoran. Dom Engin'r'g Co. The pulp is passed through a shredder to break it up into pieces 6-7 cm. sq., and then through a Lannoye pulper. It is sent to a mixing tank with a propeller-shaped agitator at each end, and then to a beater to mix in the color. Suction rolls must be used instead of ordinary rolls, and the sheet must be carried automatically to the driers and calenders. A. P.-C.

K-12.—Making and using felts. E. N. Huyck, of F. C. Huyck & Sons, Paper, 11-5, 34, (June 23, 1920). A description of the difficulties the felt manufactures must meet in keeping up with developments in machine design and high speeds, with suggestions for the care of felts and jackets.—A. P.-C.

K-12.—Regulation of reducing valves to obtain uniform drying : the Arca regulator. Paper, **26,** 875-6, (1920). A description of the Arca regulator for automatic control of the pressure of the steam supplier to the driers. Curves are given to show the performance of the regulator.—A. P.-C.

K-12.—Practical training of the papermaker. How to become a machine tender. E. Arnould. Papier, **23,** 7-8, (Jan. 1920). A brief description of what the machine tender should know about the manufacture of paper.—A. P.-C.

INSTALLATION OF NEW PAPER-MAKING MACHINES IN THE UNITED STATES.

Mr. Emmet H. Naylor, secretary of the Writing Paper Manufacturers' Association, has compiled the following data based on information received from all the principal paper machine manufacturing companies in this country relative to the installation and production of new machines in the paper industry in the United States.

Quoting from his conclusions: "If the present market demand is indicative of a new normal rate of increase in the consumption of paper, then in general there should not be an over-production due to these new machines. If, however, the paper consumption in the country does not keep up to its current level, there will be an over-production. We are inclined to believe that the former conclusion may come nearer our future experience, namely, that in the paper industry in general the installation of these machines may not mean any over-production, as business in this country has grown rapidly in the last five years and as demand for paper to meet the increasing various uses should remain normally strong."

Even if the installation of these new machines should result in over-production, it would be only in specific cases and would result, at all events, in the relief of the present newsprint shortage, either directly, or by the utilization of these machines for the production of other grades.

Installation of New Paper Making Machines in the United States 1920-1921.

	— 1920 —		— 1921 —		— Total —	
Grade:	Number of Machines.	Capacity in 24 hours.	No. of Machines.	Capacity in 24 hours.	No. of Machines.	Capacity in 24 hours.
News	9	516	7	420	16	936
Book	13	515	7	268	20	783
Board	16	1,317	10	890	26	2,207
Wrapping	4	115	1	30	5	145
Writing	1	18	3	63	4	81
Tissue	11	210	5	70	16	280
Hanging	1	30	0	0	1	30
Roofing Felt	3	95	2	140	5	235
Blotting	0	0	1	40	1	40
Coating	1	25	0	0	1	25
Glassine	1	15	1	15	2	30
Greaseproof	1	25	0	0	1	25
Specialties	2	20	0	0	2	20
Total	63	2,901	37	1,936	100	4,837
Total width in inches	8,150		4,977		13,127	
Average width in inches	129		135		131	

TABLE No. 2.
Actual Production.

Grade:	1899.	1904.	1909.	1914.	1919.	Annual Capacity of New Machines.	Capacity Increase Based on 1919 Actual Production. %
News	569,212	912,822	1,175,554	1,313,284	1,374,517	280,800	20.4
Book	304,459	454,337	677,327	921,183	914,823	234,900	25.7
Board	394,746	559,711	883,088	1,291,805	1,950,037	662,100	33.9
Wrapping	535,252	644,291	763,067	911,029	869,631	43,500	5.0
Writing	112,707	146,832	198,213	247,728	343,762	24,300	7.1
Tissue	28,406	43,925	77,745	115,401	155,400	84,000	54.1
Hanging	54,330	62,606	92,158	96,527	92,136	9,000	9.8
Roofing Felt	96,915	145,024	225,824	243,908	281,962	70,500	25.0
All Other	72,201	137,148	123,732	129,182	208,093	42,000	20.2
Total	2,168,228	3,106,696	4,216,708	5,270,047	6,190,361	1,451,100	23.4

A NEW DAYLIGHT LAMP.

A new method of illumination, known as the Sheringham Light, under which colors may be examined and matched, is nearly similar to daylight, according to the London correspondent of the Journal of Industrial and Engineering Chemistry. It was demonstrated recently before the London Section of the Society of Chemical Industry, which was much impressed by its possibilities.

The basis of the light is an incandescent lamp, which has on its lower half a metal hemisphere which reflects the bulk of the rays upward against a large reflector on which there are concentric rings colored yellow, green and blue in proper proportions.

By a judicious selection of the colors in the reflector a light is obtained of which the spectrum is usually very similar to that of daylight, although the proportion of violet rays is somewhat less than is found in the rays from the sun. The reflection absorbs something like half of the light, but the system is considered as having great possibilities in certain directions.

PULP AND PAPER NEWS

According to information received at the head office of the Spanish River Pulp and Paper Mills, Limited, in Toronto, the new machine being installed at the Sturgeon Falls mill will be ready to start operation about January 1st. Some delay has been experienced in securing electrical equipment, but good progress is being made now. This machine will increase the output of the mill by about 50 tons of newsprint each day. It is expected that the annual statement of the company will be ready in a couple of weeks. The annual meeting will be held in September.

Mr. J. E. Greaves, editor of the Paper Maker, London, and Mrs. Greaves spent the week end in Montreal on their way homeward. They stopped at Three Rivers and will sail from Quebec.

Shortage of white paper is now being felt in Ontario Government circles and the provincial King's Printer is deeply embarrassed. Blue books and reports galore, which are printed by the thousands and require hundreds of tons of paper, are being held up. So serious is the shortage that contracts are being ignored and orders have gone out that white paper must be secured from any possible source. Priority was given to the Statutes of Ontario for 1920, of which 7,500 copies are printed. Each copy contains 826 pages and comprises 167 statutes placed on the book during the last session of the Ontario Legislature. It weighs approximately four pounds, so that about 150 tons of white paper were necessary for these volumes alone.

The Daily Warder and the Weekly Post of Lindsay, Ontario, will cease publication on September 1st and Lindsay will be served with one daily and one weekly in future, instead of two of each. The survivors are the evening Post, which is a daily and the Weekly Watchman-Warder. It has been announced that there has been no amalgamation, but an agreement between the publishers to drop the weekly edition of the Post and the Daily Warder. The reasons given for the dropping of the two papers are the big increase in the cost of newspaper production and the shortage and cost of newsprint.

Among the Empire press delegates who detached themselves from the party in order to investigate paper conditions in Canada was Thompson W. Leys of Auckland, New Zealand, who canvassed the Toronto paper dealers with a view to ascertaining the possibilities of Canadian paper shipments to his country.

The waste paper and rag stock business carried on by E. Pullan on Maud Street, Toronto, has been turned into a limited liability company with a capital stock of $500,000.

The Canadian Baptist Bookroom, 233 Church Street, Toronto, has been taken over by the American Baptist Publication Society and the Society will in future conduct a book store and Sunday school supply business on the premises. The editor of the Canadian Baptist and his staff will retain their rooms on the ground floor as formally. The church officials are left free to push the Canadian Baptist and the job printing department.

Announcement is made in Winnipeg of the incorporation of the Tribune Newspaper Company, with an authorized capital of $1,000,000. The chief object of the new concern is to take over the business of the Tribune Publishing Co., Ltd., with a capital of half a million dollars. The Tribune was recently bought by the Southams, of Hamilton, owners of the Hamilton Spectator, the Ottawa Citizen, the Calgary Herald and the Edmonton Journal.

The Peterboro Weekly Chronicle, a new weekly paper, is to be launched in that city soon. The new company is being backed principally by labor subscriptions and T. Tooms, M.P.P. is managing director. The first edition will be published about August 28th.

The name of the Lazier Paper Mills, Limited, has been changed by letters patent to that of the Belleville Paper Mills, Limited.

The Yarmouth Herald has just completed 87 years of publication, the paper having been established by the late A. Lawson on August 9th, 1833. It is the only paper in the Maritime Provinces that has been in existence that long, with one exception, and as far as can be ascertained is the only paper in the world that has been continued by father and son for so long a period.

The Riddell-Latchford timber enquiry will be resumed at Osgoode Hall next week when, it is understood, representatives of the Spanish River Lumber Co., will be heard. Hon. Howard Ferguson is at present busy preparing his reply to the charges that have been made against the conduct of his department under the old regime.

Premier Drury's plans, when carried out, promise to make of Kapuskasing a second Iroquois Falls. In the latter place the Abitibi Company owns the townsite and has brought into being a fine little modern town. It is the intention of the Ontario Government to make Kapuskasing a similar town. The Premier declined, in making the agreement with the Spruce Falls Pulp Company, to turn over control of the townsite. Government engineers will now lay out the townsite on modern lines and an ample supply of electrical power has already been provided for.

Mr. Henry C. Wilson, of Waterville, Kansas, who learned the printing trade on the Old Brooklyn Times in Ontario County, and who worked on the case in the Toronto Globe and the Colonist in Leader Lane some fifty years ago, was an interesting visitor to Toronto this week. He went to Kansas forty years ago and founded the Waterville Telegraph, of which he is still the proprietor.

Andrew D. Clarke, who for several months past has been editor of the Retail Merchants' Globe, has been promoted to be city editor of the Toronto Daily Globe. He is a well known newspaper man, having worked on all the Toronto morning papers and the London Advertiser, where he was news editor for about five years.

Mr. J. E. M. McAllister, of McAllister and Company, wholesale paper dealers, Winnipeg, was in Toronto this week calling on the paper trade.

The high prices for newsprint is sending subscription prices up. The Woodstock Sentinel Review has raised its rate from $4 to $7 a year; the Guelph Mercury and the Peterboro Examiner have each gone to $6 a year; all Alberta newspapers are now charging $8 a year by mail or $13 delivered by carrier boy and the Victoria Times is now $12 a year delivered.

The Department of Lands and Forests at Toronto have amalgamated the Woods and Forests Branch and the Forestry Branch, which latter branch took care of the fire ranging and matters pertaining to reforestation. The new organization has been placed under Mr. E. J. Zavitz, who is known as Provincial Forester. Mr. Zavitz is looking into questions relating to measurements, etc., with a view to introducing such improved methods as may be expedient in the public interest. Changes in the administration of the timber resources of the province are promised following the completion of the Royal Commission's enquiry.

Mr. C. F. Mansell, of the Toronto office of the Howard Smith Paper Company, has been re-appointed Grand Treasurer of the Sovereign Grand Priory of Canada, Knights Templar, which met recently in Calgary. Mr. Mansell has held office in the organization for many years and his appointment to the high office is looked upon as a tribute to his faithfulness and energy in the interests of the craft.

The Union Supply Co., Bridgewater, N.S., has bought a 7′ x 40′ barking drum, with conveyors and Quiller screens from the Western Engine Works Co. Our informant does not state whether this equipment is intended for the Nova Scotia Wood Pulp and Paper Co., Ltd., whose head office is at Bridgewater.

SAW GRASS PULP MILLS FOR FLORIDA.

Many attempts have been made in the past to manufacture paper on a commercial scale from various raw materials besides wood pulp and cotton rags, says the "Daily Mill Stock Reporter". The increasing consumption of paper and the decreasing supply of pulp wood is focusing the attention of experimenters to redouble their efforts toward finding suitable new raw material or materials and developing processes for making paper from them. The latest announcement along this line is that of the organization of two companies, one in Florida to manufacture paper from the native saw grass and one in Texas to make paper from cotton linters.

The Leesburg, Fla., Commercial states that E. R. Lacey, after four years of experimenting, has succeeded in making a better grade of news print paper from the native Florida saw grass than is made of spruce wood pulp. So firmly convinced of success are the men who have been working on the project that a company is being organized under the name of the Grass Pulp & Paper Corporation, and the promoters are planning to establish the initial saw grass pulp mill in Florida within four months and to build altogether ten mills in various parts of the States. There are hundreds of thousands of acres of saw grass in Florida and it is understood that the company has enough raw material under its control to run many mills the size of the ten contemplated.

OFFICERS OF THE KAMINISTIQUIA PULP & PAPER CO.

Following are the officers and directors of the Kaministiquia Pulp and Paper Co., which has commenced the construction of a pulp mill at Port Arthur.

U. M. Waite, President and Managing Director; Vice-President Reliance Mill & Trading Corporation, New York, N.Y.; General Manager Wolfe River Pulp & Paper Co., Limited.

A. E. Osler, A. E. Osler & Co., Investment Bankers, Toronto.

John Ball, President Reliance Mill & Trading Corporation, New York, N.Y., formerly Manager, Price Bros. & Co., Limited.

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J. E. Regan, Toronto, Secretary-Treasurer.

CANADIAN INDUSTRY IN STRONG POSITION.

It may be accepted without reserve that what has been accomplished in enlarging the export trade of Canada in this direction in recent years will be dwarfed by the accomplishment within the next five or ten years. Certainly no industry is better fortified by technical trade conditions than the Canadian pulp and paper industry, with its low costs of production and a market of unlimited possibilities such as lies at its door in the United States.

In the first revival of the industry, during the war period, trade authorities even in Canada looked askance at the possibilities of later competition from producing countries like Norway and Sweden. To-day the Canadian mills are selling newsprint on long-term contracts at $100 a ton and making good profits, while the export price of the Scandinavian product, partly as a result of Europe's great shortage in supplies, but largely as a result of higher costs, has risen to over $340 a ton.—Greenshield's Bulletin.

DAMMING NIPISIGUIT FOR BATHURST

Grand Falls on the Nipisiguit River, are now being harnessed and Bathurst is destined to become "the town of cheap power", says the "Busy East." The work is being done for the Bathurst Lumber Company by Morrow and Beatty, Limited, contractors of Peterboro, Ontario. The present development consists of two units, turbine generators, of 4500 horse power each, while space is left for a third unit of 4500 H. P. to be developed should necessity arise in the future. The dam is approximately one hundred feet high. Work was started late last fall and will probably be completed before the end of the present year.

Necessary machinery and materials are carried to Grand Falls over the Northern New Brunswick and Seaboard Railway. The rails on this road were taken up during the war, but the Bathurst Lumber Company leased the roadbed and equipped it with sleepers and rails so as to expedite the power development scheme. At the present time The Bathurst Lumber Co., require in manufacturing about 2500 H. P. but when the contemplated paper mill is constructed a much large quantity of electric current will be required.

UNITED STATES NOTES

The Mead Pulp and Paper Company of Dayton and Chillicothe, Ohio, which not so long ago increased its capital from $1,000,000 to $1,500,000, has added $4,800,000 more to its capitalization. The amount of the latest increase was the largest granted by the Secretary of State of Ohio to a Dayton corporation during the present year. This expansion of capital was decided upon when the firm saw that its business and plant would have to be enlarged to meet the tremendous demand for better grades of paper. Details of mill construction are now being worked out for an additional magazine, lithograph, offset and book paper product plant at Chillicothe. A new 154-inch Fourdrinier will be installed in this plant by the Pusey & Jones Company, of Wilmington, Del. The George H. Mead Paper Company of Dayton has been authorized to do business in Canada and has devoted a substantial sum to the development of trade in the Dominion. It is understood the headquarters of the firm will be in Toronto.

Officers representing seven allied wall paper companies in the New York and New Jersey district met at Glens Falls, N.Y., recently for their annual gathering. With the exception of Philip J. Riley, who was elected vice-president of the Plattsburg Wall Paper Company, Inc., and the Underwood Paper Mills to succeed the late Thomas R. Adriance, the entire body of officers on the board was returned for another year. George Tait of Glens Falls was re-elected president of the board of officers of the allied companies. T. S. Marshall of Hackensack, N.J., and S. Carter Hall of Glens Falls were again chosen vice-presidents. An executive committee to meet monthly in New York was organized. This action was taken in view of the steadily growing business of each of the companies represented.

The Centennial Mills at Valatie, N.Y., successfully run for many years by Robert P. Richmond as a straw paper mill, has been sold by the latter to the Gibraltar Corrugated Paper Company of Brooklyn, N.Y., who will make immediate alterations and improvements for the purpose of producing nine point straw paper for corrugating. The deal was effected through the Gibbs-Brower Company, paper and pulp mill brokers of New York, who within the past eight months has sold no fewer than four other paper plants located within the radius of several dozen miles near the Centennial Mill.

Forest fires have assumed serious proportions in northern California, the Pacific Northwest and parts of Montana. In Washington more than 500 men are fighting a fire which broke out early last week near Enumclaw, and another fire is menacing the main line of the Chicago, Milwaukee and St. Paul Railroad. Four large uncontrolled fires are burning on the Flathead National Forest in Montana.

Governor A. E. Smith of New York, has appointed Harry P. Gould, president and treasurer of the Gould Paper Company, Lyons Falls, N.Y., trustee of the College of Forestry, Syracuse University. Mr. Gould succeeds the late Francis Hendricks. He is considered an expert in reforestation work. Besides operating the mill at Lyons Falls, Mr. Gould is also at the head of the Donnacona Paper Co., located at Donnacona, Canada.

Bids for the sale of 100,000,000 feet of pulp timber in Alaska have been opened, the successful bidder being the Alaska Pulp and Paper Co. of San Francisco, which submitted a bid of $1 per 1,000 board feet for the better classes of the timber and 50 cents for the remainder. The timber is located in Southwestern Alaska, within the Tongass National Forest. In a recent report of the United States Forest Service it was estimated that there are about 70 billion board feet in spruce and western hemlock well suited for paper making in this region. Located in a comparatively narrow belt along some 1,200 miles of coast line, this source of supply has the advantage of deep water transportation to numerous mill sites for many of which water power is said to be available. The Forest Service estimates that the cut from this locality alone would insure a perpetual supply large enough to meet one-half of the present newsprint requirements of the United States.

Directors of the United Paperboard Company have decided to recommend to stockholders a proposal to retire $1,000,000 preferred stock, leaving $1,500,000 outstanding. This stock has already been purchased under sinking fund requirements. The company for the year ended May 28, showed net earnings, before depreciation, of $1,350,056, while surplus, after fixed charge and depreciation, amounted to $840,010. After payment of dividends final surplus for the year amounted to $561,740. Net earnings after charges of $840,010 for the fiscal year were equal to $6.25 a share on the common stock after allowing for preferred dividends.

On the basis of a net profit of $400,000 on the sale of 5,000 tons of bleached sulphite pulp, Chauncey B. Smith, has entered suit in the Supreme Court, Brooklyn, against Knapp and Baxter, dealers in paper and its products, to recover $14,000, or 3½ per cent which he alleges the firm failed to pay him according to agreement. Mr. Smith claims that the company owes him the above amount as commission on the purchase during August of last year of 2,400 tons of bleached sulphite pulp from the Champion Fibre Company of Hamilton, Ohio, and 2,600 tons of similar material from the Riordon Sales Company of Montreal, Canada. From these 5,000 tons Knapp and Baxter cleared $400,000 after paying all expenses, Mr. Smith's complaint avers. Mr. Smith was manager for the company at the time this transaction was made.

In a signed statement issued last week from the offices of the International Paper Company, New York, Philip T. Dodge, president of the corporation, denied reports to the effect that the International Paper Company was in any way associated with paper mill schemes and projects that are being widely exploited by Jason Rogers of the New York *Globe*.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, August 21.—Despite the prediction that prices of paper would remain stationary during August, the week saw an increase in one line—that of kraft—and the previous week marked a new price list for box board, which furnishes another illustration of the unwisdom of trying to size up the future accurately with respect to the trade. At the beginning of the month word went out from the mills that jobbers could pretty well rest assured that the prices then prevailing would govern during August. Mounting costs of manufacture, however, combined with ever-soaring prices for raw stock, have upset calculations at the mills and some lines have had to undergo further increases. Whatever new prices are fixed, however, they are only basic, and as sales are only made with the proviso that payment shall be made at prices prevailing at date of shipment, and the mills are sold up for weeks to come, jobbers and consumers have no guarantee as to what they will have to pay for their paper products. High price-levels for all classes of paper still prevail, and there is no indication of a downward trend in any line, although a leading Toronto pulpwood contractor advanced the opinion to the Pulp and Paper Magazine this week that the present slump in lumber and over-production of groundwood in Quebec and New Brunswick would eventually send both raw material and the finished product down. Among the paper manufacturers and jobbers, however, this view is not shared and no talk is heard in these circles of any coming slump. The mills are all tremendously busy and despite a quiet holiday period in the printing trade a very small proportion of the arrearages of orders has been overtaken. A great shortage of both chemical and mechanical pulp still exists and the paper manufacturers are up against high costs of all paper-making ingredients. No jobber can keep a normal stock of any line of paper in his warehouse and incoming shipments are sold before they leave the mill.

Pulpwood

That there is a very large production of pulpwood amounting almost to over-production, is the impression gained by Mr. E. R. Heyland, of the Heyland-Thompson Lumber Co., Toronto, who has just returned from a trip to Quebec and New Brunswick, where he has been looking over the ground and studying the market. Mr. Heyland made the further statement that on account of the slump in the lumber market, the big production and the fact that men who have previously engaged in cutting logs are now cutting wood, the impression prevails throughout the two provinces that the pulpwood market is due to break this winter. In his opinion prices will take a drop then, following which a new era of lower prices for pulp and paper will set in. In the meantime, any prices that one hears of today for groundwood cannot be taken as a criterion of what the prices will be in the winter, while the car situation, especially in the east, is reported to be very serious. "I am satisfied that there is going to be a big curtailment in general manufacture in Canada," said Mr. Heyland, who added that personally he would not feel inclined to put a nickle into rough wood he had not already sold, in view of the present condition of things. For instance, in Quebec, he pointed out, 15,000 cords was the limit on any transaction the banks would finance. While considerable over-production is promised, it is stated that there is very little pulpwood for immediate delivery, most of the wood having been already shipped out. In Quebec, the mills are paying from $18 to $20 per cord for next years delivery, while rough, unpeeled wood is quoted at $11 to $12 for next season's delivery. The price for unpeeled in Ontario rules at $11 to $14. The production of poplar is away beyond the demand and is quoted at $12.50 to $13 at country points, while peeled spruce is quoted at $17.50 to $18, although some has been bought as low as $16.

Pulp.

The pulp situation remains unchanged with the market practically bare of anything except contract lots. Groundwood particularly is a scarce article and mills are having the greatest difficulty in getting supplies. Prevailing quotations are from $150 to $160 per ton. Neither in groundwood or chemical pulp has there been any loosening up in the market. Mills appear to be hanging on to what they have, and several of the grinders have been shut down recently, which will have a tendency to boost prices still further, according to some authorities. Bleached sulphite is selling at $190 to $200 and unbleached from $175 to $195.

Kraft paper up.

The week saw another of several advances in the price of kraft during the past few months. Beginning this week the commodity which has been selling at 12c will carry an additional half a cent a pound, while kraft pulp is still quoted at $140 to $150. Kraft mills are still several months behind with their orders, and the demand is away beyond the ability of the manufacturers to meet.

Newsprint.

The general trend of the newsprint market is upward and in the opinion of most mills and dealers the next quarter will see a rise proportionate to the increase made effective at the beginning of the present quarter, although it is stated that the price will be governed by the pulp situation. "If the pulp manufacturers bring their prices down you can look for lower priced newsprint," was the way one mill representative put it and he added that the rate would be correspondingly upward if pulp prices go up. There have been no changes in prices for spot lots of either roll or flat sheets during the week.

Book Papers

The week saw no change in the book paper situation. None of the warehouses have adequate supplies despite the fact that there has been a slight falling off of sales. A feature in book paper manufacturing conditions is the changed situation in respect to labor problems. There has been a great need for more help at the mills for months past, but at the present time



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mills are receiving applications from men for work, and at lower than previously prevailing wages. As a result the mills are in a more independent position in this regard, and are able to make their choice of men, a thing they have been unable to do for many months past. According to one mill owner the changed situation is making for more efficiency and greater output.

Tissues and Toilets

The demand for tissues and toilets keeps up and no orders are being booked for quick delivery. In fact, the mills are several months behind with orders and are not anxious for new business. What is accepted, of course, is subject to price at date of shipment which may be two or three months from now. Great difficulty is being experienced in getting wood pulp, and there are rumors of one of the Ontario mills putting in a pulp-grinding plant of its own, although nothing definite has been announced concerning the project as yet. The recently announced price lists for tissues and toilets still prevail.

Wrapping Papers

In the wrapping paper branch of the trade the demand has not diminished any. More business for the dealers is available if they could get hold of the stock. The mills are away behind with their orders, however, and nothing like the tonnage required is coming through. The week saw no change in the price list.

NEW YORK MARKETS

New York, August 21.—(Special Correspondence). Inquiry for most kinds of paper is a little livelier, yet consumers as a general thing have not increased their buying to any material degree. Everybody seems firmly convinced that a higher market lies ahead. Jobbers are devoting their best efforts to warning users of paper that they will undoubtedly have to pay higher figures in the fall, and are persuading them to place orders ahead. Then, when dealers are given orders, they experience much difficulty in finding mills that will book the business. Paper manufacturers in common have all the orders on file that they feel justified in accepting under present market uncertainties, and most of them are desirous of retaining such little surplus of output over the balance of the year as they have left so that they can be assured of meeting the obligations already shouldered.

There is a firm tone to prices in every corner of the trade. No one is cutting prices to effect sales; no one, in fact, finds it necessary to, and the tendency of values is distinctly upward. At the moment the price position appears to be that of a calm before the storm. Prices are holding exceedingly strong, but are not advancing to any important extent excepting in cases where quick deliveries of goods are concerned. Then sellers can obtain almost any figure they see fit to ask, provided they are within reasonable bounds.

Spot lots of newsprint in standard rolls are selling at 11 to 12 cents per pound, while sheet news is worth in the neighborhood of 13 cents, with some sales reported at slightly higher levels. In a statement issued this week, President P. T. Dodge of the International Paper Company points out that the transportation system at present is seriously retarding the shipment of newsprint to publishers, and unless the matter is quickly remedied, he predicts that there will be many newspapers closing their doors. Mr. Dodge suggests as a remedy for this situation the altering of the Interstate Commerce Commission's priority rules relating to coal and wood cars to such an extent as to permit a more liberal transportation of newsprint. He states that there are more than 400 newspapers in the United States dependent upon the International Paper Company for their supply of paper and that they are now living on a "hand to mouth basis." He adds that there is no accumulation of paper, and that there is no immediate shortage of pulp wood for his company's mills, which have stocks of wood for several months ahead piled up along the railways with men waiting to load it, but with rolling stock needed to get it to the mills. Coal cars, he says, must be allocated to bring fuel to run the mills.

Fine papers are moving toward consumers in comparatively large volume. Demand hasn't the snap that was such a salient characteristic not long ago, but buyers are absorbing good amounts and mills are kept busy effecting shipments on back orders. Prices are firm, and a bond paper at 30 cents per pound is considered cheap today. Quotations on bonds range from about 22 cents all the way to 60 cents and even higher, while high-grade rag bonds are selling in some instances up to 70 and 75 cents per pound.

Book papers continue to represent the strongest single branch of the market. There is a decided scarcity of stock and manufacturers have virtually nothing to offer in the way of sizable tonnage for months to come. Prices rule firm at around 17 cents for machine finished book, 19 cents for supercalendered and from 21 cents upward for coated book papers. Wrappings and other coarse papers are quotably firm and are in consistently good demand. Buyers are depending largely on deliveries against old orders to fill most of their wants at the moment, but still are seeking

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Boards are firm in price at about $115 for plain chip and $125 for newsboard and are improving in demand daily. The paper box trade is taking on a distinctly livelier atmosphere, and box manufacturers are redoubling their efforts to secure board.

GROUND WOOD.—The intense demand for ground wood that prevailed up to a short while ago is lacking to a degree at present, but the fact remains that there is no mechanical wood pulp going abegging, nor are there signs that supplies are anywhere near ample to cover consumers' requirements over the rest of the year. Spot lots of ground wood are fetching high prices. Prime spruce pulp is readily selling at $140 per ton at producing mills, and this price is being bettered in some cases. Transient buyers, generally, are in want of supplies. Grinders are occasioned much difficulty in getting timber transported from the woods to their plants, and this is hindering the production of pulp.

CHEMICAL PULP.—Chemical wood pulp, sulphite grades in particular, displays a very firm price undertone, and there is a comparatively large amount of business current, notwithstanding demand at the moment is not so keen as earlier in the year. This is but a logical condition when it is understood that most paper manufacturers are short of pulp over the balance of this year, but that owing to the season they are not immediately in need of very large supplies in addition to what they are receiving on contract. Whenever producers have sulphite to sell they do not have to expend much time or effort locating buyers, whether the pulp is for prompt or future delivery. Neither do they experience trouble in obtaining the prices wanted. Consumers are looking ahead to at least some extent, and are readily placing orders when discovering available supplies. Quotations are unchanged at about last reported levels.

RAGS.—Business of moderate volume is passing in papermaking rags. Mills are buying in true summer fashion, that is, almost entirely against direct requirements, but with most paper mills operating at close to maximum today there is quite a wholesome need for rag stock. Dealers are bullishly inclined regarding values, and are generally unwilling to accept orders covering large tonnages for future delivery excepting at prices substantially above prevailing market levels. This applies especially to roofing rags, which are at present quoted at a relatively low basis compared to other grades, and which dealers believe are due for a rise. No. 1 roofing is selling at 2.25 cents or a bit higher at shipping points. Old No. 1 whites of repacked quality are worth 13 to 14 cents per pound, repacked thirds and blue around 4.50 cents, No. 1 new white shirt cuttings 23 to 24 cents, fancy shirt cuttings 14 cents and No. 1 washables 11 cents.

Arrivals of foreign papermaking rags at New York this week included 3,191 bales from Rotterdam, 1,502 bales from Bordeaux, 5 bales from Hull, 84 bales from Glasgow and 23 bales from Manchester.

PAPER STOCK.—There is a steady demand for old papers and prices are tending upwards. Packers claim to be getting but a small percentage of the stock ordinarily collected and are using this line of argument in behalf of higher prices. Low grades are moving freely toward board mills at prices ranging around 2.40 cents New York for folded newspapers and 2.05 to 2.10 cents for No. 1 mixed papers. Old kraft paper is actively sought and is fetching prices close to the present market value of kraft wood pulp, consumers paying around 6 cents a pound at shipping points for No. 1 packing. Shavings are quotably firm and in steady call, with sales of No. 1 hard whites reported at better than 8.50 cents and of soft white shavings of No. 1 grade at 8 cents. Books and magazines are quotably steady at 3.25 to 3.50 cents at shipping points. Compared with other kinds of papermaking material, waste papers are in by far a more active market position at present than all others.

Receipts of foreign paper stock at New York this week included 116 bales from Manchester, 30 bales from Dublin and 40 bales from Glasgow.

OLD ROPE AND BAGGING.—There is little life to the bagging demand, important consumers being almost entirely out of the market, and those buyers who are looking for supplies are securing stock at much their own prices. No. 1 scrap is offered at 2.50 cents a pound and can be bought for less. Roofing bagging is available at 1.50 cents at shipping points, and is little wanted. Old rope is moving in fair amounts at a quotable basis of 6.25 to 6.50 cents for No. 1 manilla rope.

Foreign arrivals at New York during the current week include the following: Bagging, 116 bales from Liverpool and 381 bales from Manchester; rope, 722 coils from Hull, 143 bales from Manchester, and 84 bales from Rotterdam.

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THE MARKET FOR CHEMICALS AND FEEDS.

The Pulp and Paper Magazine begins in this issue a regular report on conditions in the market for chemicals and feeds. The former applies to materials for both pulp and paper mills and the latter to supplies which at this season are being collected for logging camps and company stables.

Chemical Market

HEAVY CHEMICALS.—Sulphuric acid. This market is fairly supplied, but there are indications of slight upward tendency.

ALUM.—Owing to failure in the supply of bauxite as a result of transportation and labor conditions, manufacturers in the United States have not been able to get raw material and only contracted obligations are being attended to, and these only in proportion to the supply in sight.

SODA ASH.—The Canadian market has been practically sold up. The small margin has now been taken up by some mills substituting nitro cake for salt cake and using soda ash to neutralize.

BLEACHING POWDER.—Lack of movement of raw salt due to labor and transportation conditions is a strong feature in control of this situation. Lime and steel for drums, are also held up for the same reason.

SALT CAKE.—The same observations with reference to the movement of raw material affects salt cake and all contracts are being handled in proportion to the supply available.

NITRE CAKE:—There is little of this material available from Canadian sources, the product, which is a by-product, being well cared for by existing contracts.

Quotations on all of these products are more or less of a spot nature, and therefore, are not given as they are subject to considerable fluctuation due to the conditions outlined.

Feed Market.

Conditions in this market, are dependent more or less upon the possibility of a war scare. If the case of war should arise the conditions with reference to feeds of all kinds would be very much worse than that in 1914 as there is at the present time a very pronounced shortage. Apart from this possibility we would make the following observations:

ALFALFA.—Material lowering of present prices may be expected.

HAY.—The present situation is affected more or less by the supply of cars and the market is now at about its low level.

BRAN.—Bran is largely influenced by the wheat situation and it is advocated that purchasers only supply immediate needs.

OATS AND CORN.—These two are governed by very much the same conditions, and lower prices are probable, except in the case of war as mentioned above. Generally supplies to cover immediate needs only are advisable with the exception possibly of hay that will not likely run any lower.

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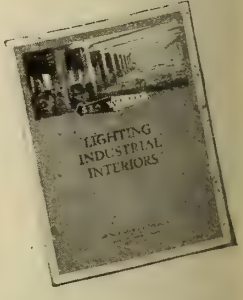
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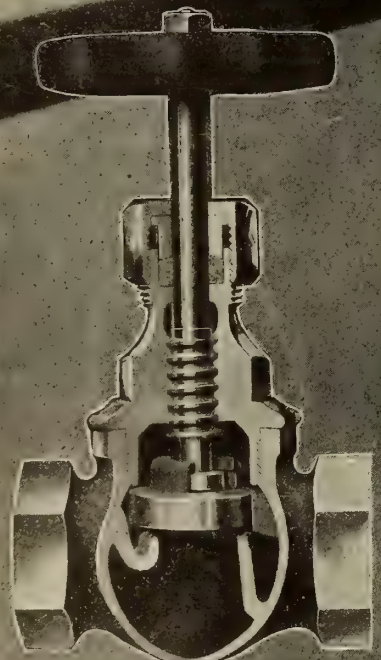
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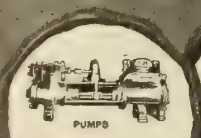
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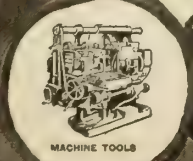
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-:- EDITORIAL -:-

IN A FOOL'S PARADISE.

The first crops of wheat that were raised on the American prairies aroused the wonder and admiration of the settlers. Year after year the grain was planted in the same soil and crops were taken off without thought of the impoverishment of the land. But crops gradually and consistently dwindled until the return per acre has dropped to a point far below the quantity produced by the soil of other countries which is fed with proper fertilizer. American farmers have come to appreciate the folly of expecting a return without making an investment, and the use of fertilizer and rotation of crops are now important features of prairie farming.

The same prodigal manner of using the forest may be traced to the same misconceived notion that there was no limit to the resources of the country. The folly of considering the forest as an inexhaustible mine is now being painfully brought home to those who have not properly appreciated this natural heritage in the past. There are still those abroad who talk of millions of acres and billions of cords having only in mind what is really a very hazy and probably inaccurate estimate of total forest. The question of accessability is seldom mentioned but total timber stands are referred to in terms of present requirements and the total capital stock is divided up on a basis of present annual consumption. Proper provision for the replacement of the timber is seldom referred to and when it is referred to it is frequently mentioned in terms that are no way near as adequate as recent careful investigations would suggest.

An authority recently intimated the necessity of going into the sub-arctic zone for the stunted, ancient growth which is scattered like the scraggley beard of an old man over the face of the desolate country north of the height of land. No doubt there will come a time when it will be necessary to construct transportation facilities at enormous expense and maintain logging and wood preparation plants under extremely serious difficulties for getting out that raw material for shipment to present pulp and paper mills. The establishment of complete manufacturing plants in such places may be lightly proposed but to build up and maintain a community so far from the centres of consumption and sources of many raw materials seems to us a serious mistake even in contemplation.

Why cut bean poles and tooth picks from the frozen bogs of the Arctic regions and get possibly a couple of cords per acre of wood which is so small that much extra work and waste is entailed in its conversion, when, with a little courage and foresight it is possible to provide better and cheaper timber for the future by applying proper forestry methods for areas convenient to our present excellent mill centres?

The natural answer to this question, that is, why such things are seriously thought of, is that many of the present manufacturers and users of paper are considering only the present. There is no doubt but that there are large areas of forest lands easily accessible to present mills and to mills which might be established convenient to centres of consumption and also in the region of cheap wood and water power. Many people are looking only for the conversion of what is most easily available into the greatest number of dollars in the quickest possible time. Of course, a profit is taken off at each step from the forest to the finished product, whether the product be a paper bag, a newspaper, magazine or a shipping case. One of the principal factors limiting the quantity of these products that can be made is the difficulty of getting sufficient raw material and equipment to convert the tree into the product greatest in demand. The newspaper publisher could make millions of dollars if he could get all the paper he wanted to print the advertisements in are thrust upon him. The paper mills could also add greatly to their profits if they had more digesters, grinders and paper machines and could cut and transport logs fast enough to feed these hungry machines. To satisfy this present inordinate demand and a demand which shows promise of being maintained for some time will require a constantly increasing drain on our forests. This can be met at present without any very great increase in costs by continuing to strip the best available areas in the quickest, cheapest and most destructive manner. The question is, are we going to endanger the future economic stability of our country by exploiting the present world's demand upon our forests which are the backbone of our economic structure without due thought of what is to come? Will the newspapers continue to demand such a quantity of paper at such a price as will require the manufacturer to cut the vine off at the root?

No patriotic citizen will, for a moment, countenance such an attitude if due thought is given to the matter, yet many are living in a Fool's Paradise, the little spot

which is so sheltered from the outside that only the warm rays of the sun directly overhead are thought of while clouds that may hover ominously on the horizon are shut out from view and consequently receive no attention.

Canadian business based on the forest; pulp, paper, lumber and other wood using industries, are enjoying the warmth of a world demand for more product than can possibly be produced with present equipment and the cry is for greater production at a minimum price and a maximum profit. To meet these conditions it means an absolutely certain increase in cost of wood water power, and the destruction of our forest not only means an absolute certain increase in cost of wood but also endangers, according to present methods of lumbering, the existence of remaining wood lands and even the very life of the river which is the other great factor in Canada's domination in the wood pulp and paper industry. We can go on and produce paper in quantities sufficient to meet present demands and at a reasonably low price but we shall surely be absorbing our great bank account and when that is gone, as it most certainly will go, the nation will be well on the way to industrial bankruptcy. We cannot offord, and we should not dare, to progress blindly any further along the road of the easiest immediate profit regardless of the future.

The burden is not altogether one for the paper manufacturer to assume nor is the responsibility entirely his. The public, and particularly the publisher, must assume their share of the responsibility. The paper maker must always be governed largely by the demand made upon him and his establishment. The Government of each province holds the balance of power and can determine what shall be done but the Government reflects only the wishes of the majority and cannot act very much in advance of the public sentiment upon which it depends for support. Public sentiment is largely a matter of education and education of the public should be the principal concern of the newspaper. The publisher then can take his choice—either plenty of paper at a comparatively cheap price for a limited time or urge and demand proper administration of the forests now that he may be assured of a sufficient supply for all time to come. Our Governments need have no fear whatever of placing the Canadian industry in a disadvantageous position in comparison with other pulp and paper producing countries because of instituting measures of forest utilization and production that will necessitate a temporarily increased cost of forest products. Even a temporary limiting of production, because of instituting proper methods, may confidently be made in the knowledge that the future will bring an even greater reward. It will be much better to know that we have just so much to use and then use it accordingly than to continue with the assumption that we have unlimited supplies and can waste as we will. The idea of continuing to draw cheques on an unknown and constantly diminishing bank account is ridiculous and that is what our present forest policy amounts to. Our governments are gaining in courage and in vision and we may soon expect that there will be inaugurated in Canada a forest policy which will not only insure the life and prosperity of our pulp and paper mills and the communities depending upon them but also will ensure the publishers of this continent and the Empire sufficient newsprint paper for their legitimate needs for all time.

One of the serious difficulties in the matter is that the publishers have seen the forest as a sort of mirage (we inadvertently used an apt expression; the forest is receding), the reflection of rosy descriptions, made largely for political or promotion purposes. Editors and publishers should sit down with foresters and Ministers of Lands and agree to agitate, demand and support, a forest policy that will put the wood using industries of all the provinces on the same basis. We have preserved the forest to Canadian industry. Shall we now sit idly by and see it dissipated? We are in a forest paradise if we use it right. It is a Fool's Paradise if we have not the sense to eat the fruit of the tree of knowledge which is before us, yes, even peeled, sliced and put on our plate.

COBWEBS.

"Eagle A" Unity changed its name to "Eagle A" Outing for one issue in commemoration of the big picnic of the American Writing Paper Co. It must have been quite a party. We must thank the artist for several laughs at our friends in Holyoke.

The Department of the Interior at Ottawa is in a position to supply some excellent maps, showing the location of Canada's natural resources, lands available for settlement, etc.

We notice the Howard Smith Paper Mills "Story of a Sulphite Bond" reproduced in Martin's Papyrus. It's a good story.

We understand that the Cushnoc Paper Co. at Augusta, Me., is going to put in concrete foundation. A new mill on such a basis will lack some of the fascinating features of the old structure.

We are glad to welcome our friend W. G. Mac Naughton to the Dominion. He will find it a fine country to live in and full of good people. Kapuskasing is hardly a metropolis as yet, but Mr. Mac Naughton will be able to see and help it grow.

A train bandit has been located near Pincher Station, out West somewhere. Wasn't he a proper, particular fellow, to pick out such an appropriate place?

Sectionalized Paper Machine Drive

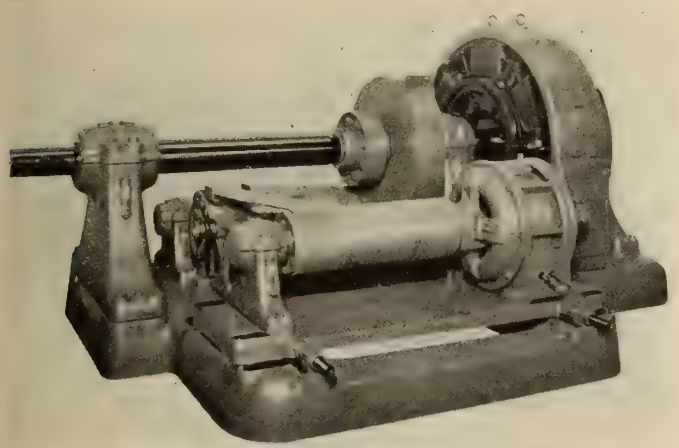
By W. W. CRONKHITE, General Electric Co.

The electrical operation of paper machines during the past has been practically confined to the use of a single unit either belted or direct connected to the variable speed line shaft, the speed range being obtained by a combination of voltage and field control on the motor, which was driven from a generator, usually belted to the constant speed shaft or direct to the steam engine driving the constant speed shaft. Where steam engines were not used this generator formed a part of a synchronous motor set, which was operated from the mill circuit.

With this type of equipment a line shaft is necessary, the various sections of the paper machine being driven from it through pairs of cones, which permit of the necessary draw between the sections.

Sectionalized drive has not been used, possibly because the trade has not demanded it and the speeds at which the paper machines have run has not made it necessary.

The demand for high speed paper machines and the difficulty of using a mechanical drive have focused attention on the sectionalized drive and made it prac-



A Driving Unit, showing Intake Shaft, D. C. Motor, Synchronous Motor, and Cone Pulleys for changing draw.

tically necessary to meet the demands of the trade. Other features which feature the sectionalized drive are the elimination of the line shafts and belting and the saving of space. It is particularly adaptable to mills where the paper machine is on the ground floor and although such a drive will eliminate the necessity for a basement in the mill, this is not considered an advantage by all paper manufacturers.

There are several types of sectionalized drive on the market, all of which, with the exception of the General Elctric drive, have some form of speed governor which cannot act until a change in speed has actually taken place, in other words, something must happen before it can be corrected and there is a possibility of breaking the sheet before the governor functions.

The General Electric Sectionalized Drive is entirely different, since it prevents a change in speed from taking place and consequently it does not have to correct it.

This drive consists of one unit for each section of the paper machine. Each unit consists of a direct current motor and a synchronous motor of about 20 per cent. of the capacity of the direct current motor, the synchronous motor being driven from the direct current motor through a gear reduction and a set of small cones.

The motors and cones are mounted on a common base and direct connected to the section of the paper machine.

All of the motor units are driven for a single generator, on which the voltage is varied by means of field control to obtain a variation in speed on the paper machine. For ranges in speed not exceeding a 6 to 1 ratio field control on the motors is not necessary, but beyond this range a combination of voltage and field control is necessary to insure good speed regulation.

All direct current units are operated in multiple from the generator bus.

All synchronous motors are connected to a dead bus.

All direct current motor fields and synchronous motor fields, also the generator field, are connected to the exciter bus which is of sufficient capacity to excite all machines.

Each direct current motor has a drum controller and rheostat in its circuit for individual starting, the last point of this controller being in the auxiliary circuit of the contactor which connects the synchronous motor to the dead bus. The actual closing of this contactor is by means of a push button but it can only be done when the controller is on the last point.

The control of this equipment is very simple and similar to the standard paper machine drive of the past.

The auxiliary control panel which controls the speed of the entire paper machine as a unit consists of a small panel on which is mounted:

1—speed indicator.
1—9″ rheostat hand wheel.
1—push button station for start and stop duty.

In addition to the above control there will be a small indicating panel for each section.

When starting the paper machine as a unit the drum controllers in the D. C. motor circuits should all be on the last point with the synchronous motors connected to the dead bus. The start button on the auxiliary control panel will close the line contactor on the motor generator panel and apply a low voltage to all of the D. C. motors and turn them over at a slow speed. The synchronous motors being geared and belted to the D. C. motors will also turn over with them and since they are all connected to the same bus they will start up in synchronism.

To bring the machine up to speed the generator field is strengthened by turning the hand wheel on the auxiliary control panel.

To make paper successfully the relative speed of the various sections must not change, i.e., the motors must be synchronized and free from any individual change in speed. This is the function of the synchronous motors and within their capacity they will absolutely hold the D. C. motors in step. The speeds of the different sections of the paper machine are not all the same as there is a slight increase from

the wet end to the dry end, and this percentage difference may vary slightly for different grades of paper and under different operating conditions. This variation is called "draw" and is taken care of by shifting the belt on the cones, a procedure which can only change the D. C. motor speed since the synchronous motor speed is fixed.

Under actual operation any change in the load on a particular section, caused by changing the weights or otherwise altering conditions, will be absorbed by the synchronous machine. If the load increases it will act as a motor to aid the D. C. motor on that particular section and draw its power from the remaining synchronous machines which will immediately act as generators and distribute the load over the entire machine drive. If the load decreases it will act as a generator and supply power to the remaining synchronous machines which then act as motors. Any change in load on any section is therefore distributed over the whole motor equipment, and may change the speed of the paper machine as a whole but cannot cause any change in the relative speeds of the various sections.

So long as any synchronous machine operates within its capacity, either as a motor or as a generator, it will not be necessary to make any adjustments, but if the indicating wattmeter in the synchronous machine circuit shows too much power it may be easily brought back to zero by turning the rheostat in the D. C. motor field.

The equipment described above is what is termed hand control but this term applies to the sectional panels and not to the main control panel since all adjustments of power and transfer of energy between the direct current motors and their corresponding synchronous motors is accomplished by hand. It is not considered essential to make this adjustment automatic as the indicating wattmeter in the synchronous motor plainly shows whether the synchronous motor is acting as a motor or a generator and how much power it is delivering and so long as it is operating within the prescribed limits no adjustments are necessary.

However, the automatic feature is readily obtainable by the addition of a motor operated field rheostat for the direct current motor which is actuated by a contact-making wattmeter in the synchronous motor line. This consists of an enclosing case containing the motor operated rheostat, a contact-making wattmeter and the relay for operating the rheostat motor.

The so called automatic control has all of the features of the hand control if it is desirable so to operate.

This method of drive by actual test will maintain much closer relations between sections than is possible with the Marshall Train or any other known drive. This drive has been tested and with a 50 per cent. change in load on any section of the paper machine, the speed change on that particular section has been less than can be measured with any ordinary method of testing. The sectionalized drive was created to meet the demand for high speed on the large paper machines and it is not expected that the single motor type of drive will be entirely suplanted where operating conditions of the paper machines make it "good engineering" to use the older type of electric drive.

There is a big difference between Ideal and I deal.

PAPER DIRECTORIES IN DEMAND.

Marchant, Singer & Co., 47 St. Mary Axe, London, E.C., 3, advise that the 1920 edition of their Directory of Paper Makers of the United Kingdom is already entirely sold out. They have, however, a few copies left of the 1919 edition, which they will mail, post free, at 75 cents each.

A more extensive volume is the Paper Makers' Directory of all Nations, 1920 edition, published by Dean & Son, Ltd., 160A, Fleet Street, London, E.C. 4. The price is $5, post paid. A performance that has 28 encores can be considered a success, which is surely the case with this directory.

The information is very comprehensive and very conveniently arranged for the frequent reference that would be made to the book by many paper makers, dealers and consumers. To quote from the Editor's Preface :

"The universally increased demand for Paper Products of all kinds, and the consequent world-wide shortage, have had the natural result of again raising to a high level, prices which, during last year, had appreciably fallen; and in view of the high price of raw materials and coal, increase of wages, and enhanced cost of production generally, added to the shorter number of hours worked, it is difficult to see how any immediate amelioration in market rates can be looked for.

Although the last edition of this Directory was issued only a few days after the signing of the Treaty of Peace with Germany, the Mill entries were nevertheless all re-grouped therein under their new geographical positions provided for by the Treaty; and it is believed that even now to-day, this is the sole attempt made up to the present time to show them in their proper territorial arrangement as affecting Austria, Belgium, Czecho-Slovakia, Esthonia, Fiume, France, Germany, Hungary, Lithuania, Latvia, Poland, Russia, Ukraine, Yugo-Slavia, etc.

In the list of "Principal Wholesale Stationers and Paper Merchants, etc.," of the United Kingdom, an innovation has this year been made by the addition of **(N)** after the names of those firms in both Town and Country, that at the time of going to press are Members of the recently constituted National Association of Wholesale Stationers' and Paper Merchants.

The names of Advertisers given in the work, have been specially brought together to form a **Buyers' Guide** under the heading of "Classified Index to Commercial Prospectuses" on pages xiii to xxxviii (which includes many firms on this side.—Ed.)

Set out entirely alphabetically and arranged in three main sections, this book records, full details regarding the Paper, Pulp, and Board Mills of the World—the first part dealing with those in the United Kingdom, the second with those in the Colonies and Abroad, and the third giving a comprehensive list of Mill Productions in one list of some 400 Trade designations, classified according to Class of Goods manufactured, Country of origin, and Name of Firm.

Many requests are being received at the New York State College of Forestry for identification and control of injurious forest insects, which work havoc with trees. Much more definite information can be given and in many cases time saved if all such letters would not only give as complete a description of the nature of the injury as possible, but be accompanied by specimens of the insects and where possible, of their work.

Improved Process for the Manufacture of Esparto Pulp

(Translated for the Pulp and Paper Magazine from La Revue Universelle de la Papeterie et de l'Imprimerie, **3**, Jan. 15, 1920, p. 9, by A. P.-C.)

The following is a discussion of French patent No. 118,376 covering an improvement on the so-called English process of preparing esparto pulp, furnished by the patentee. It is presented to readers of the Pulp and Paper Magazine for its value in connection with the use of flax and cereal straws.

The patent covers the cutting and defibering of the raw grass, either by grinding or by some other appropriate method of trituration, before cooking it with alkali. This profoundly modifies the subsequent handling of the pulp and the results obtained by the older process. The improvement and advantages of the new process are so great that the problem of obtaining bleached esparto pulp at the same price as bleached chemical woodpulp is solved at last.

To furnish means for comparing the results obtained by the two processes, says the author, I shall first briefly review the results obtained by the so-called English process :

With a good grade of esparto grass containing 54 to 56 p.c. of cellulose, a yield of 36 to 38 p.c. of pulp could be obtained. I have run numerous yield tests on several tons of the usual grade of esparto, and have never been able to obtain any higher results. Some claim they can obtain yields of 40 to 42 p.c. of bone-dry pulp, and I am quite willing to accept these figures, though they must be regarded as extreme maximum values which would very seldom be attained.

1.) Yield of bleached bone-dry pulp—40 to 42 p.c.

2.) The pulp can hardly be considered as anything but an excellent filler. It is indeed very soft and very free, but its strength is practically all gone owing to the very drastic treatment to which it has been subjected.

3.) With these reservations, it must be admitted that it possesses valuable properties—suppleness, opacity, fineness, inertia and bulk. It felts admirably, as do all fine, smooth fibers, and is valuable in the manufacture of moderately high-priced fine papers and for certain specialties known as esparto papers.

4.) The cost of production was 38 to 40 francs per 100 kilos in prewar days; and it was very difficult to buy even small quantities at 45 francs.

5.) Its worst defect lies in its tendency to form into lumps on the machine. This tendency is increased by a more severe cooking or by improper adjustment of the parts of the machine.

6.) When mixed with other stock, esparto pulp will not stand a very stiff brush, and to avoid fuzzing at the dry presses a furnish containing 30 to 40 p.c. of esparto must be subjected to a prolonged beating.

7.) Owing to its very high cost, esparto pulp is used only for very fine papers by French manufacturers.

8.) The manufacture of the bleached pulp must be carried out to perfection. This pulp is in a class by itself, and any fault in its preparation renders it worthless.

9.) The grass consists of two distinct parts, that near the roots which is hard, tough, and highly lignified, and the upper portion which is much softer and less lignified. On account of the harder portions, a large amount of caustic soda must be used, about 12 to 15 p.c. of the weight of the raw grass.

10.) When the cooking is finished the spent liquor is black as ink, and the stock has a persistent yellowish tinge, so that even with 12 to 14 p.c. of bleaching powder the stock acquires only a dull white colour, which is very characteristic.

11.) So drastic is the cooking required to reduce the harder portions of the stalks that part of the more tender portions is "burnt" and is carried off either during the 3 or 4 hours' washing which follows the cooking, or during the beating.

12.) The cost of producing this pulp is about 7 to 8 francs higher than for chemical woodpulp, so that it could be used only for medium and high-priced papers.

This summarizes in a few words the qualities and faults of esparto pulp as it has been produced till now and explains why its manufacture is not as extended as it might and should be.

Let us now consider the results obtained by the new process.

But first, let me say that the process has been tried on a commercial scale, and that I shall be only too willing to submit samples to interested parties.

1.) The esparto is first cut small, and then ground under water, or crushed, until all parts, both hard and soft, have been disintegrated.

2.) The resultant mass is given a thorough washing to get rid of the sludge (and part of the chlorophyll), which I should estimate at about 20 p.c. of the incrusting matter of the grass.

3.) The pulp is drained, and is then ready to be charged into the digesters. Owing to the preliminary grinding to which it has been subjected, the material offers a greatly increased surface to the action of the cooking liquor. As a result the latter works much more easily and evenly, and the incrusting matter can be removed with 5 p.c. of caustic soda (based on the weight of the raw grass).

4.) The cooking is conducted in the usual manner, and after dumping the stock from the digester it is given one washing to recover the excess of soda. It is then sent to the bleachers where it is first thoroughly washed, and then bleached with about 6 p.c. of bleaching powder. The pulp thus obtained is beautifully white.

5.) It should be noted that this treatment is in accordance with the known and approved principle for treating wood, waste cordage, hard rags, etc. The various parts of the esparto have been evenly acted upon by the cooking and bleaching liquors, and there is no reason for thinking that any portion of the cellulose has been affected differently from any other portion.

6.) The yield of bone-dry pulp easily comes up to 50 p.c. of the weight of the raw grass.

7.) The stock consists of practically pure cellulose and is very white. It has longer fibers and possesses all the good points of the pulp made by the older process, and moreover it has no tendency to form lumps on the machine. This is easily explained by the fact that the treatment is much milder and acts on long thin fibers which are very easily freed of any incrusting matter.

Taking as a basis for calculation the pre-war price of esparto pulp; viz., 40 francs per 100 kilos, we shall find a very appreciable decrease in the cost of producing it by the new process. Considering the former cost of production, we note that the cost of the raw material for 100 kilos of dry pulp (240 kilos of esparto at about 10 francs per 100) was about 60 to 65 p.c. of the total cost. Herein lay the stumbling-block of the English process and the criterion of its application. The higher yield obtained by the new method of treatment lowers this factor, since only 200 kilos of esparto are required, and moreover there are other advantages which I shall now indicate.

240 kilos of raw esparto at 10 francs	24.00
200 kilos of raw esparto at 10 francs	20.00
Saving Fr.	4.00
Decrease in cost of cooking liquor	2.00
Decrease in cost of bleaching liquor	1.10
* Elimination of cost of soda recovery	1.25
Total Fr. per 100 kilos	8.35

* This is not strictly in accord with item 4, above unless the alkaline wash water is used for a new bath of liquor, or for cooking a low grade stock as mentioned.—Ed.

Further experiments have proved the feasibility of preparing a second grade pulp by the same method, a semi-chemical pulp which can find extensive use in the manufacture of all the ordinary sorts of paper. The crushed grass is treated with spent liquor which has been used for one cook, yielding 65 p.c. of á pulp which bleaches fairly satisfactorily with 3 p.c. or bleaching powder. When the liquor has thus been used a second time, after being slightly strengthened if need be, the recovery of the soda becomes useless and superfluous.

Of course this process requires a larger amount of power, owing to the preliminary mechanical treatment of the material, and this might be a serious drawback if it had to be generated from steam. But when cheap hydro-electric power is available this becomes a negligible item. In certain cases it might even be possible to crush the esparto in one mill and then transport it to another mill to be converted into the finished pulp or pulps.

E. ARNOULD,
Ex-Paper Mill Manager.

TECHNICAL QUESTIONS.

(From La Papeterie.)

Question : For making rose, geranium, or coral-colored papers I use rhodamine. My customers complain the paper bleeds. I have unsuccessfully tried the use of several mordants. Could somebody help me out?

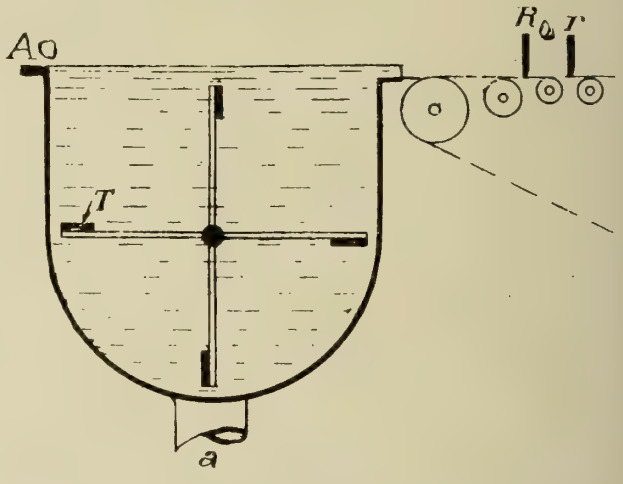
Answer : For the manufacture of such papers, use only light colored unbleached or semi-bleached pulps. About half an hour before adding the color, put about two pounds of alum per 100 pounds of pulp in the beater. Dissolve the colors completely and add them separately about 2 hours before sending the stock to the machine chests.

Question: In the mill where I work there is no color mixer, the color being added in the machine chests, which contain two beaterfuls. At times insufficient color has been put in, so that more must be added in the machine chests; and as these are not large relatively little water can be used. We make only white and very light-colored papers, and the color is nearly always streaky, especially when using violet or Victoria blue. How can this be avoided?

Answer: Since you cannot use much water to dissolve the color, by adding a little tale or kaolin to your solution streaking will be prevented.—A.P.-C.

Question : How can paper be made to have the same strength in machine—and cross-direction ?

Answer : We think that the device shown in the sketch would tend to equalize the strength of the paper in the machine—and cross-direction; but as we have not tried it out we cannot say what results would be obtained.



The stock could be led in at **A** or **a** in such a manner that it does not overflow and that its speed be reduced to a minimum. The agitator should have a low speed, say about 15-20 R. P. M., its function being to entangle the fibers so that they do not arrive on the wire mostly parallel to the machine direction. It should be noted that the blades of the agitator should never emerge from the stock, that the latter should flow out evenly, and that the slices should be set as close as possible to the tank containing the agitator.

BE ON THE JOB.

Did you ever stop to think how important it is that you be on the job everyday? We are constantly getting reports of men who are absent for a day for no known reason. They are just tired, or do not feel like working, or they want to go away, or have some equally weak excuse for staying out. Being absent means that somebody else has to do your work, either a man from another department, or else someone in your department doubles up. In either case, it means extra work and harder work for someone who does not know your job and it holds up production. We all have thrown a rock into a pool and seen the waves grow wider and wider until they touch the shore. Well, your being absent is like that. If affects not only the people in your department, but everybody all along the line.

Be on the job every day. You are needed there. It means easier work for all and better production, and for you it means a bigger envelope at the end of the week. All the extra dollars you can earn and stow away in the bank in these days are going to be worth twice as much as they are now when prices drop.

Timber Restrictions Justified

"The Paper Shortage," in its relation to forestry, was the principal theme of the Ninth Annual Forestry Conference, held under the auspices of the Society for the Protection of New Hampshire Forests at New London, N.H., last week. Its discussion led to some exceedingly frank statements in regard to Canada's timber regulations and brought out, most significantly, the fact that the Federal and State governments in the United States are now making belated efforts to stop unnecessary drains upon their forest resources and to adopt measures that will ensure a sustained yield from these resources for the various industries depending upon them for a supply of raw material, particularly the pulp and paper industry. The operations of the New York Conservation Commission, which now has under tis control one and one-half million acres in the Adirondack mountains and about six hundred thousand acres in the Catskills, from which no trees are allowed to be cut for any purpose, and of the Weeks has under its control one and one-half million acres ing, through its Forest Service, large tracts of forest lands to be held exclusively for the public, were fully explained.

The U. S. Government, it was stated, has set aside from the public domain 155 million acres of national forest in the West, a territory equal to all of the six New England states combined with the Middle Atlantic states as far as Maryland. It has purchased 430,000 acres or 700 square miles (46 per cent. of the original plan) in the White Mountains, and 1,200,000 acres in the Southern Appalachians (26 per cent. of the original plan) and is still adding to its holdings, while a new law, to be introduced in the next Congress, and fathered by Col. William D. Greeley, Chief forester of the United States, proposes an annual Federal appropriation of $1,000,000 for forest protection, care and management and distribution of forest planting material, with State appropriations to be made dollar for dollar, all expenditures being contingent upon the adoption of Federal standards; an annual appropriation of $500,000 for a complete and accurate forest survey of the country and appropriations of not less than $3,000,000 yearly for the purchase of lands under the Weeks Act, which would be extended in its operations beyond the White and southern Appalachian Mountains, as well as increase in National forest tracts through exchange or purchase to not less than 200,000,000 acres. Other appropriations proposed are $1,000,000 a year for forest planting in National parks, $500,000 a year for forest research and an extension of the Federal farm loan act to permit loans for periods of 50 years for the purchase of cut-over or immature forest lands.

To the Canadians present at the Conference the proposals suggested provided ample justification for whatever steps the Canadian provinces have found it necessary to take for the preservation of their forest resources and an incentive for further efforts in that direction. The American Government, in the last analysis, can hardly object to Canada's doing what is now being undertaken in the States, since the authorities there awoke to a realization of the harm worked by permitting the unrestricted destruction of their forests and no settled policy for their regeneration.

Among those present and taking part in the discussion were Charles Lathrop Pack, president of the American Forestry Association, E. A. Sherman, associate forester of the U. S. Forest Service; Prof. Jas. W. Toumy, director of the Yale Forest School, George W. Sisson, Jr., president of the American Paper and Pulp Association; R. S. Kellogg, secretary of the Newsprint Service Bureau and a number of other representative American authorities. Canada was represented by Ellwood Wilson of the Laurentide Company, Clyde Leavitt of the Commission of Conservation and Edward Beck of the Canadian Pulp and Paper Association, whose address was printed in the last issue of the Pulp and Paper Magazine.

The discussion was opened with the reading of a paper prepared by Henry S. Graves, formerly chief of the U. S. Forest Service, in which was reviewed the so-called "pulpwood controversy" between the United States and Canada.

"The extensive public discussion of the subject, the widely-differing claims put forward from interested parties and public officials of the two countries, and the controversial character of the public utterances being circulated, indicate the probability that the matter will be pursued further and, if not handled in a constructive manner, may easily cause an unfortunate misunderstanding with a friendly neighbor," was a prediction made by Mr. Graves, who counselled handling the situation from the standpoint of the broader permanent interests of the two nations.

"The Underwood resolution passed both Houses of Congress but failed to become a law because of the failure to receive the President's signature. Nevertheless, the fact of its passage by Congress and the clear intention of Congress as expressed in the hearings before the House Committee on Foreign Affairs have caused widespread resentment in Canada." he said.

"The American Congress has approached this matter in a spirit of coercion, with the expressed intention of using the economic position of the United States to force Canada to take an action which is believed by the Government of that country to be permanently injurious to her. Canada has undertaken to build up a manufacturing industry to use the raw materials from her forests. She maintains that the raw resource is far less than is usually supposed and not more than enough to supply the plants which have been or will in the future be installed. She is unwilling to sacrifice this home industrial development by sending out of the country the raw material essential to give it permanence. The American Congress did not act on the basis of official Canadian data regarding her resources, but on figures presented by the American manufacturers that have been shown by Canadian officials to be erroneous.

"On the other hand," he said, "it is doubted whether Canada has ever considered, or been given an opportunity to consider, the economic problem in this country in its broadest aspects with a view to working out plans with the United States whereby each country would assist the other and both be greatly benefitted."

Mr. Graves' solution was for "a conference by representatives of the two countries to consider the whole economic problem of both countries with a view of working out a plan of mutual assistance." He proposed that such a conference should consider:

(A) The extent of the pulp wood resources both in Eastern Canada and the northeastern United States,

including what is now standing and what is being produced by growth.

(B) The needs of both countries for pulpwood in connection with the established manufacturing industries and those which may be established in the future.

(C) The possible total amount of material which might be exported from Canada without injury to her interests.

(D) The possible amount which could be furnished during a temporary period, of perhaps ten years, pending the building up of an American paper industry in the far West.

(E) Possible modification of the present restrictions in Canada which would permit the export of pulp wood from the Crown lands in quantities equivalent at least to the material cut from private lands owned by Americans in Canada and manufactured in that country.

(F) Possible modification of the laws of New York which would permit the use of certain quantities of pulp wood from the State lands where cutting is now prohibited.

(G) Joint effort and co-operation by the two countries in measures of forest perpetuation where there are common interests between the two countries.

Mr. Ellwood Wilson, after sketching briefly the operation of the timber land of the respective provinces, spoke very plainly about the rights of the people of Canada and the attacks made upon them by those responsible for the agitation leading up to the passage of the Underwood resolution.

"It is certainly entirely within the rights of the Government to say what shall be done with the timber cut on its own lands," he said, "and it is not in any way overreaching its powers when it requires such timber to be manufactured in Canada.

"Several American firms, who purchased timber licenses did so with an eye to the future, looking forward to the time when they would either have exhausted their own supplies or when it would be more convenient or profitable for them to manufacture nearer their source of supply in Canada. Some of these companies, without any protest whatever, came into Canada and decided to build mills so as to be near their supply of raw material and to secure cheap water power and they have been manufacturing very successfully and sharing in the prosperity of the pulp and paper industry.

"Most of the agitation for bringing out Crown lands wood to the United States has come from one company which has been manufacturing lumber for a number of years from their Canadian timber licenses and who, before they started the agitation, made plans and commenced to build a mill in Canada. The small group of American mills which have agitated for the free export of Crown lands wood have entirely misrepresented the situation and have made statements which they must have known were not matters of fact. They have deliberately tried to stir up trouble between the two countries and they will find that, as always, such methods wil re-act unfavorably to their users.

"A situation analogous to that in the Eastern Provinces of Canada exists in the State of New York where the State has bought more than a million acres of timberland, much of it carrying valuable pulpwood timber, and has shut it up altogether against exploitation of any sort or kind. Tracts of land have been condemned by the State and their owners compelled to sell them and, only recently, the very company carrying on the strongest agitation for free access to Quebec pulp wood has sold a tract of pulpwood to the State of New York and now no timber can be cut from it. It would seem much more reasonable for this company and others in New York State to carry on an agitation compelling the State of New York to allow them to cut timber in the forests reserves before they begin to agitate for the removal of the manufacturing clause from the Quebec law.

"If New York has the right to take up timberlands and forbid any cutting whatever on them, the Province of Quebec certainly has the right to say what timber shall be cut and how it shall be manufactured on its own land.

"Until the United States takes some steps to adopt forestry methods in the utilization of its timber and to frame some national and State policies for the proper conservation and exploitation of its resources it seems hardly right, that having wasted its own birthright, it should now attempt to utilize Canadian forests in the same way."

Mr. Wilson concluded with a statement of what Quebec is doing in the way of encouraging timber conservation and reforestation in the province.

Mr. George W. Sisson, Jr., president of the American Paper and Pulp Asociation, spoke on behalf of the American manufacturers. He made no effort to refute the statement of the facts in regard to Canada's position in the pulpwood controversy, but was inclined to lay the interruption of exports of raw pulpwood from Canadian Crown lands to the influence of certain unnamed "financial interests". He commended Mr. Graves' suggestion for a joint international commission to consider the question and quoted from his address delivered at the annual banquet of the Canadian Pulp and Paper Association in Montreal two years ago, in which he said:

"Co-operation on a large and magnanimous scale and in the most sympathetic spirit must be the rule, if the industry is to prosper in both countries. You need our markets; indeed, must have them, and we have gladly opened them to you. Common fairness indicates that you should not deny to us access to your raw materials that may be needed, and a restrictive policy which goes beyond more than fairly protecting your national requirements would not be in accord with the co-operative spirit that must hereafter rule international relations."

Later, in the discussion, Mr. Sisson gave the impression that there is ground for believing that the export restrictions now applying to wood cut from Crown lands in Quebec are likely to be extended to wood cut on freehold lands also and that it is this fear that has inspired the agitation in the States for pressure to secure a lifting of the restrictions now in existence.

On this point he was reassured by Mr. Wilson and Mr. Leavitt, who reiterated that private lands were in no wise affected by the existing regulations nor likely to be by any future ones.

A resolution was introduced favoring the appointment of an international commission to investigate the pulpwood question but was subsequently withdrawn.

Mr. Clyde Leavitt gave an interesting talk upon the Imperial Forestry Conference held in London last month, which he attended as a representative of the Canadian Government.

EXAMINATION OF CHINA CLAY

By Paper Expert

Following the scheme of examination set out in the previous chapter we have first to consider the question of moisture.

This is not quite so simple a matters as it appears, for no standard of moisture has yet been fixed. Ordinary china clay as delivered to the paper mill in bulk or in sacks contains a varying percentage of water, some proportion of which is natural moisture derived from the water originally used in washing the clay, and the remainder due to water chemically combined with the silicate of alumina. The first name is clearly excess moisture if we accept an air-dried clay to form a standard for contract of purchase. The second, or chemically combined water, bears a constant ratio in the air-dried clay of which it forms a part.

The percentage of natural moisture left in the clay when removed from the drying kilns depends entirely on the extent to which the clay has been dried, and the papermaker may well consider that he is entitled to determine the amount coming under this description and to regard any large excess as something abnormal, to be ultimately allowed for in settling the account for payment.

The condition which thus obtains is made more evident by a stated case. For example, the papermaker draws a representative sample from a number of bags, and finds that on exposing 5 lbs. previously well pulverised, in a thin layer, it gradually loses weight, and finally comes to a more or less constant weight at 4¾ lbs., representing a loss in weight by simple exposure to air of 5 per cent. In terms of a bulk consignment this would mean that 100 tons of moist clay delivered contains 5 tons of moisture which would evaporate if the clay were freely exposed. Certainly 100 tons of such clay if all was retained in the paper would only give an added weight of 95 tons or probably less to the paper produced. The question then arises. Is the weight of clay to be paid for 95 tons or 100 tons? A small percentage of 5 per cent. might not be considered as open to dispute, but if no standard is set up, such proportions as 8, 10, or 12 per cent, might clearly be present, and under such circumstances where is the line to be drawn?

Since the weight of even an air-dried clay fluctuates in accordance with the humidity of the air, it is simpler to accept as a hypothetical basis the weight of clay at 100 deg. C. This does not mean that the clay is to be completely dried in bulk at 100 deg. C. (212 deg. Fahr.) before delivery, but that the clay delivered is calculated to its condition at 212 deg. Fahr.

Sampling the Bulk

The careful and systematic sampling of the bulk in order to secure a representative sample then becomes a matter of importance, particularly with deliveries containing large masses of damp clay. When the material is delivered in sacks, at least 3 per cent. of the total number taken from the various sections of the stock, or from different trucks should be opened and 5 or 6 lbs. of clay withdrawn, lumps and powder in right proportion as dictated by judgment. If the material is in crude form despatched per barge or truck, reasonable care must in like manner be exercised. The quantity drawn out in this way is rapidly down to a sample weighing ultimately 2 lbs. This is crushed to uniform condition, properly quartered, quickly transferred to an air-tight vessel and retained for examination.

Examination of Sample

In the absence of any convenience for drying and accurate weighing of small sample, the best plan is to weigh the whole sample as exactly as possible, and expose the clay broken down and spread out in a thin layer to air until it reaches an approximately constant weight.

The correct method of determining the moisture is to dry 100 grams, or an exact 4 ounces, taken from the well-mixed bulk sample. This is weighed in a porcelain dish or basin, and the sample dried in an oven at 212 deg. Fahr. to constant weight. The loss is moisture driven off at 212 deg. Fahr.

Water Chemically Combined

Clay dried at the temperature named still retains a definite percentage of water which can only be driven off at a high temperature by strong heating in a platinum or silica vessel. This amount is a contast between 9.8 and 10.2 per cent. giving an average of ten per cent.

This has an important bearing in calculations made with reference to the percentage of clay added to the pulp in the beating engine. The percentage of loading or ash in paper is ascertained by igniting a weighed quantity of the paper, the inorganic residue remaining being usually taken as mineral matter added.

In the case of clay two corrections have to be made before the correct estimate of clay retained can be worked out. If the clay as bought contains 10 per cent. of natural moisture, or excess moisture, whichever term is applied it also contains 10 per cent. of water of chemical combination. Hence every 80 parts of mineral residue in a paper loaded with china clay corresponds to 100 parts clay as bought. If, for example, the paper shows a residue of 8 per cent. of the corrections so applied would give 10 per cent. of actual retention.

The necessity for some standard percentage of "natural" moisture, using this phrase to signify the loss sustained by drying a sample of clay at 212 deg. Fahr. (100 deg. C.) thus becomes an important question, not only as a matter of initial cost, but requiring to be allowed for in calculating the amount of clay retained.

China Clay Trade Review.

IN HAWAII

Mr. C. W. Mason, who was formerly making paper in British Columbia, writes from Olaa, Hawaii that the mill, of which he is superintendent, continues to produce paper from bogasse. It is the intention, after the first of the year, to make wrapping, as well as mulching paper. Mr. Mason talks of sitting on the brink of the volcano and watching the lava boil, and of exploring lava caves, some of which run 20 or 30 miles into the mountains.

Ottawa, Ont.—The new trade agreement concluded recently between Canada and the British West Indies has now been made public. It provides for an increase in the mutual preference from twenty to fifty per cent.; it extends the free list, and makes arrangements for increase steamship service—a weekly service between Canada and the eastern group of the British West Indies, and a fortnight service with the Western group.

INTERNATIONAL ANTICIPATES TROUBLES

The Wall Street Journal says: International Paper Company has notified its customers that it will make contracts for 1921 only on the basis of 80 per cent. of the allotment for the current year. An offer is made to supply print paper for 1921 on this basis under the same contracts now in effeet; that is, paper will be supplied up to an agreed tonnage, with prices to be adjusted each quarter by agreement governed by cost of production.

In notifying customers that print paper allotments will have to be curtailed next year, officials say they believe fuel, cars and pulpwood will be difficult to obtain, and that they are not confident that normal output can be maintained. A small percentage of the 1921 tonnage will be reserved to be sold to small publishers' agencies formed for collective buying.

International Paper has been able to keep production at maximum figures so far this year, and it is now running between 1,800 to 1,900 tons daily, of which two-thirds is newsprint. Officials are not at all confident that this output can be maintained in view of shortage of cars and the consequent lack of supplies.

Referring to the difficulties encountered last winter in obtaining transportation facilities, the company in notifying publishers of reduction in allotment, says in part: "Indications are that next winter most of these troubles will continue, and we expect that coal cars, and pulpwood especially, will be scarcer than ever before. We are extremely apprehensive, therefore, that we will not be able to turn out full production in 1921, as we have this year. We anticipate a continued overdemand for paper next year in spite of new tonnage coming on the market, and in spite of the higher prices for all grades of paper likely to prevail on account of the rapidly mounting cost of pulpwood and other elements of cost.

"Present prices for paper do not nearly reflect current prices in the general market for raw material, viz., $35 a cord for pulpwood, $140 a ton for ground woodpulp, and $170 a ton for sulphite pulp. This advance in costs is world-wide, and if it continues must inevitably cause a higher level in prices for paper."

MANOUAN PULP & PAPER ORGANIZATION.

A new pulp and paper industry will shortly be developed along the St. Maurice territory to be known as Manouan Pulp & Paper, Ltd., according to the "Financial Post." The limits are contiguous to those of the Laurentide Company, the Brown Corporation, the Belgo-Canadian and other industries, and it is proposed to construct a groundwood pulp mill, as well as to develop the pine, and to sell the surplus power. The limits have been owned by the McLaurin interests for a number of years and so far have not been developed. The mill site will contain 1,980 acres, and the ultimate water power will be some 28,000 h.p.

In connection with this work an issue of securities will be made. There will be a bond issue of $2,500,000 authorized with $2,000,000 to be issued in the form of 7 per cent, first mortgage sinking fund gold bonds, dated Sept. 1, 1920, and maturing in 25 years. In addition will be 7½ per cent convertible 15-year debentures of similar dates of which $900,000 will be issued. Of common stock $4,000,000 will be issued.

The interests behind the new corporation are said to include a number of prominent American and Canadian interests who are already largely identified with the pulp industry. Prominent among them are Frank L. Moore, President and Managing Director of Newton Falls Paper Company, of Watertown, New York, and former President of the American Pulp and Paper Association; Thomas Fynes, of the Continental Bag Company, of New York, and several pulp and paper companies, both in Canada and the United States, and George R. Smith, M.P.P., manager of the Bell Asbestos Mines.

TANK CARS FOR LIQUID SULPHUR DIOXIDE.

Prepared by the Advertising Department of the Standard Tank Car Company of Sharon, Pennsylvania.

When the Tank Car was invented 50 years ago, it marked an epoch in the petroleum industry. The success these modern carriers achieved in quick, safe and economical shipments of petroleum and petroleum products soon caused them to be adapted to the transportation of other liquids, and with equal success. Today the cycle is completed with the building of Tank Cars for explosive chemicals. Tank Cars finally have solved the problem of bulk shipments of each of the whole wide range of commercial liquids.

The latest developments in the Tank Cars are exemplified in the type used in the handling of sulphur dioxide.

This commodity has many useful applications in the arts and manufactures. The Canadian paper maker is particularly interested in it for its value in preparing wood pulp and paper. Also it is employed as a bleaching agent, applied as a primary bleaching agent where chlorine is unsatisfactory and as a secondary one to remove the last traces of chlorine after the pulp has been bleached. Enormous quantities of sulphur dioxide are used by vitriol manufacturers, and it plays a part in tanning leather and in treatments of fur, wool, hair and other materials that are feltable.

Sulphur, as is well known, is a plentiful mineral, and wherever there is sulphur it is easy to produce sulphur dioxide. The principal of the preparation of sulphur dioxide is one of burning sulphur in air. The sulphur is united with two parts of oxygen, forming So2, the gas, sulphur dioxide. It is prepared commercially as a by-products of smelting plants.

At ordinary temperatures sulphur dioxide is an incombustile gas with the odor of burning sulphur. It is condensible to a liquid at a temperature obtained by mixing ice and salt or through pressure. It is obvious that for practical shipments it must be in liquid state, and the containers must insure a constant low temperature and ample resistence to pressure. Because of the propensity of the liquid to convert back into a gas, railroads class sulphur dioxide as an explosive.

Gasoline and many explosive chemicals were shipped in Tank Cars before it was considered practicable to build tanks for sulphur dioxide. But the quantities of sulphur dioxide required demanded large bulk shipments, and so Tank Cars have been designed to meet the requirements.

The tanks for sulphur dioxide transportation must be tested to resist a pressure of 300 pounds to the square inch. They must be equipped with safety devices set at 200 pounds. To preserve a low temperature, the tanks are heavily insulated with mineral wool, and the wool in turn is covered with a watertight steel jacket.

These specifications conform to the regulations of the American Railway Association and of the Bureau of Explosives. What is more, they make the shipments of Sulphur Dioxide almost as simple as that of a harmless liquid.

F. T. C. ON U. S. NEWSPRINT FOR JULY.

The average or normal production of total print and standard news based upon the total combined production for the years 1917, and 1918, and 1919 amounted to 112,736 tons of total print and 101,400 tons for July, 1920, of standard news for the period corresponding to July. The actual production amounted to 129,853 tons of total print and 118,810 tons of standard news, an increase in the case of the total print of more than 15 per cent. over the average for the three-year period and an increase in the case of standard news of more than 17 per cent. over the average.

The increase in the production of newsprint in July 1920 over July 1919 amounted to slightly less than 14 per cent. for total print and 17 per cent. for standard news, being 129,853 and 113,929 tons, respectively.

Mill stocks of both total print and standard news decreased during July, 1920.

In addition to the stocks given above, 579 tons were reported on hand at terminal and delivery points on July 31, 1920.

Newsprint.

Reports from 89 mills operating 193 machines running full or partial time on newsprint paper showed the following loss of time during the month of July, 1920: repairs, 869 hours; other reasons, 402 hours, of which 310 was for lack of coal.

The total time the machines were idle was 156 hours less than that shown in June. No lost time due to lack of orders or labor was reported by newsprint mills,

Imports and Exports.

The imports and exports of printing paper not dutiable (practically all newsprint) and of wood pulp for the month of June 1920 compared with the month of June were as follows:

	June 1920 Net tons	June 1919 Net tons
Imports of Newsprint (total)	58,739	52,619
From Canada	58,182	52,619
From Norway	557	0
Exports of Newsprint (total)	5,204	9,552
To Argentina	3,493	2,549
To China	267	238
To Cuba	701	748
To Australia	175	224
To other countries	568	5,993
Imports of Ground Wood Pulp (total)	19,195	15,572
Imports of Chemical Wood Pulp (total)	50,125	24,350
Unbleached Sulphite	24,792	10,512
Bleached Sulphite	12,292	2,943
Unbleached Sulphate	12,950	10,224
Bleached Sulphate	91	671
Exports of Domestic Wood Pulp	2,518	4,469

The imports of newsprint for June 1920 were 6,120 tons more than for June 1919. The exports for June 1920 were 4,348 tons less than for June 1919.

The tonnage to "Other Countries" under the "exports of newsprint" for June 1920 includes 104 tons to Philippine Islands, 56 tons to Canada, 52 tons to New Zealand, 49 tons to Dutch East Indies and 38 tons to United Kingdom.

The imports of mechanically ground wood pulp for June 1920 were 3623 tons more than for June 1919. The exports of domestic wood pulp were 1951 tons less than for June 1919.

The imports of chemical wood pulp (total) for June 1920 were 25,775 tons, greater than for June 1919.

Jobbers' and Publishers' Stocks.

Stocks of rolls in the hands of jobbers at the end of July were 481 tons more than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 439 tons greater at the end of July than at the beginning of the month. The net increase in the total stocks of newsprint in the hands of jobbers at the end of July amounted to 920 tons.

Commitments to sell roll news were 1,876 tons greater than commitments to buy. Commitments to sell sheet news were 1093 tons less than commitments to buy. Total commitments to sell both rolls and sheets were 783 tons greater than commitments to buy.

Publishers' stocks increased 20,827 tons during the month. The average daily tonnage used during July was 403 tons less than the average used in June.

Publishers' stocks and transit tonnage on July 31 represented slightly more than 46 days supply at the existing rate of consumption.

Sixty-six publishing concerns held about 49 per cent. of the tonnage on hand at the end of the month.

The domestic consumption of standard news by metropolitan dailies using between one-half and three-fourths of a million tons annually decreased more than 3 per cent. for July 1920, compared with July 1919, and increased more than 18 per cent. for July, 1920, over July 1918.

Average Prices Paid by Publishers.

The weighted average price of contract deliveries from domestic mills to publishers during July 1920, f.o.b. mill in carload lots for standard news in rolls, was $5,211 per 100 pounds. This weighted average is based upon July deliveries of approximately 48,000 tons on contracts involving a total tonnage of approximately 445,000 tons of undelivered paper manufactured in the United States.

The weighted average contract price based on deliveries from Canadian Mills of about 23,000 tons of standard roll news in carload lots, f.o.b. mill in July 1920, was $4,938 per 100 pounds. This weighted average is based upon the July deliveries on contracts involving about 175,000 tons of undelivered Canadian paper. The greater number of these are short-term contracts covering the year 1920.

The weighted average market price for July of standard roll news in carload lots f.o.b. mill based upon domestic purchases totalling more than 5,000 tons was $10,498 per 100 pounds. This weighted average may be less than market quotations on account of contract relations, quantity discounts, mill stock ownership and other causes unknown to the Commission.

Plans of the Pennsylvania State Forestry Department for extensive reforestation in the wood and on the waste lands of Pennsylvania this year will call for the largest amount of seeds ever used and efforts are being made to secure as much as possible from indigenous trees. In several counties tests will be made this fall of planting of North Carolina poplars to furnish a new supply of pulpwood for the State's industries, Trees have been selected and will be planted on state lands of different types, the growth and general conditions being checked.

British Trade News

(From Our London Correspondent.)

London, 13th August 1920.

Cropper & Co., in their annual report for the year ended June 30, 1920, state that the net profits after deducting depreciation and other expenses, amount to £71,891, to which has to be added £2,385 brought forward. The directors proposed final dividend on the ordinary shares of 7½ per cent, making 10 per cent for the year and in addition a bonus of 10 per cent, to write £1,000 off loosehold premises, to transfer £5,000 to the reserve account and £500 to the reserve for doubtful debts. The directors also propose to transfer £40,000 to the special reserve account leaving to be carried forward £2,997. The company are also about to provide further working capital and the authorised capital has consequently been increased to £500,000 divided into 250,000 7½ per cent cumulative preference shares of £1 each and 250,000 ordinary shares of £1 each. It is reported that 50,000 preference shares credited as fully paid were issued to the holders of the 100,000 ordinary shares as a bonus, in the proportion of one preference share for every two ordinary shares, and the issued capital, therefore, now consists of £100,000 in ordinary shares of £1 each.

Colthrop Board Mill.

Messrs Cropper & Co. report that the Colthrop Board and Paper Mills, in which they are largely interested, has had a successful year's trading and has paid a dividend of 20 per cent. The development of the business has necessitated a considerable increase of capital and a further small participation in the new issue of shares has been taken up. Containers, Ltd., may be expected to shortly be in a position to commence business. The factory has been built and the erection of the machinery is practically completed.

Dutch on Strike.

News has reached England that a series strike in the Dutch board mills has taken place and the chances of a settlement are very remote, some saying that it will be the middle of September before terms satisfactory to both sides can be arrived at. In Scandinavian mills of late there has been a very unsettled feeling amongst the workers, but the present trouble in Holland will hit America more than England. Just as the strike occurred America was taking advantage of a slack time in the Dutch mills and was just completing some extensive business transactions when the labour upheaval broke out. Some of the straw stack in the mills have been burnt and there has been fighting.

A New Catalogue.

Messrs. Ashworth and Parker, the well-known English engineering firm of Bury, Lancs., have just issued two interesting catalogues for the use of their customers in the papermaking industry. Considerable skill and ingenuity have been exercised in getting out this catalogue and I would suggest that be placed at the disposal of Canadians.

Old Mill Re-Started.

Killeen, Co. Dublin, in Ireland, possesses an old paper mill which in the days of our Great Grand Fathers there used to be made bank note paper for the Bank of Ireland. This bank is the concern where Government money in Ireland is stored. I am informed that the old disused mill at Killeen is to be re-started by the Killeen Paper Mill Co., a local body, and browns and wrapping paper will be turned out instead of the bank note products as of yore.

Usk Paper Mills.

Messrs. Towgood and Beckwith Ltd., have disposed of the Usk Paper Mills, Crickhowell, to the Usk Paper Mills, Ltd., but they will retain a holding in the business. For sometime past considerable improvements have been undertaken in this mill and when finished the company will have a neat and compact up-to-date concern.

Pulp Imports.

The imports of pulps for July show a considerable increase, as will be seen from the following figures compared with the same month in 1919:

	1919 Tons	1920 Tons
Bleached chemical dry	925	1,660
Unbleached chemical dry	44,191	48,155
Wet chemical	537	3,154
Groundwood, moist	63,397	59,347
Groundwood, dry	1,785	3,488
Totals	110,835	115,804

Pulp Shipments From Canada.

Some good shipments of Groundwood are now arriving in the British market from Canada. The figures for July, compared with the same month last year, are as follows :—

	1919 Tons	1920 Tons
Sweden	23,112	20,695
Norway	33,515	21,794
Canada	6,770	15,725
Other Places	.....	1,133

Canada's imports here exceed June by 6,000 odd tons while Norway's shipments when compared with June show a reduction of 2,189 tons. Sweden's shipments increased on June to the extent of 3,000 tons. The figures now for the seven months ending July are as follows :—

	1919 Tons	1920 Tons
Sweden	50,795	49,462
Norway	183,997	197,463
Canada	12,440	26,185
Other Places	4,099	4,100

These figures show the satisfactory increase of business with Canada on the seven months. The labour troubles and other set-backs in Sweden can be read in the returns from this country.

Chemical Pulps.

Though considerable shipments are received from Canada of unbleached chemical pulp no actual figures can be obtained about the Dominion, but under the heading of "Other Places" more than one half of the shipments are from a Canadian source.

The Pulp Market.

Buyers of pulps are mostly concerned in getting their supplies in for the Fall and Winter. Prices are firm and the holiday season is on. Quotations are about as follows :—

Bleached Sulphite	£80	£85
Easy Bleaching	57½	62
Sulphate unbleached	50½	53
Soda Kraft	40	42½
Groundwood, moist	—	17½
Groundwood, dry	—	34

UNITED STATES NOTES

In a model housing scheme contemplating the building of at least 100 homes the Fitzdale Paper Company is solving the housing problem of the papermakers employed at its plant at Fitzdale, Vt. These homes are being erected at the rate of 30 at a time, and the project sizes up as one of the leading building enterprises now going on in Northern New England.

Fred Webster, who was formerly associated with the advertising department of the American Writing Paper Company, has started a paper firm at Holyoke, Mass. A charter has been granted to Mr. Webster, Harlan P. Small and Gordon Ireland as incorporators under the firm name of the Fred Webster Paper Company. The capitalization is $20,000.

The George Banta Paper Company, manufacturers of printed and plain Kraft gummed tape, adding machine rolls and special roll printed products at Menasha, Wis., have changed their corporate name to the Central Paper Products Company. No change in officers and ownership, however, has taken place. The factory is now being operated at a new location in Menasha.

In the annual report of the United Paperboard Company, the financial statistics of which were published in the last issue of the **Pulp and Paper Magazine,** Sidney Mitchell, president, states that the mill of the company at Urbana, Ohio, recently damaged by fire, is being rebuilt with additional equipment of modern construction; that the mill at Yorktown, Ind., which has been idle for some time, is again operating profitably, and that the Thompson mill, which was closed for repairs during several months after a walkout of the employees is now also in operation and helping to meet the increased demand for the company's product. Improvements to the extent of $106,852.00 were completed during the year, says Mr. Mitchell's report.

The **Red Cross Magazine,** official publication of the American Red Cross, has been forced to suspend because of famine prices of white paper. Announcement to this effect was made in the final issue of the magazine, the October number. Through its bulletins, the **Junior Red Cross News** pamphlets, and "with the cooperation of the press," the notice states, the national headquarters of the organization hopes to keep its information service in full swing without the magazine.

The International Paper Company announced last Thursday it would make contracts for 1921 for print paper only on the basis of 80 per cent. of the allotment for the current year. In announcing the 20 per cent. reduction in supply it was said fuel, cars, and pulp wood will be scarce during the coming year, and it was believed the normal output could not be maintained.

At the meeting held last week in New London, N.H. attended by leading forestry experts and paper manufacturers from the United States and Canada, Col. Henry S. Graves, former chief of the United States Forest Service and George W. Sisson, Jr., president of the American Paper and Pulp Association, urged that the controversy over pulpwood from the crown land of Eastern Canada be submitted for settlement to a conference of representatives of the two countries. No action was taken, however, upon the suggestion. The Canadian Policy in the matter was defended by Ellwood Wilson, chief forester of the Laurentide Company of Grand Mere, Quebec. Edward Beck, secretary of the Canadian Pulp and Paper Association, who considered the question of removing the Canadian restrictions one for judicial determination. An annual appropriation of $1,000,000 by the Federal government for forest protection and distribution of forest planting material, with similar State appropriations, was proposed to the convention by R. S. Kellogg, secretary of the News Print Service Bureau. Mr. Kellogg also proposed an annual appropriation of $500,000 for a forest survey, and 3,000,000 yearly for the purchase of lands beyond the White and Southern Appalachian Mountains. Another suggested appropriation was $1,000,000 a year for forest planting in national parks.

A charter has been granted at Richmond, Va. to the Hummel-Ross Fibre Corporation, capitalization $5,000,000, which is to engage in the manufacture of wood pulp, strawboard paper and fibrous products at Hopewell, Va. It is said that Milwaukee capital is largely interested in the project. Mr. James Beveridge is general manager.

Two New York concerns are reported as having opened negotiation for the purchase of the plant of the National Pulp Company at Westfield, Mass. The property is now held by the New England Construction Company. The plant was formerly operated by the Sprindale Paper Company at Westfield, Mass. The plant was formerly operated by the Springdale Paper Company. It was acquired but recently by the construction company.

Walter C. Carlson,, president of the Milwaukee Paper Box Company, announces that the new factory being built for his concern will be in operation early next month. The new plant, described as one of the most modern of its kind in the world, is attracting much attention. Various innovations in box making will be introduced. The material is to be transported to the top story of the factory and will go through the various processes of box making on its return trip to the shipping room in the lower floor.

Envelopes sold by the United States Government at its post offices and which every station and substation used to have in unlimited quantities and in great varieties of sizes, shapes and colors, have been in such great demand by business houses in the larger cities that there is now a shortage in the supply. One of the reasons for this shortage is that business houses have come to realize in increasing numbers that the Post Office Department provides envelopes with return address printed on them for less than the stock alone would cost if bought from the average printer. Quantity orders for stamped envelopes used to be filled in ten days to two weeks. Now the prospective purchaser is told that he must wait six to eight weeks. The universal shortage of paper is another cause contributory to the famine as is also the difficulty in obtaining labor experienced by the contractor in Dayton, Ohio, who makes the envelopes for the government.

Technical Section

A-3. Color reactions of vegetable fibres. Paper Makers' Monthly Journal, through La Papeterie, **41**, 369-70, (Sept. 25, 1919). A description of some color reactions of cotton, jute, hemp, flax, nettle, broom, reed, hops, lupine, cotton grass, as viewed through the ultramicroscope.—A.P.-C.

A-4, 5. French public pulp-testing bureau. La Papeterie, **41**, 370-3, (Sept. 25, 1919). The French government has just created a national pulp-testing bureau, which will be located at Grenoble. The texts of the decree establishing it and of the regulations governing it are reproduced at length.—A.P.-C.

G-0; K-12. Regulating stock consistency; the Arca regulator. Paper, **26**, 833-6, (1920). The hand wheel of the stock regulating valve is replaced by a sprocket operated by a chain. At one end of the chain a wt. is suspended, and the other is fastened to a piston in a cylinder operated by water under press. In front of the nozzle through which the water discharges from the cylinder is a disc or cup, fastened to a lever arm receiving multiplied motion from a perforated sheet copper drum, which is placed on the wire directly over a table-roll and as close to the breast roll as the concentration allows. By this location the lagging of the regulator is prevented as far as possible. A change in the concentration of the stock alters the thickness of the sheet, thus raising or lowering the drum, which operates the cup and affects the discharge of water from the cylinder. This in turn operates the piston which thus opens or closes the stock regulating valve. Curves are given to show the results of tests made at one of the largest sulfite mills in Sweden.—A. P.-C.

K-7. Improvements to beaters and refiners. World's Paper Trade Rev., through La Papeterie, **41**, 363-4, (Sept. 25, 1919). Description of T. N. Nash's patent (Eng. patent 6876, 1914), followed by a brief discussion of the claims of the inventor.—A.P.-C.

K-12. The manufacture of crushed straw paper at high speed. Porphyre. La Papeterie, **41**, 356-9, (Sept. 25, 1919). A description of the first stages in the preparation of the stock, the elimination of the knots and the grinding and refining, followed by a discussion of the relative merits of the cylinder mold and the flat wire for making the paper, the advantages of the latter being greater with a properly prepared stock, especially for heavy paper. (Cont'd.)—A.P.-C.

K-12. How paper is formed on the fourdrinier. Influence of certain conditions in the formation of the sheet. Papierfabrikant, July 19, 1919, p. 750. Paper, 579-81, (1919). The formation of the sheet is affected by the following factors:—(1) Degree of upward or downward inclination of the wire. (2) Height of damming behind the slices. (3) Speed at which the stuff passes between the slices. (4) Difference in speed between the travel of the wire and the rate at which the stuff flows on. (5) Position of the wire apron. (6) Temperature of the stuff. (7) Degree of greasiness of the stuff. (8) Shake. (9) Length of the pulp fibres. (10) Speed of the machine as a whole. The method of formation of the sheet on a cylinder wire is also described.—A.P.-C.

K-12, 14.—Air conditioning for paper mills. J. O. Ross, B. F. Sturtevant Co. Paper, 13-9, (June 16, 1920). The moisture content of a sheet of paper depends on the temperature and relative humidity of the surrounding atmosphere. Under given operating conditions the paper coming from a machine has a practically constant moisture content; but the temperature and humidity of the finishing room vary within wide limits. This will affect merely the outside of rolls or packages of paper, thus causing uneven moisture content throughout the paper. This is particularly objectionable for paper that is to be coated. This may be overcome by conditioning the air to a given temperature and humidity. The Sturtevant system of air conditioning is described at some length, together with the principle on which it is based.—A. P.-C.

K-24.—Cutting costs in handling, packing and shipping paper. N. P.-Winchell jr. Paper, **26**, 629-33, 680-3, 730-2, 742, (1920). A description of proper methods of handling paper in the mill previous to shipment so as to eliminate time-loss or labor-loss, showing the advantages of using various types of trucks (elevating trucks, combination truck and tiering machine, motor-driven trucks) cranes, hoists, carriers, conveyors, and showing the proper methods of packing, both for export and domestic trade, so as to obtain economy, safety and compactness. The importance of the selection of the right route and the best method of shipping is discussed.—A. P.-C.

K-0. Papermaking from megasse. J. Ind. Eng. Chem., **12**, 83, (1920). The remedy for expensive bags is a simple one as there are thousands of tons of sugar-cane waste (megasse) burned or thrown away every year in Queensland and New South Wales. This is one of the very best materials for making paper, corn sacks, and wool packs which latter may be made from paper at 30-40% less than the cost of jute bags. This is a new industry with a great future before it and a company could readily be formed, machinery installed, and in less than 12 months Australia could be supplied with corn sacks, wool packs, binder twines and other articles at a minimum price, and made by Australian workmen.—A.P.-C.

L-4.—Making seamless bags, and envelopes. Fr. patent No. 502, 185, Torakichi Umeda, Japan, Feb. 16, 1920. Papier, **23, 103-4**, (May 1920).—A. P.-C.

L-4.—Improved drum tester for shipping boxes. Paper, **22**, (June 23, 1920). Description and illustration of a drum tester which, it is claimed, simulates the handling which a loaded box may encounter in railroad traffic.—A. P.-C.

L-4.—Machine for making paper bags. Eng. patent. Christopher Handersen, Edinburgh, Scotland, World's Paper Trade Rev. Papeterie **42**, 447, (May 25, 1920).—A. P.-C.

L-7. Jute substitute. Z. angew. Chem., Aug. 2, 1918; J. Ind. and Eng. Chem., **11**, 244, (1919). Paper yarn of from 1-5 mm. diam. is in use in Germany as a substitute for jute, while paper yarn from parchment paper is woven into belts for driving light machinery. The yarn, when treated with a 1 per cent. solution of tannin, is rendered soft and flexible to the touch and its strength is increased by 49 per cent. The addition

of gelatin gives a hard firm touch to the yarn and an increased strength of 25 per cent. When wet its strength is reduced only 15 per cent. Neutralized aluminum acetate added to the tannin gives the yarn a strong, elastic touch and increases its strength 44 per cent. The average water content of the yarn is about 28 per cent.—A.P.-C.

M-4.—The making of belt joints and laps. N. P. Winchell Jr., Paper, **25,** 1153-6, (1920). A detailed description of the proper way of making the various kinds of joints and laps in different kinds of belt (leather, rubber, fabric).—A. P.-C.

N-4. The conservation of coal. Importance of insulation. Papier, **22,** 357, (Dec. 1919). A brief discussion of insulation as applied to boilers and piping.—A.P.-C.

N-5.—The advantages of pulverized coal. Jacques Maisonneuve. Papier, **23,** 77-9, (April 1920). A brief discussion of the advantages of pulverized coal, together with a short description of the apparatus for pulverizing and burning it.—A. P.-C.

N-7.—Hydraulic power in France. Papier, **23,** 10-2, (Jan. 1920). A discussion of the new French law relative to the utilization of water-power for industrial purposes.—A. P.-C.

N-0. Cheaper power available in paper mills. John F. Ferguson, Paper, **25,** 970, (1920). Paper mills could obtain a large proportion of the power they require at a very low cost by utilizing their by-products. —A.P.-C.

N-0.—Liquid fuel. J. Micol de Portemont. Papier, **23,** 4-7, (Jan. 1920). A discussion of the advantages of fuel-oil.—A. P.-C.

O-2.—Process and apparatus for removing oil from water. Papeterie, **42,** 499-500, (June 10, 1920). The oil is demulsified from the water by means of metallis hydrate which is precipitated in the oil-bearing water and carries down the oil with it, the water being then filtered.—A. P.-C.

O-2. Filtration in the paper mill. Leonce Fabre. Papeterie, **41,** 627-31, (Dec. 25, 1919). A short description of the Zenith filter and of various types of "save-alls".—A.P.-C.

P-2. Interesting men in the safety movement. W. E. Worth. Paper, **25,** 575-9, (1919). "Safety first" is a humanitarian movement, but it is also very sound business, as accidents cost a lot of money. to get results it is indispensable to arouse the interest and get the good will of the men. This may be done by means of mixed committees of foremen and workmen, posting accidents on bulletin board, educating the foremen, putting new men on approbation, making bulletins interesting, using illuminated signs where possible. —A.P.-C.

R-1. The paper industry in Czecho-Slovakia. Jean Dvoracek, Prague. Papier, **23,** 91-2, (April 1920). A study of the paper requirements of Tcheco-Slovakia before and after the war, and of the ability of the home industry to supply the needs.—A. P.-C.

R-1.—The paper industry in France. A Crolard. Papier, **23,** 59-63, (March 1920), 81-7, (April 1920), 117-9, (May 1920). Extracts from the report of Albert Crolard, Deputy, presented to the Congrès National du Livre" in 1917, giving a detailed analysis of the position of the French industry as regards its raw materials and equipment, its ability to produce various kinds of papers, and its dependence on foreign countries; together with a brief description of the manufacture of cardboard, fancy paper, and Japanese paper.—A. P.-C.

R-1.—Developing and organizing a modern pulp products mill. Paper, 17-9, 34 (June 23, 1920). A description of the growth of the Eddy mills, Hull, Quebec.—A. P.-C.

R-2. Contribution to the history of paper-making in France. H. F. La Papeterie, **41,** 350-3, (Sept. 25, 1919). An outline of the evolution of the paper guild and the "union" of papermakers during the 17th and 18th Centuries, and of the royal edicts which were promulgated concerning the industry.—A.P.-C.

R-2. Contribution to the history of paper-making in France. III. H. F. Paperterie, 41, 492-5, (Nov. 10, 1919). Notes on the paper trade in France up to the beginning of the nineteenth century. (Cl'd.) —A.P.-C.

R-3.—Applying scientific management to industrial administration. J. Wm. Schulze. Paper, 15-6, 30, (June 2, 1920), 15-6, 34, (June 9, 1920), 24, 28, 30, (June 16, 1920). How to apply planning to administration to properly coordinate the motives of an organization as established by the administration with the workers, materials, equipment, working space, and management to secure maximum results.—A. P.-C.

R-5. The pulp and paper industry in Czecho-Slovakia. J. Micol de Portemont. Papier, **22,** 345-6, (Dec. 1919). A discussion of the present status of the industry and of the advantages to be derived by the French industry by dealing as much as possible with the new republic.—A.P.-C.

R-5. Japan's position in the paper industry. J. P. Suzuki, Industrial Japan; World's Paper Trade Rev., Dec. 12, 1919; Paper, **25,** 925, (1920). A brief review of the development of the paper industry in Japan and of its present status.—A.P.-C.

R-5.—The French paper industry. Lucien Chassaigne. L'Exportateur Français; Papier, **23,** 105-6, (May 1920). A discussion of the dependence of the French paper industry on foreign countries, and of the means to be taken to supply its needs from the Fr. colonies. A. P.-C.

R-5.—Rapid growth of woodpulp and newsprint production in Sweden. Walter H. Sholes, U. S. Consul. Paper, 16, 26, 30, 32, (June 23, 1920). An analysis of the present situation of the Swedish pulp and paper market.—A. P.-C.

R-7. Industrial organization and salary scales. Papyrophile. La Papeterie, **41,** 346-9, (Sept. 25, 1919). Any system, no matter how perfect it may seem, is bound to fail if applied inconsiderately, without due regard for the particular circumstances of each case to which it is applied. In the paper industry, if the premiums system is to be applied, it must be done in such a way that quantity will not be produced at the expense of quality; but both should concurrently be maintained as high as possible. The system should be studied with this end in view, and should be explained to the workmen to show them it is to their advantage to turn out quality as well as quantity. Examples are given of the way in which such a system could be applied in a paper mill.—A.P.-C.

R-12.—The distribution of general expenses to arrive at costs. L. Dupuy. Mon Bureau; Papier, **23,** 107-8. (May 1920). A discussion of the importance of a proper distribution of general expenses, especially during periods of industrial crisis.—A. P.-C.

R-13.—Convention of the American Pulp and Paper Mill superintendents. Paper, **26,** 873-4, 900, (1920). A brief account of the convention held in Buffalo June 4th and 5th, 1920.—A. P.-C.

PULP AND PAPER NEWS

L. B. Holliday & Co., have moved their dyestuff business in Montreal to No. 27 St. Sacrement St., where they have established a laboratory in charge of a competent staff and are ready to undertake problems of color matching and research.

A visitor to Toronto during the past week is Mr. Theo. Feilden, editor of the Empire Mail of London and director general of the Imperial Trade Propaganda Organization. This journalist is collecting data on financial, commercial and industrial phases of Canadian life which will be used as a basis of efforts to extend trade between the United Kingdom and the Dominion.

Notices of the annual meeting of the Spanish River Pulp and Paper Mills, Limited, to be held at the head office in Toronto on Sept. 30th next, have been sent out. The annual statement will be mailed to the shareholders in a few days time and it is expected to show that in the fiscal year ended June 30th an increase of close to 47,000 tons of newsprint, ground wood, sulphite, board and wrapping paper combined, over the output of the previous year. Newsprint will show an increase of 21,000 tons owing to the installation of an additional machine at Espanola. Secretary J. G. Gibson states that the company has been held up somewhat on part of the equipment for the Sturgeon Falls machine and that it will be the first of the year before the machine is in operation.

A visitor to Toronto this week was Mr. Robert Sweeney of Vancouver, one of the directors of Western Canada Pulp and Paper Company. Mr. Sweeney states that good progress is being made with the installation of the new digestor and it is expected that it will ready to operate in about a week's time. The new digestor will double the output of the plant to 40 tons per day of sulphate pulp and kraft pulp. In addition lumbering operations are being carried on. The market for British Columbia lumber, Mr. Sweeney stated, was showing some improvement.

According to information made available this week the net profits of the Provincial Paper Mills, Limited, for the year ended June 30th were $643,807 as compared with $335,128 for the same period of the previous year. The profits mentioned did not allow for depreciation or war tax. The stock of Provincial Paper is closely held and the rapid advances in the market recently indicate that there is a very small floating supply.

Mr. Alex Buntin, head of the Buntin Reid Co., Ltd., Toronto, has returned from a couple of months outing spent at Murray Bay.

The Waterous Engine Works, Company, Limited, of Brantford, report that they have booked the following orders: ten 84" wet machines for the Management Engineering and Development Company of Dayton, Ohio, for Fort William: six Quiller screens for Price Bros., Ltd.: ten plate flat screens for Mattagami Pulp and Paper Co.: sixteen 10-plate flat screens for the Toronto Paper Co., Ltd., at Cornwall. They are also busy on several orders for Voith magazine pulp grinders.

Mr. V. T. Haney, Toronto representative of the Rolland Paper Company, Limited, spent a few days in Montreal with the firm this week.

Mr. N. L. Martin, secretary of the Canadian Paper Trade Association is busy arranging for the annual meeting of the organization to take place in Toronto at the end of this month.

Mr. Irwin Proctor, President of the Canadian Aero Film Company, Limited, has just returned to Toronto after an aeroplane flight over the northern portion of the province, which was taken at the request of the Govenment in order to get photographs of the country from an agricultural and forestry viewpoint. The photos will be exhibited at the National Exhibition. The aeroplane travelled north to Hudson's Bay, passing through Algonquin Park, and carried six men. Mr. Proctor stated that from his observation on the trip he concluded that Ontario has the finest reserve of spruce pulpwood in the Dominion.

The timber problem which has been in progress at the Ontario Parliament Buildings in Toronto for some days past came to an unexpected termination this week the Crown counsel, Mr. R. T. Harding, having suffered a fractured arm when he fell from an apple tree at his home at Clarkson's. Adjournment was made until September 7th.

The Newmarket Express recently celebrated its silver jubilee. The paper has of late years made good progress under the able and energetic direction of the present editor, Mr. J. F. Harvey.

Simcoe and York County publishers have adopted the two dollars a year subscription rate owing to the increase in the cost of newsprint and other mounting expenses.

Mr. E. S. Hoyt, who has been some years with the International Paper Company, arrived at Iroquois Falls, Ont., last week, where he will have the management of the townsite, hotel and camps for the Abitibi Company, Limited. He was accompanied from Montreal by Mr. L. R. Wilson of the Montreal office.

Word has been received in Toronto that the Dominion Pulp Co. Limited, of Chatham N. B. a concern incorporated under the laws of the United Kingdom, has gone into liquidation. The company did business in Chatham, manufacturing unbleached sulphite. No information is available in Toronto as to what disposition is to be made of the company's plant.

(It was the plant of the Dominion Pulp Co., at Chatham that was recently reported bought by Fraser Co. Limited.—Ed.).

Mr. William Gorman, Montreal representative of the Provincial Paper Mills, Limited, was a visitor at the head office in Toronto this week.

Supplimentary letters patent have been issued increasing the capital stock of the Fort Francis Pulp and Paper Co. Fort Francis, Ont., from fifty thousand five hundred shares of one hundred dollars each.

The tremendous expansion of the pulp and paper mill industries in Ontario and Quebec has brought to one concern at Galt, Ont., industry orders for freight elevators. Three of the largest companies have placed orders with the Roelofson Elevator Company of that town and the factory is busy on these orders as well as others from the north country, with the prospect of further business from the same quarter.

Mr. A. P. Costigane, Secretary of the Ontario Pulp and Paper Makers' Safety Association, Mr. J. N. Stephenson of the Pulp and Paper Magazine and Mr. George Carruthers of the Interlake Tissue Mills, Limited, attending the meeting of the joint committee on Education from the Canadian Pulp and Paper Association and the committee of the American Technical Association at Saratoga Springs this week. Mr. Carruthers is chairman of the joint committee.

Many Canadian boys have gathered at Canoe Lake, Algonquin Park, where a school of woodcraft is being conducted under the auspices of the National Boys' Work Board. Instruction is being given the boys by prominent workers from Toronto and other centres.

The Provincial Paper Mills, Limited, held its quarterly meeting of shareholders last week when it was announced that hereafter the shareholders would receive their regular dividends in New York funds, which means a bonus of about thirteen per cent according to the present exchange rate. The company declared a bonus of one per cent on the common stock in addition to the regular quarterly dividend of one and a half per cent.

A visitor to Toronto a few days ago was Mr. H. R. MacMillan, of the MacMillan Export Company, Vancouver, who reports that the coast province is making great strides in the pulp and paper line and that many new companies are in process of formation out there. It was stated that several valuable timber lands have changed hands recently at good figures, the capital coming chiefly from the United States. The usual difficulty in the way of securing equipment exists in the west, says Mr. MacMillan, which is proving a drawback to the development of the industry.

A small pulp mill is to be erected at Nelson, B.C. at the cost of $500,000. An engineer and mill manager have been engaged and pulp wood for the plant will be secured from local ranches, according to a CRR. news report.

It is stated that present time immigration averages about 18,000 per month and of this number approximately 12,000 come from the British Isles and 6,000 from the United States. Last month out of 12,500 from the British Isles, 8,000 were English, 3,000 Scotch, less than, 1,000 Irish, and 150 Welsh.

Fort William, Ont.—The plant of the Nipigon Fibre and Paper Co. which is in course of erection will have an average output of 40 tons per day, which it is expected will be increased to 160 tons within the next couple of years.

Fusilier, Sask.—A twenty ton plant for the production of the sorium sulphite deposits here is now under construction by the Wm. Livingston Corporation, the sum of $20,000 being spent on the operation.

SCOTCH FORESTER IN CANADA.

Mr. P. Leslie, of the Forestry Dept., University of Aberdeen is making a tour of Canada to get in touch with forestry conditions, and especially with tree planting operations. He reports one Scotch Nursery with 40,000,000 seedling.

LAURENTIDE CO. ASSOCIATED MATCH PLANT.

An important industry in the form of a $5,000,000 match factory will be developed shortly in this country, according to an announcement made by Sir Alexander A. Maguire who represents the English firm of Maguire, Paterson & Palmer, Limited. The plant in Canada will follow the plans of the new plant recently located at Garston, Liverpool, which will operate next month. This plant is erected on a 45 acre site and employs two to three thousand hands and has a capacity of 100,000 gross per week. It is proposed to make a practical duplication of this factory in Quebec and a site has already been chosen. Mr. Maguire was attracted to the Province of Quebec from its raw material and the excellent power facilities that are offered in several vicinities.

It is announced that the industry in Canada will be in charge of a directorate of 12, 6 of whom will be Canadian and that of the latter Sir Lomer Gouin and George Chahoon, President of the Laurentide Company, are the first to be chosen. The president of the company will be Sir Alexander Maguire, who with his father before him has been associated with that trade for some 75 years, M. C. Small, of the Laurentide Company, will take charge of all the timber operations for the new match company. Sir Alexander states that an endeavor will be made to build up a large export business, as matches of all kinds will be made to suit any market in the world.

Pulp and paper circles look upon the new industry as important from the subsiduary standpoint, and as likely to be of special advantage to the Laurentide Company. The raw material for the matches will be the pine which is not used in ordinary pulp which the Laurentide Company does not produce. It is pointed out also that the latter mill produces box board, which would be used in large quantities by the match mill, and indeed this might easily take the whole production of the Laurentide box-board plant.

THE SPITTING HABIT.

When one wants to achieve something he must keep constantly at it, not overlooking the fact that constant reminders are a necessity.

In going around our plant with a party of members from the Chemical Industries our attention was drawn to the habit of spitting on the floors in our plant.

We are glad of the opportunity to bring before you some of the consequences of this bad habit.

You are all aware that tuberculosis, the white plague, kills in our country an enormous amount of people.

Not every one of these victims is predisposed through heredity.

There are among every one hundred men, two men that suffer from tuberculosis.

Some of those men will expectorate on the floors of the mills and there the microbes will be set free to roam about the factory and settle in the lungs of some man whose physical condition is not normal.

What will the consequences be? In the case of a weak constitution the microbes thus circulated in the air will play havoc with the lungs of the unfortunate man and if not caught in time he is doomed for an early death and becomes another disease carrier.

Posters on our bulletin board have shown you the danger and the consequences of spitting on floors; and we thought that a little reminder just now was in order to refresh the memories of all.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Aug. 28.—Two factors which are not calculated to improve the pulp and paper situation any developed this week. One of these was the difficulty being encountered by the mills in the Ottawa Valley through lack of water supply and the other is the promised freight increases. Freight increases in the United States went into effect this week and it is thought likely that the Canadian roads will get away with their demands and that the pulp and paper manufacturers also the jobbers and consumers will be up against conditions shortly that will make for still higher prices in all paper commodities. The manager of one of the big Toronto paper distributing houses told the Pulp and Paper Magazine that he was already basing all his quotations on the freight increase and that this factor sooner or later was bound to reflect itself in price advances all along the line. Already the mills are groaning under the high prices for raw material and are glad to get pulp at almost any price and this condition has existed for months past. One Toronto mill representatives went forth this week with instructions from the office to dig up some groundwood pulp somewhere and after an absence of several days, in which he visited every available source of supply, he returned without having negotiated a ton—and this despite the fact that he was authorized to pay $160 a ton for it, rather than lose it . The fact is that the product is not in the open market. By the time the mills look after their commitments there is nothing left for the chap who hasn't bound the mill for a supply by contract. The market price for groundwood pulp is from $140 to $150 and rumors that an odd lot or two was picked up at $160 could not be verified, although there was $160 waiting any dealer who could have supplied the Toronto firm in question in its emergency. Pretty much the same conditions exist in chemical pulp lines, very few sales of sulphite having been made during the week.

News print is short

The clamor for newsprint continues and everyone is short of the commodity. While the publishers are being pretty well looked after as a whole, the jobbers are unable to get newsprint for stocking purposes and the few reams of flat news that reach the warehouses are quickly picked up, frequently at 14c a pound. With some of the mills paying as high as $20.00 a ton for coal during the present coal crisis and others facing lessened production owing to low water, there does not appear to be any relief from the stringency of supplies either in newsprint or any other paper line and the public is steeling itself against the coming shock of further increases in price.

Bonds going up.

Although the effect of increased freight rates, big coal bills at the mills and threatened power shortage has not been visible on the invoices as yet, there is a hint that the cheaper grades of bonds are about to take a jump and jobbers are preparing themselves for this eventually which they say may come any day now.

Book Papers.

None of the mills at the present time will take orders for book papers for delivery before January next and in the meantime orders that were due for shipment in August have been put off until September, the reasons given relating chiefly to the great shortage of raw stock, which has hampered the mills in their production. Toronto houses have handled a considerable tonnage, but most of it was for shipment to printing houses for big jobs of a special character, orders for which were placed many months ago. No stock of book papers is available for what might be termed the transient trade. Supplies of coated board are very meagre and there is practically none on the market.

Printing Trade Dullness.

Already there are signs that the dullness in the printing trade, consequent upon the vacation period, is drawing to a close as evidenced by the resumption of enquiries for stock. Notwithstanding this, however, a quiet period seems to have set in in the lithographing trade, one man in the business making the statement that not for five years past had there been such a slackening off in that line of business. It is stated that there is a disposition to cut down on catalogue work owing to the high prices for paper and that some firms have already adopted a policy of curtailment in their output of advertising matter.

Blotting papers are scarce.

Jobbing houses report that it is next to impossible to get shipments of coated blotting papers, although there is a great demand for it. As yet none of the Canadian mills have undertaken the manufacture of this line, the machines having been kept at capacity on the standard lines. It is stated, however, that the Howard Smith people will be the first to enter the blotting paper field, although this does not appear to be very imminent.

Conditions Abroad

While it is recognized that the condition of the Canadian pulp and paper market is bad in respect to supply and demand some consolation may be had from the fact the paper trade across the line is in worse straits than in this country, while in England pretty much the same situation exists. A circular received from a British house by a Toronto representative, states that the position of the paper market in England is a very strange and difficult one. On the one hand the British trade is faced with the fact that in the home trade buyers are reluctant to place orders, trade generally being rather quiet, while on the other hand mill prices of papers are still firm and likely to advance further. The British firm referred to recently had reports from two reliable mill agents just back from Scandinavia and both agree that mills are still getting plenty of orders from all over the world and that prices for pulp are so high that paper prices must keep up. The circular goes on to say: "As an instance of what mills are asking we may say that the present best making price for 277 tissue is £160 per ton, which is equivalent to 8/9d per ream. Tissue costing 8/9d obviously cannot be sold under say 10/6d, so that further advances must inevitably be made shortly.

"There is no doubt, however, that in the present



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INQUIRIES SOLICITED.

state of trade buyers are nervous, and, however, convinced they may be that prices will go higher, they will not buy unless actually in need of goods. Agents should therefore not be discouraged by the present temporary lull in business, but work patiently and wait for the revival when stocks are reduced. Each fresh consignment arriving costs more, so that our prices must go on advancing. By September prices must be from 10 to 20 per cent higher, and by November 20 to 40 per cent higher."

Rag and Paper Stocks.

The outstanding feature of the new cotton cuttings market was the fact that there were slim offerings available at current prices due to the curtailed production at white wear manufacturers. Paper mills continued to inquire for stock, though for rather small quantities.

Roofing rags, bagging and thirds and blues continued weak, with little demand from consumers.

Hard and soft shavings showed a slight advance under continued inquiries from mills. Newspapers are in good demand and the price, while not advanced, will no doubt increase shortly, following high prices now prevailing in New York for this grade. Mixed papers continue firm with numerous inquiries from mills not usually users of this grade. The scarcity of ground wood pulp has forced some mills to turn to mixed papers to replace pulp. There is no doubt that the next few weeks will see a sharp advance in this grade, in fact unless there is a marked increase in the production of both chemical pulp and ground wood, all grades of waste paper will reach new high price levels.

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$21.00—$22.00
No. 1 unbleached cotton cuttings	$16.50—$17.00
No. 1 fancy shirt cuttings	$12.50—$13.00
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$12.50—$13.00
No. 2 white shirt cuttings	$13.00—$13.50
City thirds and blues (repacked), No. 15	$3.75—$4.00
Flocks and satinettes	$2.00—$2.25
Tailor rags	$2.00—$2.10
Gunny bagging	$2.00—$2.25
Manila rope	$6.00—$6.50
No. 1 white envelope cuttings	$7.75—$8.00
No. 1 soft white shavings	$6.75—$7.00
White blanks	$5.50—$6.00
Heavy ledger stock	$3.75—$4.25
No. 1 magazine	$3.50—$3.60
No. 1 book stock	$2.75—$2.90
No. 1 manila cuttings	$5.00—$5.25
No. 1 print manila	$2.25—$2.50
Folded news	$2.25—$2.35
Over issue, news	$2.50
Kraft	$5.25—$5.50
No. 1 clean and mixed papers	$2.10—$2.20

NEW YORK MARKETS

New York, August 28.—The paper market continues to show the effects of the gradual termination of the vacation season. Demand from various quarters is beginning to broaden to a noticeable extent and the situation is rapidly taking on characteristics for the early autumn. Consumers of paper are inquiring around the market getting a line on supply conditions and learning at what prices paper can be obtained. That the forthcoming fall season will prove to be one of the busiest ever experienced by the paper trade in the States seems assured. On every hand there are indications of banner business a little later on. The consumption of paper of various kinds is abnormally heavy and promises to increase as business generally becomes stimulated following the dull summer period. Manufacturers and jobbers are getting themselves and their stocks in trim for what they confidently expect will exceed in measure of trade activity every busy period they have passed through in the past. There is a very firm tone to prices in all corners of the market. Paper values today are based largely on matters of delivery; premiums are being readily granted for spot shipments, and the trade looks for this condition to become accentuated as the demand expands.

Looking about the principal consuming trades, one finds conditions obtaining that seem to make sure an exceedingly active fall is ahead for the paper industry. Printing shops in New York are nearly all operating on a double shift basis; there is scarcely a one that is not working a night force, in an effort to take care of all the business coming their way. One reason for this activity is that many commodity lines are comparatively slow at present, with the result manufacturers and retailers are conducting numerous and more extensive canvassing campaigns, thus affording a great amount of work for printers. This obviously makes for a large consumption of paper, particularly of bond and ledger variety. Paper box establishments in this vicinity are busily engaged. Box consumers are placing

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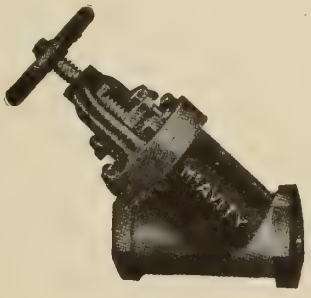
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orders against fall requirements and the box plants are rushed to turn out enough containers to meet the demand. Everything points to a further expansion in demand for boxes as the season wears on. Department stores are doing a large business, and of course are using great quantities of paper. Activity in the publishing field is just as brisk as it has been at any time during the remarkable period of the past few months. Advertising in the daily newspapers has dropped off somewhat, as it invariably does in the summer, but magazine and book publishers are receiving more advertising than they have paper to print on. Moreover, there is no visible sign of the advertising boom letting up. Rather, if there is enough paper to cover the requirements of publishers, there is no telling to what extents the consumption of book and printing papers will likely reach before the end of the current year.

Prices on all grades of paper hold firm to strong. There are still more buyers in the market than sellers The latter seldom have to look for business; it comes to them in greater volume than they are able to comply with. With paper supplies, if anything, growing lighter, it appears that the market will become even tighter as regards available tonnages of paper than existed last spring. If such develops, higher prices are inevitable, for consumers today do not let matters of price bar their way to filling their wants; the one idea under prevailing circumstances is to get paper, cost what it may.

There is no important change in quotations. The tendency is distinctly upward and revisions in prices are seldom, if ever, other than higher. Jobbers are making pressing demands on mills for supplies, both for immediate delivery to customers and in an effort to secure stocks for the expected increased demand from consumers later on.

GROUND WOOD—Ground wood is being readily absorbed about as quickly as it becomes available. Few sizeable tonnages are offered, however, and the lack of unsold pulp naturally places a damper on trading. There is a large potential demand remaining unfilled. Pulp manufacturers cannot begin to satisfy the wants of all their customers simply because demand is running so far beyond normal that mills are unable to produce enough pulp to go around. From all reports the pulp situation, as regards supplies, should improve at least somewhat during the next few months. The high prices obtainable for pulpwood are said to be serving as a lure for increased production in cutting regions, and if grinders can get more timber transported to their plants the probabilities are greater amounts of pulp will be made. At present, however, the market is practically bare of unsold accumulations of any size and buyers have extreme difficulty in locating tonnages for sale. Prices range between $140 and $150 per ton for spruce pulp of prime quality, and lots for spot delivery are frequently bringing higher figures than these.

CHEMICAL PULP.—Although the chemical wood pulp market displays no change of importance, prices holding firm at about previous levels and demand running along the same even keel as before, there is a noticeable pick up in inquiry, which indicates that consumers are beginning to pay more attention to future requirements. Pulp reaching the market soon is absorbed and there are no visible means of telling whether supplies have increased. Trade factors assert that pulp is equally as hard to buy in sizeable amounts today as at any time this year. Probably some manufacturers have succeeded in laying in stocks during the summer lull but they are holding supplies with pointed firmness, reflecting the general belief that a more pronounced scarcity and higher prices are in view for the fall. Current offerings of spot quantities of any grade seldom involve more than a carload or two at a time and the prices named are invariably at the upper edge of quoted values. It is stated on high authority that some consumers are placing contracts for domestic bleached sulphites for fall delivery at a price to 12 cents per pound. Spot lots are freely selling at this level and higher. Newsprint sulphite is moving steadily at quotations of around 8.25 cents on spot parcels and beyond 7 cents on contracts.

RAGS—A fair measure of activity marks trading in papermakers' rags. Mills are still buying cautiously in an effort not to stir up the market and run prices up against themselves, and no broad fluctuations have developed although there is a strong advancing tendency apparent. New cuttings are in light supply and are bringing unprecedented prices. New white shirt cuttings of No. 1 quality have sold at 25 cents per pound in some cases, and dealers are talking of a 30 cent market, it being their contention that with cloth ing manufacturers producing fewer of these rags and with paper mills consuming relatively more because of the bleaching situation, values will certainly undergo further enhancement. There is a better demand for roofing rags, which are selling at between 2.25 and 2.50 cents a pound at shipping points for No. 1 packing, most buyers paying a lower figure. A strong factor in this branch of the market is that the decline in prices here during the past several months has cut short the importation of roofing rags from Europe, with a resultant lessening of supply for mills to draw on. Old whites are quotably firm and are moving in fair amounts toward mills.

PAPER STOCK—Waste papers are meeting with a ready sale and there is a firm tone to quotations. Box board and other consuming mills are purchasing in a cautious manner, taking only such tonnages as are required to keep them immediately supplied, yet the movement is large enough to prevent any large accumulation, thus bearing out the contentions of dealers that they are not getting as much old paper from producing sources as ordinarily. Fine grades of paper stocks are decidedly hard to locate in sizeable amounts. Hard white shavings are selling at 8.50 to 9 cents per pound and soft white shavings at as much as 8 cents. Folded newspapers continue to be actively sought and are being absorbed by board plants, as well as newsprint mills for de-inking purposes, at a price basis of around 2.40 cents f.o.b. New York No. 1 mixed paper is selling at 2.10 cents and in some instances at beyond this level. Old magazines are coming in for more notice and mills are buying at 3.50 cents or a shade lower at shipping points.

OLD ROPE AND BAGGING.—There is a moderate demand from paper mills for old rope and prices rule stationary at the recent decline. Manila rope of No. 1 quality commands 6.25 cents per pound, with good-sized lots available and with some consumers buying at a trifle less. Old bagging is going abegging and is offered freely at 2.50 cents per pound for No. 1 scrap.

POLAND'S PAPER INDUSTRY

Paper her biggest asset — can supply products for Which world clamors — has many factories.

While the world is clamoring for news print and is eyeing with some concern the ever-dwindling supply, compared with the ever-increasing demand a voice of hope comes from a country which perhaps, needs hope itself more than any other— war stricken Poland, begins an article in the Fourth-Estate.

There is no dramatic flourish in the brief resume of the Polish paper resources contained in the Polish Economic Bulletin. The drama in the situation is one of trade and commerce made possible when a sorely tried nation finds itself in possession of something all the world will buy.

Here are the facts as published in the Bulletin:

The paper industry is well developed in the Provinces of the Kingdom of Poland in Galicia, and has very great possibilities of development. There are many very important paper factories in Upper Silesia, the early output of which amounts to almost 70,000.000.

The Polish paper industry proper consists of great enterprises, with a working capital of 100,000,000 marks. In 1913 there were in Poland nineteen paper factories and 20,000 work-people employed. The produce consists of almost all varieties of paper.

Galicia is in a much better situation than the Kingdom of Poland itself, as she has more woods and quick rivers.

But behind these industrial facts is the circumstance that Poland's paper industry is generally speaking, dependent upon rags, wood pulp and cellulose.

In former days a large quantity of cotton rags was imported from Germany, and flax and hemp rags from Russia because the domestic supply was inadequate. It is believed that these sources may again be drawn upon at an early date, though, of course, that development is a matter of peace and war and the political adjustment of eastern-central Europe.

Wood Pulp Outlook Favorable.

The outlook in wood pulp is much more favorable, for the average annual output of this article is 288,000 hundred weight, valued at approximately $130,000. At the same time a certain amount of wood pulp is imported into the Kingdom from Luthuania and other foreign countries, but at present, it is estimated, nearly half the amount so imported, can be supplied by Province of Galicia.

To an industrial situation already fraught with great natural possibilities, has been added, by action of the Peace Conference, the additional advantages conferred through the free port of Danzig. The influence of that port upon the cost of importing wood pulp from the northern countries as well as from the Baltic is expected to bring about a great reduction in the cost of production.

Wlockawek boasts the only cellulose factory in the Kingdom of Poland, but this one has a yearly output of approximately 225,000 hundred weight. There are two in Upper Silesia in the District of Opole. In Galicia there are three big factories located at Czerlany. Sassow and Zywiec. Nearly half the production of these factories was exported to Austria, eastern and western Europe, Balkan states, Turkey, and even to South America.

In the Kingdom of Poland eleven factories are working at present, and their output amounts to 20 per cent of the amount of paper manufactured before the war in this part of Poland, In order to help the other industries build up on the paper supply, the Polish Parliament was lately obliged to suspend for three months the tariffs of paper (raw material) imported to Poland.

The situation is improving gradually, and the Polish paper industry has now monthly output of ninety-five wagons (evidently "carload," capacity not known, but small.—Ed.) of printing paper, of which twenty-five wagons might be exported. Very soon the output of this kind of paper may be increased to 110 wagons, and after Silesia is united to Poland the printing paper will constitute a large article of the export trade. West Prussia and Tosnania may develop their own industry if only the conditions of transport are improved by the new Polish Government, a measure already under contemplation.

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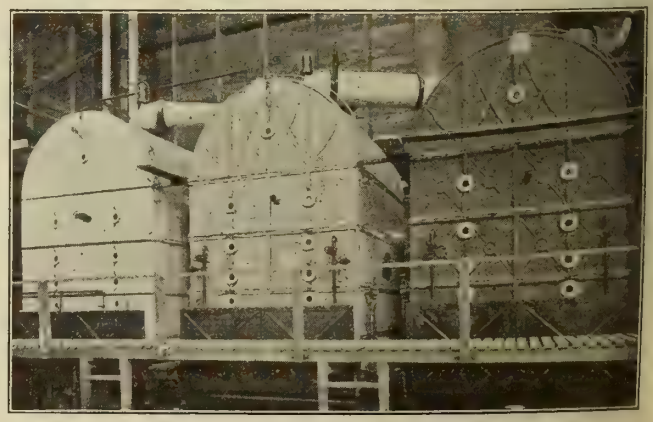
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que., Sept. 9th 1920. No. 37

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-:- EDITORIAL -:-

OUR CREED.

In spite of the contrary assertions of our worthy advertising manager, we have proof that other parts of the Pulp and Paper Magazine are occasionally read. A few weeks ago we quoted the creed of the Canadian Fisheries Association and suggested that the paper and pulp industry had just as good reason to make a declaration of faith. Dr. C. D. Howe, acting head of the College of Forestry at the University of Toronto, read our editorial and submits the following creed. It is interesting that he makes a reference to agriculture which is very similar to an expression on this page last week. We commend Dr. Howe's beliefs to the earnest consideration of our readers:—

We believe in a wholly softwood forest.

We believe in fir, pine and spruce, and that the greatest of these is spruce.

We believe our country has the largest and most prolific pulpwood producing forests in the world.

We believe the forest is not dead, inert material like a mine, but is a living growing thing that can be continuously utilized and at the same time continuously restored to productiveness.

We believe the lack of conscious effort in forest culture and forest protection will in the end be quite as disastrous to our country as the lack of similar effort in field culture.

On the other hand, with the application of intelligent methods of conservation and recuperation, we believe our forests could supply the wood-pulp and paper requirements of the world.

We believe in the development of home industries and therefore that it is unwise, illogical and uneconomical to allow the exportation of raw materials in large quantities from our country.

We believe in the power of falling water, and we believe its power should be greatly extended throughout our land that we may be less dependent upon the indirect source of power imported from without our borders.

We believe that the power of falling water and the power of forest growth are the Twin Genii of our industry, and that the one waxes or wanes with the other.

We believe in up-building in all our endeavors, not in tearing down, and hence that it profiteth neither men nor nations to tear down what they cannot replace with better.

We believe in Canada.

We believe in ourselves.

We believe in the quality of our products.

We believe the blessings of our fellow citizens, the blessings of our children and of our children's children for all time will rest upon those who accept this Creed—and act upon it.

CROWDING CONVENTIONS.

There may be places just as good, but it would not be possible to find a better place for a convention than Saratoga Springs and the Upper Hudson Valley, where the Technical Association of the Pulp and Paper Industry met last week. The editor had the misfortune to be obliged to leave before it was all over, but had a very happy and enjoyable day and a half. On Wednesday we had a business meeting in the morning and listened to some very interesting papers in the afternoon. The entertainment and program committees must have tried to see which could do most for their guests, for the program ran on till after five o'clock, while the sight-seeing tour started at four. The relative attractions seemed about equal, from the large number who stayed at the Casino to hear the papers, some of which appear in this issue. Others will follow.

In the evening, the paper and machinery makers of the Hudson Valley were the hosts at a delightful banquet in the great dining hall of the Grand Union Hotel. The entertainment committee did such a thorough job of providing amusement that the speakers hardly had a chance at all. They didn't seem to mind, and so did the gathering. It was the largest affair the Association has held, 350 being present. Certainly there has never been more thorough enjoyment of such an occasion.

Thursday morning a cavalcade of autos started for Corinth, Glens Falls, Hudson Falls, etc., for visits to the pulp and paper mills and the machinery plants of that wonderful district. A complimentary luncheon was served at Glens Falls and the guests were taken for a delightful sail on Lake George in the evening. Somebody managed to slip the weather man a cigar or something, for he certainly smiled the while we had so much to do. On Friday the party went to Schenectady by auto, inspected the great plant of the General Electric Co., ate lunch in the company's restaurant, and some departed for home, while others visited the felt mills of F. C. Huyck & Sons at Albany.

There were some who thought the program too

crowded. Experience has been that the first morning is none too long for business, if such a session is held and reports of committees brought up for discussion. In this case there was time for one paper before lunch. The afternoon certainly was crowded. Perhaps there would have been no discussion of papers if there had been more time. The delegates did not show much inclination to talk or argue, so the papers were rather in the nature of entertaining lectures. The subjects were well chosen, so that there was something of interest to everybody. Perhaps that is, after all, the best kind of a program for a meeting in a manufacturing centre where there is so much of interest to be seen.

The next event to prepare for is the meeting of the Technical Section and the Canadian Pulp & Paper Association in January.

COBWEBS.

Canada shipped a greater value of newsprint to the United States in June than the total paper exports of that country for the same period.

Exports of paper from U.S.A. for June, 1920, were $560,000 (10 per cent) less than for June, 1919. Imports increased 40 per cent.

It looks as if Mr. Backus, et al, are planning to have "a friend at court" by arranging an agreement with the town of Kenora. Other concerns are willing to play the game of competitive bidding for pulpwood limits.

The site of the power development for the Spruce Falls Pulp and Paper Co. is referred to as Sturgeon Falls. With already such a well-known spot as Sturgeon Falls, the location of a plant of the Spanish River Pulp and Paper Mills, the duplication of name should be stopped right off.

Canada is slowly but surely becoming self-contained with regard to papers and paper products required in the Dominion. An Ontario firm recently announced its intention of making blotting paper, and now we hear of a factory in Victoria, B. C. for the manufacture of abrasive papers. The organizers of this concern seem to have exaggerated somewhat the domestic market for abrasive papers. Instead of imports of over a million dollars as mentioned in the tale told in Vancouver, the Department of Trade and Commerce for the year ending March 1917 reports imports of abrasive paper valued at $278,851, which is dutiable. Of this amount, $272,616 worth came from the United States. The total imports of abrasives for that year was $982,859. As that was a munition making year it is not likely that these figures have altered very much.

The ex-Kaiser has given up sawing wood. Anybody want the job?

The Abitibi Company has again shown its leadership by offering to "stake" old and reliable employees to $2,000 worth of material with which to build their own homes. This all makes for stability and content.

The United States imported 117,478,620 pounds of newsprint in June, 1920, at an average price of about 4.3 cents per pound. During the same period 10,407,116 pounds were exported at an average price of 6.3 cents. We should like to know how much of that was Canadian paper.

The Digester is now set up and printed at Grand Mere. The new Laurentide printing plant includes an Intertype typesetting machine. Congratulations are in order on the excellent appearance of this interesting paper. We are glad to hear it is to be issued weekly.

The manager of the Nashwaak Pulp & Paper Co. wants the city of St. Johns, N.B., to extend its water system so they can have a greater supply without depriving the people. It seems a bit short-sighted of one of the city fathers to say there was plenty of water for residents near-by, when the mill was not running. He seems to forget that if the mills were not running the residents would be running—somewhere else.

Nova Scotia has a wonderful record; in fact, it is unique in the world's history. The Liberal Party have been in power for 38 years without a break and have just been returned for another five years and with only a four year break they have held office since Confederation, 53 years, and the Prime Minister has held office for 24 years and has also just been returned for another five years.

In these times of world unrest this is something that cannot be emphasized too strongly.

Our congratulations to Nova Scotia and her leader.

When a wholesaler in Boston pays a Maine farmer a check for $100 on a Boston bank for potatoes, and pays the same to a Quebec farmer for the same quantity he pays the same money to each for the goods. But, if a Boston newspaper publisher pays 100 United States dollars for a ton of newsprint to a Maine manufacturer and a Quebec paper-maker asks 100 United States dollars for the same goods, the publisher is overcharged by the Canadian mill to the extent of the rate of exchange. At least that is the sense of a statement credited to a newsprint man across the line. It looks like "cubist" economics to us.

The Mucilage of Parchment Pulps

By Florence B. Seibert, A.B. and Jessie E. Minor, Ph.D.,
Hammersley Mfg. Co., Garfield, N.J.

In an article in the Zeitschrifte fur Angewandte Chemie by C. G. Schwalbe and Ernst Becker, the importance of the presence of mucilage in pulps which are used for parchment paper and a method for its development is discussed at length. The conclusions reached in that article seemed to support some of our earlier work and, at the same time to suggest a further application. Therefore, we submit the following lengthy abstract of his work, a discussion of its relation to our work, and a few new experiments which grew out of his work.

According to Schwalbe and Becker, it is the presence of a hydrocellulose already existent in the Mitscherlich pulps, as indicated by their high copper numbers, which cause them to develop mucilage during beating much more quickly than a pure cellulose pulp and which is probably the reason why they are known as good parchment pulps. If the pulp originally contains very little of this hydrocellulose, the formation of considerable mucilage can be brought about by long beating, since the beating itself tends to produce more hydrocellulose and from this more mucilage is formed. But the rate of the production of mucilage is related to the initial amount of hydrocellulose present, which is shown by the fact that with pulps with a low copper number, the production of mucilage is much accelerated by a previous treatment with acid or with an acid producing substance like sodium chloride under pressure. If a good mucilage forming pulp is washed with hot water, the hydration is accelerated, but if the pulp is digested in hot water previous to beating, hydrolysis also is accelerated to such an extent that the copper number and the mucilage forming power of the pulp is decreased.

Schwalbe and Becker define the copper number, or the amount of copper in a Fehling solution which is reduced by hot pulp, as the measure of the amount of reducing substance present, and the cellulose number, or the copper adsorbed by cold pulp, as the measure of the **adsorbing** power of the cold cellulose and, therefore, the measure of the power to swell or hydrate. A pulp with a high copper number would contain a large percent of hydrocellulose and would, therefore, easily form mucilage, but a high cellulose number indicates a tendency to rapid hydration which might lead one to stop beating before developing hydrocellulose and mucilage.

The relation between high copper number and good parchmentizing qualities is illustrated by numbers 2, 3, 4, 5, and 6 of Table I, which is compiled from figures given by Schwalbe:

TABLE I.

	Corrected Copper No.	Cellulose Number	Time required to beat to a standard slowness
1. Soda pulp	1.89	0.39	
1a. Soda pulp, acid softened	14.02	0.37	20 min.
2. Easily bleached sulphite pulp	1.42	0.14	3 3-4 hrs.
2a. Same pulp, acid softened	7.74	0.41	20 min.
2b. Mucilage of same pulp, after reaching standard slowness	2.23		
3. A Mitscherlich pulp	1.84	0.36	2 1-3 hrs.
3a. Same pulp, in hot water 24 hours	1.03	0.14	3 3-4 hrs.
3b. Mucilage of same pulp, after reaching standard slowness	2.30		
4. Parchment pulp	1.26	0.33	4 1-4 hrs.
5. Parchment pulp	2.28	0.29	
6. Parchment pulp	2.00	0.46	2 hrs.
7. Nitrating cotton	0.28	0.30	12 hrs.

Number 2 was an easily bleached sulphite pulp not intended for parchment paper, number 4 was supposed to be a good parchment paper, but trial in a test beater proved that it developed mucilage much more slowly than numbers 3, 5, and 6, which had the high copper numbers.

The fact that with long beating mucilage will develop in a pulp with a low copper number to the same extent as in one with a high copper number is shown by comparison of numbers 2 and 3. Although No. 3 had a copper number nearly thirty percent higher than number 2, these same pulps, after beating to the same slowness, had approximately the same copper numbers, as shown by numbers 2b and 3b. This increase of copper number during beating was also illustrated by the experiments recorded in Table II which were carried out in our laboratory. In this work the amount of reduction was noted in a series of pulps taken during the process of beating at intervals of one hour.

TABLE II.

Pulp No. I. No bleach added		Pulp No. II. Bleached and washed	
No. of Hours in Beater	Copper Number	No. of Hours in Beater	Copper Number
Original		Original	1.95
1.	2.890	1.	3.58
2.	3.140	(washing began)	
3.	3.148	2.	2.42
(color added)		3.	2.36
4.	2.060	3¾	2.09
5.	2.790	4.	1.95
6.	3.280	(color, alum, size added)	
		4¼	2.34

The regular increase in the copper number during beating, with the exception of when color was added, indicates clearly that beating produces a copper reducing substance. However, continued beating reduces the average length of the fibres and, consequently, tends to weaken the paper made from them. Therefore, Schwalbe and Becker attempted to increase the hydrocellulose by subjecting the pulp to an acid treatment previous to beating. Because of the presence of that additional hydrocellulose, less beating would be

required and less injury would be done to the fibres.

By reference to Table I it will be seen that the copper number, indicating the mucilage forming power, of the soda and easily bleached sulphite pulps were increased by treating them with hydrochloric acid previous to beating. The soda pulp is attacked more readily by the acid treatment than is the sulphite pulp, and this accords with practical experience that treatment with alkalies makes cellulose especially sensitive to acids and vice versa. Furthermore, soda pulp, in which the hydrocellulose has been partially destroyed by the alkali cook, is difficultly beaten to mucilage, whereas, after a new formation of hydrocellulose through an acid treatment, the mucilage is formed with very little trouble.

Also, the time required to make mucilage from a sulphite pulp of low copper number after softening with acid, was reduced from three and three quarters hours to twenty minutes, as shown in numbers 2 and 2a. The time required to produce mucilage from a parchment pulp which gave a high original copper number was two hours and ten minutes, considerably less than the three and three quarters hours required by the former sulphite pulp of low copper number, numbers 2 and 3.

Numbers 3 and 3a show the effect of keeping the pulp in hot water for twenty four hours. In this case the copper number decreased from 1.84 to 1.03, or 44 per cent. of the original number, and the time of beating to mucilage was increased from 2 1-6 hours to 3 3-4 hours. The authors consider this as merely a case of dissolving out a large percent of the hydrocellulose already existent in the pulps because in the water extract from the pulp, they find nearly five percent of reducible sugars. The formation of these soluble products was also illustrated in our work. In Table II we show a regular decrease of copper number during the washing of the pulp with cold water. In the work of Schwalbe and Becker and in our work, the actual loss of weight of the pulp by water treatment was determined. Apparently, in either hot or cold water, the making of the soluble products from the insoluble ones occurs much more rapidly than the initial formation of the insoluble reducible products, giving the decrease in the copper number during washing.

That these degradation products are sugars and not acids, was very nicely shown by an experiment in our laboratory. A part of a sample of good parchment pulp, which had been merely disintegrated in a beater, was triturated in a mortar for one and one half hours, then the triturated and the non-triturated portions were placed in filter papers which had been washed neutral to methyl red and washed with neutral water. The triturated pulp was decidedly more alkaline to methyl red than the original sample and, when washed with hot, neutral water, it increased in alkalinity. On washing later with cold, neutral water, both of the pulps became acid to the indicator, but on again washing with hot water, more alkalinity was developed. This alternating of acidity and alkalinity with cold and hot water could be continued for some time. Apparently, hot water developed hydration enough more rapidly than if could be washed out through a filter paper to have its alkalinity apparent to this sensitive indicator, whereas the more slowly formed hydrate of the cold water is washed out as quickly as formed. Also, since, after triturating for one and one half hours, the pulp tested more alkaline than before, and this in the presence of an indicator which can easily detect the excess alkalinity of hydration in hot water, it would seem that acids are not developed by beating, except in the presence of an oxidizing agent like bleach.

Schwalbe and Becker seem to put much emphasis upon the necessity of having, for a good parchment pulp, besides a high copper number, a low cellulose number, since it seems to indicate a small degree of swelling. While in the small test beater the rapid hydration made their stock so slow that the beater would stop before sufficient mucilage had been formed, in a large beater there would probably be power sufficient to drive the pulp as long as desired, though slowly.

Schwalbe and Becker state that the copper number may be due to the cellulose itself, or to the incrustation, but that the cellulose number indicates the swelling power of the incrustation only. Our work would seem to confirm this theory. Of two Mitscherlich pulps which we tested, one pulp contained 5.36 percent of lignone, as determined by the malachite green and Congo red measurement method, while the other was shown by the same method of testing to contain only 2.10 percent of lignone. The cellulose numbers of these same pulps were 0.812 and 0.512 respectively. The copper numbers of these pulps, Table III, numbers 1 and 2, do not vary to any appreciable extent, and this parallels experience with the two pulps that they are about equally good parchment pulps, so far as mucilage formation is concerned.

The suggestion as to the value of the acid treatment before beating led us to try out some experiments on pulps made from old papers which had been subjected to a mechanical process for the removal of the wax coating which had been put on them, and our results, recorded in Table III, seem to confirm Schwalbe's theory.

TABLE III.

	Copper No.	Cellulose No.	Ash
1. Mitscherlich sulphite pulp....	4.26	0.812	0.40
2. Mitscherlich sulphite pulp....	4.40	0.526	0.52
3. Paper from sulphite pulp	2.96	0.606	0.30
4. Unbleached parchment paper..	3.02	0.468	0.52
5. Pulp recovered from old paper	2.52	0.398	1.20
6. Paper from recovered pulp . . .	2.54	0.000	1.04
7. Parchment from recovered pulp	2.18	0.000	1.34
8. Recovered pulp, treated with 1% HCl for 5 minutes, washed	2.54	1.292	0.48
9. Same as No. 8 but triturated in a mortar for twenty minutes . . .	2.96	0.975	0.34
10. Same as No. 8, treated with 2% HCl for twenty minutes, washed	2.58	1.262	1.38
11. Same as No. 10 but triturated in a mortar twenty minutes	0.973	2.952	1.22

It will be noted that the copper numbers which we give are slightly higher than those of Schwalbe and Becker. Our method of manipulation was slightly different, but our numbers were all carefully checked, and we believe that they are in the proper ratio to each other, even if they are slightly higher than those of Schwalbe.

The fact that the cellulose numbers of the paper and parchment made from this recovered pulp were zero

indicates that the pulp was "dead" and that, by merely beating, it would be as difficult to produce mucilage from it as from cotton. Its relatively low copper number, and the inferior qualities of the paper and parchment made from it seem to confirm this view. It was possible, however, to introduce some hydrocellulose by treating with one percent hydrochloric acid, followed by triturating the pulp in a mortar to simulate beating in a kollergang, and this increased the copper number, (number 8) as predicted. A two percent acid treatment caused such a rapid hydrolysis that on beating, a considerable amount of soluble dextrine was formed and washed out, and the copper number shows a large decrease, from 2.58 to 0.97. These dextrines were also detected qualitatively in the acid liquor drained from the pulp when it was tested with Fehling solution.

The large increase in the cellulose numbers of the pulps treated with acids, numbers 8, 9, 10, and 11, was somewhat parallel with the increased slowness of the stock due to hydration. This same increased reactivity was shown by the fact that with each of these four samples, the ash consisted largely of copper adsorbed from the screen on which the pulps were washed. This adsorption, however, was offet by the dissolving action of the acids on the adsorbed salts already in the pulp, hence the low ash of numbers 8 and 9. Further adsorption of the copper by the pulp treated with the stronger acid in numbers 10 and 11 again brought up the amount of ash.

In order to determine the effect of the acid treatment of this "dead" pulp upon the strength of the papers made from it, pulp samples were tested in pairs and each pair was treated under parallel conditions, except that one was digested with distilled water, the other with hydrochloric acid. At intervals, samples were taken out and made into hand sheets and the strengths were determined by averaging the Mullen pop tests taken all over the sheet. This was repeated on different lots of pulp, some being treated with cold water and acid, and some with hot water and hot acid and the hand sheets were compared for strength on the basis of the average strength per gram of air dry pulp.

Unfortunately, the tests made on the samples of the different pulps did not always bring out the same point to the same degree, but in general, we found that the acid treatment decidedly increased the strength of the paper, but that there are a number of conditions which, if not controlled, will cause, instead of an increase, a decrease in strength. If the pulps were digested in cold acid, the tendency was for the pulp to increase in strength with the acid treatment more rapidly than with the water treatment, but when digested hot, the tendency was for the acid treated pulp to reach its maximum more quickly and to degenerate more quickly than the water treated one. The pulps treated with hot water degenerated more rapidly than those with cold water, which is in keeping with the practical fact which we demonstrated with methyl red indicator, that hot water hastens hydration and, therefore, hydrolysis, thus weakening the sheet.

The point raised by Schwalbe was not that the acid was a factor in the direct making of mucilage, but that acid treatment created a condition of pulp by which mucilage would be easily made in a beater. In the hand sheet experiments mentioned above, we found that pulps which had not reached their maximum strength were benefitted by triturating, but that pulps which had passed their maximum and were decomposing, went to pieces very rapidly when triturated. This decomposition has already been mentioned in connection with the copper numbers of numbers 8, 9, 10 and 11 of Table III.

A part of the irregularities experienced with these tests can be explained by the fact that the pulps used were from laps made from old papers in very different state of preservation and that during the process of disintegration they were subjected to a very drastic caustic treatment under conditions which were not very uniform. Also, the fibres of this pulp were very short and the amount of hydrolysis which they could endure without complete disintegration was very limited. Schwalbe also makes note of his difficulty in getting concordant results with different pulps and he attributes it to his inability to determine variations in the pulps as to their original content of hydrocellulose, oxycellulose and mucilage.

Schwalbe's theory of the reactions of cellulose decomposition is slightly different from that which we have suggested previously, but it is in no way contradictory. On the basis of some work of Hauser and Herzfeld, who were able by long washing in a Soxlet to separate hydrocellulose into soluble dextrines and pure cellulose, Schwalbe concludes that in the formation of hydrocellulose, there is first formed a small amount of soluble dextrine, but this is immediately adsorbed by the insoluble cellulose, making it seem like an insoluble, reducible substance. This is the substance which he calls hydrocellulose and which he considers essential to the formation of mucilage in a pulp from which the reactive lignone material has been removed. This is supported by some work which has been more recently reported, in which he was able, by boiling some hydrocellulose with lime, to obtain a residue of pure cellulose, while the filtrate contained isosaccharic acid.

If, as we have proposed, beating causes an increased hydration or adsorption of hydroxyl ions by the surface of the cellulose molecule, and the close proximity of these ions is able gradually to bring about a hydroylsis in such a way as to open up the oxidizable CO group and allow a reduction of a Fehling solution, then it is quite conceivable that this altered group, when adsorbed by an unaltered molecule, will, by its mere proximity, easily catalyze a further hydrolysis. This would explain why the latter steps of the reaction occur more rapidly than the former ones.

The fact that the same mucilage which is formed by long beating can be made more rapidly after an acid treatment would confirm the hydrolysis theory of the making of mucilage. But this making of mucilage is but an intermediate step in the hydrolytic decomposition of cellulose. Therefore, as hydrolysis proceeds, we get a steady increase in the mucilage production until the ratio of the amount of cellulose to that of mucilage is such that the decomposition of the mucilage occurs more rapidly than its formation, and then we get the loss of mucilage and the decrease in paper strength.

Since the first reactions of hydrolysis are more difficultly accomplished than the latter ones, in cotton or in old pulp like that with which we experimented, mere beating, no matter how long continued, is not likely to be able to make mucilage enough more rapidly than it is destroyed to ever obtain an accumulation sufficient to give a parchment effect. Such pulp is commonly referred to as "dead" pulp. The acid softening seems so to readjust the molecular affinities as to accelerate greatly the initial hydrolysis and, therefore, make possible a greater accumulation of mucilage at one time. If acid treatment, or subsequent beating is continued past this time of maximum accumulation, we get a decrease in the copper number and a decrease in paper strength. Schwalbe's point, that some hydrocellulose is always essential to the making of mucilage, merely means that in some way, either by the unstable lignone residue or by some reducible hydrocellulose made by acid treatment, the initial reaction of mucilage making must be accelerated sufficiently to offset the mucilage decomposition and allow an accumulation of mucilage which will give the parchment effect.

SUMMARY.

In the foregoing we have attempted to develop the following propositions:

A good parchment pulp must have a high copper number.

The mucilage formed from long beating has a higher copper number than the original pulp.

The hydrocellulose present in the parchment pulps causes such pulps to develop mucilage much more quickly than does a pure cellulose pulp.

The amount of mucilage developed by beating depends upon the hydrocellulose present in the pulp and the time of beating.

The amount of hydrocellulose present in a pulp can be increased by treatment with acid or an acid producing substance previous to beating.

The cold acid treatment previous to beating, if not excessive, increases the strength of the paper made from it, but hot or excessive acid treatment destroys mucilage and decreases paper strength.

To obtain a paper rich in mucilage, it is necessary that the velocity of the earlier decomposition reactions in which mucilage is formed be so accelerated that mucilage will be formed enough more rapidly than it is decomposed to permit of a mucilage accumulation in the pulp.

THE U. S. A. FOREST POLICY.

A Book

Beyond cavil, the question on which the press of the world is nearly if not quite unanimous, is the production of print paper, With publishers in this country it is paramount to presidential politics.

The public is just beginning to realize the importance of this question. The average citizen who thinks as he reads knows that the salvation of the paper indutry is in timber. This has been known to newspaper publishers ever since newspaper began. The indiscriminate destruction of timber has had much to do with the shortage of news print.

The charter granted to the province of Massachusetts Bay in 1691 reserved to the crown all trees two feet in diameter, and forbade anyone to cut such trees without royal license. It was not known then that the destruction of timber would mean inroads upon the paper industry. If this had been foreseen by the colonists they would not have been so hostile to the royal decree.

The resultant of the denuding of the forests of this country is clearly and definitely set forth in a volume on the subject. "The United States Forest Policy", by John Ise, associate professor of economics in the University of Kansas. It takes up and discusses all the legislation that has been enacted by Congress.

While it is not expected that the volume will appeal to the general readers, it should be examined and studied by every newspaper publisher. Should the layman read it he would be surprised to learn how much time and attention have been devoted to the subject by statesmen and by several administrations. Investigations have been made by special commissions and committees, and Presidents Hayes, McKinley, Cleveland and Roosevelt gave the subject special consideration.

Agitation began with the states that were most interested. Strange to say, this agitation did not begin so very long ago. However, before the question was taken up by the states several Government officials saw the need of forest protectionas early as 1849. The first reserve bill was not introduced until 1876. And then "by request". President Cleveland was the first President to take an active interest in the public lands—The Fourth Estate.

NOVA SCOTIA HAD FIRST NEWSPAPER IN CANADA.

The first Canadian newspaper was published in the City of Halifax; the second in the city of Quebec. On the 4th of June, 1764 the Quebec Gazette made its initial appearance, the probability being that the British commander, General Murray, was the main support of the endeavor. But two Philadelphia printers were the first proprietors having bought their presses, types and inks and paper in England. Half of the paper was in French and the rest in English, the two languages being in parallel columns. To start the venture 300 subscribers at $3 each per year were essential and so the first edition did not make its appearance until this was assured.

Montreal was the next city to have a paper. This grew out of the American occupation in 1776 when the three commissioners of Congress came to the city, to influence, if possible, Canadians to be neutral or anti-British in the war for independence. Benjamin Franklin brought type and materials for a paper from the States by a dangerous journey through Lake George, up the Richelieu river and landed at Chambly. The press was set up and the paper issued from the Chateau de Ramezay where the officers were living that winter. The American Congress had voted $100,000 to win over the Canadians and the paper was a part of the plan. Joseph Fleury de Mesplet was engaged to edit the paper the leading articles of which were from the pen of Franklin. But the campaign was a failure and when the Americans were forced to quit the place they left the printing plant behind with Mesplet. He revived the interrupted journal in June printing a four page paper with eight columns all in French. He clashed with various civil and church authorities frequently so that his career in the city was a very exciting one and at one time he was ordered to quit the province—an order which was revoked later.—Exchange.

A New Felt-Cleaning Device

By C. A. WOODCOCK.

"A new felt cleaning device as a means of increasing production" appears to be the text assigned to me. I shall have to ask for the same privilege that was granted to one of the gentlemen who is to speak at the banquet this evening. The Committee on Arrangements, in extending the invitation to him, suggested he take a certain subject as the theme for his remarks, but, owing to the shortness of time that he would have to prepare his remarks, concluded the invitation by telling him that he could talk on, or about, or around, any subject which appealed to him. So, instead of talking only about a new felt cleaning device as a means of increasing paper production, my remarks will be around the subject.

The efficiency of a paper machine as a whole depends upon the power functioning of its various parts. For those mills that have arrived at a point in paper machine maintenance where it is possible to run, favorably, the various parts of the machine for several consecutive days or a week without the necessity of stopping for repairs, it is obviously essential that, if they are to reach the highest efficiency, they abandon the old methods of operation, which call for frequent stopping of the machines to wash the press felts and screens.

There are screens that have been installed in the last few years, in large numbers, in various mills, of a type that is more or less self-cleansing—that will run the full week through, or longer, without its being necessary to clean them. The Bird screen is well known to be such a type. The other chief cause of lost time on a paper machine is the necessity of stopping production to wash press felts. There has been a great deal of effort expended to avoid this. But a felt-cleaning device of a type that will actually cleanse the felts of paper machines of all types, and without interfering with the continuous production of the regular quality of paper, is no longer a dream but a reality. Thus the felts may be cleaned as frequently as desired, without interfering with the continuity of the paper manufacturing operation. By keeping the felts in prime condition, water may run through them more freely, permitting the paper to reach the dryers in a more uniformly dried condition, which will allow the regular drying operation to be done with some considerable reduction in the amount of steam necessary to dry.

When the newly formed web of paper approaches the couch rolls from the Fourdrinier part of the machine, its water content is about 87 to 90 per cent. The chief function of the machine from this point on is, therefore, to remove this water, and this, as we all know, is done first by subjecting the web to pressure in the presses and then to heat in the dryers. In removing the water by pressure, the web is supported upon successive woolen felts of different degrees of porosity, depending upon the speed of the machine and the quality of paper to be made . These felts pass over suction boxes and between press rolls and all of the water sucked and squeezed from the web during this treatment must pass through them. For this reason it is of vital importance that the felts be kept comparatively dry and porous, and continually or frequently freed from small particles of filler and fibre which are held within them as the water filters through. The general practice, as we know, for cleaning the felts of Fourdrinier paper machines is to stop the press part of the machine, slacken the woolen press felts, release the pressure between the press rolls, and apply water to the felts to wash off the accumulations of dirt thereon. This method requires that the machine be put out of the regular manufacturing operation each time the felts are to be cleaned. In the case of most kinds of paper it is necessary to clean the felts from one to several times a day, involving a drenching of the operatives, damage to the felts, a considerable loss of production during the actual period of washing, and about an equal amount for time lost in straightening out the felts and getting them back to proper tension and alignment, with weights ad levers of the presses again in adjustment. Our observation has been that in well regulated mills the time lost each twenty-four hour day, incidental to cleansing felts in the old way, is about two hours. That includes the time consumed in disengaging the levers and weights, roping up and turning the felts, washing, getting the felts straightened out again, the weights and levers in proper adjustment, and the felts in proper alignment, the paper back on the reel, and everything so adjusted that saleable paper is being made. There is also time lost from breaks due to the felts being run more or less dirty before the usual washing-up time comes around.

In applying our felt-cleaning device, clear water or a solution of a suitable cleansing substance is supplied on either side of the felt, preferably—for the average mill—the dirty side or that side which comes in contact with the web, to loosen the foreign material deposited thereon. Thereafter a suction effect is applied to the dirty side of the felt to open the meshes and remove the water and material which have been freed thereby. Water is supplied either directly to the felt by suitable jets, or a better distribution of water may be obtained by applying it to one of the rolls over which the felt passes as it travels through the machine. In any case the water or cleansing fluid should be applied to the felt a sufficient distance in advance of the point at which the suction is applied to loosen gradually the foreign material so that it may be removed by the suction effect; but this should not be applied so far in advance that it may drain from the felt before the latter is exposed to the suction effect.

The suction is applied by means of a suitable suction box movably mounted so that it may be thrown into engagement with the felts during the cleansing period or taken out of operative relation to the felt during the normal operation of the machine, to reduce unnecessary wear on the felt and to prevent the collection of dirt in the vacuum box. The suction box we use has several novel features. It is so constructed that, over the ordinary types, it greatly facilitates the removal of material caught within the meshes of the

*Read before the Technical Association of the Pulp and Paper Industry at the Fall Meeting in Saratoga Springs, N.Y., Sept. 1, 1920.

felt. Also any material scraped off the surface of the felt by the edges of the slots of the box will be drawn through the slots and not accumulate and ultimately obstruct them.

The pipe is supplied with warm water, or other cleansing fluids (which may contain a solution of suitable chemicals for aiding the washing operation). However, on regular news and some hardsized papers, we find it unnecessary to use any other cleansing fluid than warm water. The point at which the water should be supplied depends upon several factors, such as the speed of the machine and the amount of residue deposited upon the felts as determined by the character of paper being produced on the machine.

As to the results we have obtained from this felt-cleansing device that we developed in our mill about two years ago, and which was successfully installed about one year ago on our three Fourdrinier paper machines, which at present are running on newsprint, at speeds from about 650 to 675, permit me to quote from our monthly reports:

Our last monthly report compiled was for July, 1920, showing our machine production and efficiency, shows that we have increased our production over one year ago 12½ per cent., and increased our speed 7 1-2, and efficiency 5 1-3 per cent. over the same period. The average speed for our mill in July, 1919, was 600 feet; efficiency, 86.9 per cent.; pounds produced per inch trim, 696.2 . In July this year the speed was 646; efficiency, 91½; production per inch trim, 771 pounds. This report is made up on the basis of wrappers being excluded from production.

Our increase in production for July, 1920, over July, 1919, amounted to 75 pounds per inch trim on a 24-hr. basis. This resulted in an increase in production of paper for the year, of 3,708 tons, on an average total trim of 319 inches. The saving from increase in efficiency, which amounted to 5 1-3 per cent., meant an increase in production of 36 pounds per inch trim on a 24-hr. basis. This for the year, based on 319 inches average trim, accounted for 1,625 tons of the increase. To commercialize this increase in production, due to the increase in efficiency, of 1,625 tons, say at a profit of $19 per ton (which is the approxinmate figure that the Federal judges in the newsprint case stated was a fair profit for the mills to make) meant an increased gain for the year on that basis of over $30,000. Then add to that an item for coal saving for 5 1-4 of the production which went into saleable paper instead of being waste. It would require steam or extra coal to dissolve the broken paper, which would mean an additional saving of $8,000 on the basis of coal costing $7 per ton, and taking about 1,200 lbs. of coal to dissolve a ton of broken paper.

It is quite possible that some of your mills may have taken a little larger profit than the $19 per ton. I thought it safer for illustration for me to use that figure, in these days when the question is such a live one, of what is a fair profit, as $19 per ton had been fixed on by the Federal judges as being a fair one per ton as a margin of profit. Apply this same basis of calculation for a machine having an average trim of 100 inches, which we might assume is the average size, this increase in efficiency and saving of coal would amount to about $12,000 per annum.

I have taken the liberty of treating this matter from a commercial point of view, for, as I see it, irrespective of our pet theories, it will surely sooner or later have to be subjected to the commercial test, or the question asked what it will save or permit of gain in the terms of dollars and cents.

Note: Mr. C .A. Woodcock is one of the inventors of and Woodcock and Walker Felt Cleaning Process.

LOCATION OF NEW MANOUAN MILL.

Further information is available regarding the announcement made last week of the organization of the Manouan Pulp and Paper, Limited. The new company will operate the power known as Allard Falls, on the St. Maurice River, above La Tuque, and will control two tracts of timber on the Manouan River, containing approximately 100,000 acres.

The properties secured are fortunately located in a district which has already provided some of the most successful pulp and paper undertakings in the country. Surveys that have been made of the limits secured by the company, indicate that the supply should endure for a period of over 60 years for the proposed 100-ton mill. They adjoin the properties owned by the Laurentide Company, the Belgo-Canadian Company, and the Brown Corporation. The limits acquired have not been cutover.

Charles E. Eaton, of Watertown, N.Y., a pulp and paper engineer of over 30 years experience, who has constructed some of the largest mills on the continent, has completed an exhaustive survey of the conditions and costs in connection with the proposed mill and operations of Manouan Pulp & Paper, Limited. In his report, Mr. Eaton states that the wood can be delivered in the mill at $1.50 per cord less than at any of the competing mills on the St. Maurice River. This is due to the unusually short drive required, it being estimated that it will take less than two months.

NO MIRACLES IN INVESTING

Money honestly employed earns a fair return. This is a sound and unchangeable principle of finance and business. The investor who expects more is not investing, he is speculating—and many are asking for miracles.

There are hundreds of propositions in which the investor can make six to eight per cent. with a minimum risk. But with a great many there is no attraction in this. Instead of putting their money where it will bring a fair return they seek to make a fortune over night—gold mines, oil wells, impracticable inventions, magic fuels, etc., etc., attract the small savings of the wage-earner when the man of means is buying bonds.

The man who can afford to "take a flier" in the speculative market is usually the last one to do so. The person who cannot afford to take chances is always willing to take a jump in the dark, taking the advice of the Ponzis and the Sheldons and ignoring the counsel of experienced bankers and brokers.

Despite the alluring talk of the socialists we believe that the poor—that is those who are comparatively so—will always be with us and that those who are provided with more of the world's goods will always be envied. But if people would save and invest their money properly it would go a long way towards bringing about a practical Utopia.—Financial Post.

Mr. Hickman, an organizer of the International Brotherhood of Paper-Makers has been in St. Catherines recently, gathering the workers at the Kinleith Paper Mills into the fold. His efforts appear to have been quite satisfactory.

Wrapping Philadelphia

(From Paper Trade Journal)

Philadelphia daily consumes almost 90 tons of wrapping paper each of the 300 working days of the year. The annual consumption totals 26,851 tons, and the wrapping paper bill for a year aggregates over $8,378,000.

Those are the high lights of a report just prepared by the D. L. Ward Company, which at its own expense and animated by the purpose of showing to the mills that Philadelphia was not securing a fair proportion of the country's production of wrapping, conducted the most exhaustive survey ever made of Philadelphia paper consuming conditions.

This survey, conducted over many months and at a large expenditure of money, was made from the ground up. Only actual and absolute figures were taken. There was no guess work at all. To make it the Ward Company engaged the services of a dozen men who knew nothing of paper conditions that they might not be influenced by prejudgment. These men went in person to over 17,000 actual and legitimate consumers of wrapping papers, and secured from their books definite an dexact figures. It is probably the first time in the city's industrial history that an investigation of like thoroughness and comprehensiveness was made.

Survey Report of Wrapping Paper

The conditions surrounding the distribution of wrapping paper in Philadelphia and vicinity have been appalling. Never before as a similar shortage of paper existed.

Certain mills heretofore devoting their entire production to wrappings have been tempted by unprecedented prices to put a considerable portion of their output into news print. This further cramped an already distressed market, and the resultant condition forced consumers to go outside of the city, and bid for requirements which should certainly have been provided for in the local market. An inflated demand was created, which tended only to increase the consumer's difficulties, and advance the prices of the commodities he was seeking.

Then again, the allotment, of the tonnage on the past performance—a system instituted by a number of mills at the eleventh hour—operated unjustly, giving as it did, the paper speculator, at all times an evil business influence, much greater tonnage than was deserved. This naturally caused a shortage among the paper distributors who were buying for their legitimate requirements.

It has been our feeling that a great deal of the difficulty could be more or less directly traceable to a lack of familiarity on the part of the paper manufacturers, as to the extent of absorbing power of the Philadelphia market, In an endeavor to correct this, we gave careful consideration to a means for determining the paper consumption in this territory. Even to approximate the local demands was impossible. We decided that a satisfactory results could only be obtained by an actual survey made in the field, and realizing fully the expense and labor involved, the plans were carefully prepared and put into operation the early part of the year.

We selected for the work, twelve men who knew nothing of paper or paper conditions. Consequently they were unable to report anything other than the facts given by the consumer upon whom they called, and in this way we eliminated the surveyor's personal opinion from the reports and confined said reports to the actual conditions existing with the consumer.

20,632 consumers, large and small, were listed and routed on cards designed to take care of the desired information, and so arranged that the investigator could readily note the facts as given. As an indication of the consumers' interest in the survey, it is worth mention that, in almost every case, the desired information was gladly supplied and purchase records and back invoices were referred to in practically all offices of large buyers, who were much more inclined to seek the actual facts in their files than give approximate figures, offhand.

We consider ourselves amply justified by the results obtained. The market for wrapping paper is even larger than we had anticipated, in spite of the fact that we are working at it daily. This report is submitted to you with the hope that we may convey, to some extent at least, an idea of the size and importance of this territiry.

In speaking of the Philadelphia market, it is usual to include all of that territory shown on the map accompanying this report, as this section is served almost entirely by Philadelphia houses. The figures shown herewith, however, cover only the City itself. The field work outside of Philadelphia is progressing rapidly, but has not been completed, and the finding have consequently been omitter. Furthermore, reports from "converters" totaling thousands of tons have been withheld, and the figures given in this repot represent only the legitimate consumption of wrapping paper for wrapping purpose.

The following summary sets forth the quantities of the principals wrappings consumed in the city. All figures have been reduced to tons with the exception of tissues, which is shown in reams. Reducing this latter item to tons (figuring 9 pounds to the ream), the report shows a total tonnage consumption of 2,686 tons. News, 1,463; Manila, 4,213;Fibre, 4,685; Kraft, 10,914;Screenings, 2,890; Tissues, 2,686; (estimated at 9 lbs. per ream for 596,940 reams.)

Blessed is the man who, having nothing to say, abstains from giving us wordy evidence of the fact.—George Eliot.

It takes a good many shovelfuls of earth to bury the truth.—Swiss Proverb.

A controlling interest in the American Straw Board Company has been acquired by the Mid-West Box Company. The latter concern, which has mills at Anderson and Kokomo, Ind.; Cleveland, Ohio; Fairmont, W. Va., and Chicago, obtained control of the board company through its purchase of the holders of the estate of Ohio G. Barber, Akron, O. Conservative estimates of interested parties place the value of the various properties of the American Straw Board Company at $5,000,000. It has ranked as one of the largest manufacturers of straw board for corrugating purposes in the United States. The move of the Mid-West Box Company management in gaining control is said to have been prompted by the need of protecting their raw material supply, to insure expansion and to effect an equitable distribution of the country's supply of strawboard for corrugating purposes

JOHN MacFARLANE WAS 79 YEARS OLD.

The death occurred early Monday morning at the residence of his son, Mr. D. H. MacFarlane, 611 Sydenham Avenue, Westmount, of Mr. John MacFarlane, for many years identified with the paper manufacturing industry in Canada, and who was at the time of his retirement from active business, in 1912, president of the Canada Paper Company, Limited.

Mr. MacFarlane was born 79 years ago at Fort Erie, Ont., and came to Montreal when young. After his education at the Montreal High School he worked as a clerk in two or three paper firms, and finally joined the paper manufacturing firm of Angus and Logan, of which the Canada Paper Company, Limited, is a development. In 1880, Mr. MacFarlane opened a branch for the Canada Paper Company in Toronto, remaining in that city as manager for eighteen months. He became a partner in the firm and was finally president.

Mr. MacFarlane, who settled in Westmount when that suburban city was considered in the country, was a mayor of that municipality, a school commissioner of Westmount, was a member of the board of the Mount Royal Cemetery, a director of the Montreal Water and Power Co., and a member of the Montreal Board of Trade.

He is survived by three sons, Dr. Douglas MacFarlane, at present at Macdonald College; Mr. Arthur MacFarlane, of New York; and Mr. David H. MacFarlane, architect of Montreal. Another son, Capt. J. R. N. MacFarlane, of the Canadian Forestry Battalion, died in London from influenza, after three years' active service. Two sisters also survive—Mrs. C. G. Godwin, of Ste. Anne de Bellevue, and Mrs. F. B. Francis, of New York. Mrs. John MacFarlane died in 1914.

CHARACTERISTIC OF THE COLONEL.

When Corp. Dan O'Connell, the veteran of may wars, who, after being rejected three times from the C.E.F., on account of over-age, enlisted with the Merchant Marine and was blown up three times in transport and mine sweeper service, said that everywhere he applied for work, they told him he was too old to work, tho' he hadn't considered himself too old to fight — he reckoned without his hosts of the Sault. He found that, at least one Sault employer wasn't benighted with a short memory as regards services rendered the country, when the Attilic hordes were battering down the ramparts of civilization.

Corp. O'Connell, in the course of his search for the wherewithal to live, by the sweat of his brow, called upon Col. C. L. H. Jones, the Manager of Operations of the Spanish River Pulp and Paper Company, himself a returned man. Col. Jones received the battered and maimed visitor as a former brother in arms and it was but a matter of a few minutes before O'Connell was placed in a good safe berth, where he will be able to perform the duties, despite the infirmity resulting from the loss of an eye, the partial loss of the use of an arm, the fracture of a shoulder and leg — all mementoes of German mines and torpedoes. Corp. O'Connell henceforth will look after the storing of the records of the Spanish River Pulp and Paper Co., in the latter's vaults, at headquarters.—Sault Ste. Marie Star.

NEWS FROM NORWAY.

A recent report of the Trade Commissioner to Norway says:

The wood exported totalled in the month of April 120,000 m³ as compared with 78,000 m³ (cubic meter =420 feet board measure) in 1919, 46,000 in 1918, and 120,000 m³ in 1913. The increase since the two previous years is very important and is due to the increase in the erport of sawn and planed wood. During the four months January to April there has been exported 318,000 m³ as compared with 232,000 and 203,000 during the same period in 1919 and 1918 respectively.

	1920	1919	1918
		1,000 m.³	
Raw wood	24	29	31
Planed or sawn wood	96	49	88

Wood pulp has also been exported in greater quantities than in April last year, but less than in 1913. Chemical wood pulp, however, has been shipped in larger quantities than was the case in the years mentioned above. The paper export shows an excessive increase. The quantities are more than thrice those from last year and are fully as high as the normal figures. Wood Cardboard shows a remarkably strong increase:—

	1920	1919	1913
		Metric tons	
Printing paper	9,580	3,381	9,061
Packing paper	7,241	2,275	6,857
Wooden cardboard	1,439	448	401
Wood pulp, dry	521	1,058	1,643
Wood pulp, wet . . .	32,495	29,643	48,091
Chemical pulp, dry . .	18,612	4,937	17,460
Chemical pulp, wet . .	.....	.....	50

Wood Trade.

The market is quiet under the influence of a very limited demand on the part of England. Prices, however, remain on the former level.

Forest Fires in Norway.

On June 19 one of the heaviest forest fires on record in Norway broke out in the forests of Rendalen, some 180 miles north-east of Christiania. The origin of the fire was due to some careless fellows who were preparing their coffee. It spread rapidly, swept by a heavy southern storm and very soon an extensive area was ablaze.

From all parts people rushed to assistance, civilians and military, until between 1,500 and 2,000 men were engaged in resisting the terrible enemy. For more than fifteen hours all efforts seemed in vain, but at last the practical skill and tireless energy of the men prevailed and the fire was at last overpowered. Happily very heavy rains set in, which completely extinguished the smouldering embers.

The devastered area is estimated at upwards of 6,000 acres, and the damage although not yet officially stated, is hardly below £60,000.

Some other forest districts have also been visited by fires lately, but fortunately on a much more limited scale. But on the whole these fires naturally mean a great drawback to the wood trade and the allied industries.

Pulp and Paper.

The markets for pulp and paper remain practically unaltered since our last report, owing to general slackness prevailing at this time of the year.

A New Test for Lime and Cement Bag Paper

By PAUL HOUSTON, Bureau of Standards,
Washington, D.C.

In December 1915, the Lime Manufacturers Association, the Gypsum Manufacturers Association and the Cement Manufacturers Association requested the Paper Section of the Bureau of Standards to carry on an investigation of Lime and Cement Paper Bags for the purpose of developing specifications. Correspondence with the above associations showed that their organizations had no specifications for these paper sacks. The only information obtained was that the Lime Manufacturers Association desired a 50 lb. bag while the Cement Manufacturers Association desired a 94 lb. bag. The Paper Section also corresponded with a number of the cement and lime bag manufacturers and discovered that for a number of years they had been making bags out of paper as a substitute for burlap and cotton with varied success. Some of the consumers had given favorable reports on the use of their paper bags while others had claimed the sacks failed in service. As a result of all this correspondence, the Paper Section decided to comply with the request of the above organizations and carry on a thorough investigation of the subject.

Because of other work that was made necessary by the War, this investigation had to be discontinued until April 1919, when the work was taken up again. Through the courtesy of the bag manufacturers, new samples of bags were obtained and were first given the ordinary physical and chemical tests for preliminary work. Having completed all preliminary work, it was felt that a laboratory test should be developed that would give numerically the stress and strain that the paper of a bag underwent in service. Consequently a new test was developed. This test was called the Stress-Strain or Resiliency Test.

For this test, a large two hundred kilogram Schopper tensile strength machine was adapted with the following additional attachment. A brass cylinder was constructed and fastened to the upright standard of the Schopper in such a way that it would revolve. The revolution of this cylinder was so controlled by a small wire over a pulley from the weighted pendulum that as the pendulum moved from its vertical position due to the increasing loads, the cylinder revolved accordingly. This cylinder held a paper chart, and a glass recording pen was used to record both load and stretch. The pen was controlled by a small wire extending from the lower jawed arm over a pulley in such a way that as the lower jaw descended and the paper stretched under the load, the pen ascended and described a curve which registered stretch. It can thus be seen that the revolution of the cylinder caused the registering of load on the chart, while the ascension of the pen caused the registering of stretch. The result was a curve on the chart giving both the increasing load and increasing strength until the paper broke.

In order to read this curve it was necessary to draw up the chart so that load and stretch could be read at a glance. The method used was as follows. An ordinary blank piece of writing paper was used for this purpose and placed in position on the cylinder. A point on the paper was chosen as the zero point for load and stretch. Then, the zero line for stretch was found by using a piece of steel between the jaws and by applying the various loads. Steel was used for this purpose because the chart was to be drawn up for a 70 kilogram load as a maximum and steel would not stretch at this load. By this method the zero line for stretch was drawn with the recording pen from the zero point and each kilogram load as indicated by the Schopper scale was pointed off as the load increased. At each kilogram point, a line was drawn parallel to the base or zero line for load. This base line was found by operating the machine with nothing between the jaws and was drawn with the recording pen from the zero point. Each centimeter that the lower jaw descended from its starting position or zero point represented the stretch and was pointed off accordingly. At the different centimeter points, lines were drawn parallel to the zero line for stretch. In this way, the chart was plotted to give accurately the stretch at different loads for any paper breaking under a 70 kilogram load.

The method used for obtaining the resiliency of paper on this Schopper machine with its recording device was the following. In order to obtain curves or loops (as they should be called in this case) to show this resiliency, or the endurance of paper under different stresses and strain a load was taken in each case 10 percent below the breaking point. This, of course, necessitated finding the tensile strength or breaking point for each grade of bag paper in both machine and cross direction. In order to do this, an average of ten tensile strength tests was obtained. After obtaining, in each case, the desired load of 10 percent below breaking point, each test sample was given this load and then the load was released and the operation repeated until the test sample broke. The result was a series of loops for each test sample, giving first the stretch at applied load, second the stretch when load was released, third the increase in stretch for every time load was applied over the previous time, and fourth the number of times the paper could stand the strain of this load before it broke. Three test samples from each grade of paper, cut in both machine and cross direction, were used, in order to obtain an average, and data was collected accordingly.

From this data it was not hard to choose the five bag papers which showed the best strength, tensile strength and endurance. In order to eliminate still further and pick the very best bag paper from these chosen five it was necessary to make other resiliency tests since two of these papers proved superior because their chosen loads of 10 percent below breaking point happened to be slightly lower than the chosen loads of the other bag papers. Consequently, a certain load was chosen that was just low enough under the breaking point to be used for all these five bag papers and the resiliency test was repeated. From the results

*Paper read at the fall meeting of the Technical Association of the Pulp and Paper Industry, Saratoga Springs, N.Y., Sept. 1, 1920.

of these new tests, it was then easy to choose the very best bag paper of all.

The conclusion reached by the Paper Section from this investigation of cement and lime bag paper were that this resiliency test was the best known test for showing what the paper would do in actual service. To prove this point, the results of this resiliency test on a series of bag papers were compared with the results of a service or drop test on bags made up of the same paper. For a service test the bags were first filled with 94 pounds of sand and then dropped a distance of three feet through a trap door in a platform on to a solid wooden stand. Those bags whose paper proved the best according to the resiliency test could be dropped the greatest number of times before the paper broke. Although no great amount of work was accomplished on the drop test, the results were conclusive enough to show that the two tests checked and that the resiliency test actually gave numerically the stress and strain that a bag paper underwent in service. The Paper Section is convinced of the merits of this test and will be glad to demonstrate its operation to any who can visit the laboratory.

Pulp and Paper Exports More than Doubled

The Pulp and Paper Magazine has made arrangements under which it will be able to present to its readers Canadian customs returns showing the exports of pulp and paper in more or less detail some two or three months earlier than has hitherto been the case. This will add very greatly to their interest and value, especially at the present time when pulp and paper exports are increasing so rapidly and are playing so important a part in our national economy.

In the following table are set forth the figures for the month of July, 1920, compared with those for July 1919, as well as the figures for the first four months of the current fiscal year, compared with those for the corresponding period in 1918 and 1919. The July exports reached a total value of $16,014,747 in 1920 compared with $7,730,162 in 1919, a gain of $8,284,585, or of more than 100 per cent.

The total for the four months' period amounted to $52,494,052, as compared with $27,067,236 the previous year and $26,707,802 in 1918. The gain over last year amounted to $25,426,816. The figures are significant because they show that in the first four months of this year Canada exported pulp and paper of a greater value than in any full year prior to three years ago. In 1916-17 they fell short by $5,972,160 to equalling the figures for the first four months of this year. Unbleached sulphite and newsprint paper lead in the extent of the increase. The enormously higher prices now being obtained, however, should be taken into consideration in estimating the growth of the industry, as of course the volume growth does not begin to show the same relative increase as the value. Following are the details:

EXPORTS OF PAPER, WOOD PULP, and PULP WOOD.

Months of July, 1919 and 1920; and Four Months Ending July, 1918, 1919, and 1920.

		Months of July		Four Months ending July.		
Paper:						
Printing Paper:		1919	1920	1918	1919	1920
Book paper	Cwt.	9,462	9,798		15,930	24,751
	$	99,842	110,596		169,987	259,886
Newsprint paper	Cwt.	1,146,462	1,219,439		4,269,216	4,906,188
	$	4,064,303	5,727,193		15,035,927	21,916,549
Printing paper	Cwt.	.....	.....	4,375,373	.....	.....
	$	.....	.....	12,701,948	.....	.....
Other paper	$	475,080	1,039,225	1,785,162	2,326,495	4,247,019
Total Paper	$	4,639,225	6,877,014	14,487,110	17,532,409	26,423,454
Wood Pulp:						
Sulphate (Kraft)	Cwt.	218,143	251,146	.....	681,157	877,543
	$	700,114	1,383,104	.....	2,193,049	4,205,100
Sulphite, bleached	Cwt.	96,772	177,623	.....	334,005	632,508
	$	451,622	1,402,957	.....	1,597,744	4,292,197
Sulphite, unbleached	Cwt.	390,258	626,574	.....	1,056,182	2,185,494
	$	1,502,597	3,822,679	.....	4,112,833	11,621,457
Chemically prepared	Cwt.	.....	.....	3,131,394	.....	.....
	$	.....	.....	10,518,919	.....	.....
Mechanically ground	Cwt.	346,174	838,118	1,300,065	1,346,396	2,208,530
	$	436,604	2,528,993	1,701,773	1,631,201	5,951,839
Total Wood Pulp	Cwt.	1,051,347	1,893,461	4,431,459	3,417,740	5,904,075
	$	3,090,937	9,137,733	12,220,692	9,534,827	26,070,593
Pulp Wood	Cord	122,069	144,741	645,723	328,386	368,851
	$	1,234,527	1,545,906	6,232,254	3,260,241	4,061,376

Country of Destination.					
Paper and Manufacturers of:					
To United Kingdom	$ 195,449	425,949	364,878	988,550	1,548,102
United States	$ 3,849,826	5,535,386	12,323,501	14,053,282	20,998,774
Other Countries	$ 593,950	915,679	1,798,731	2,490,577	3,876,578
Wood Pulp:					
To United Kingdom	$ 327,706	1,426,291	7,089	992,486	3,436,193
United States	$ 2,491,282	7,101,893	11,145,654	7,136,018	20,839,881
Other Countries	$ 271,949	609,549	1,067,949	1,406,323	1,794,519
Pulp Wood:					
To United Kingdom	$	.....	.....	.....	.....
United States	$ 1,234,527	1,545,906	6,232,254	3,260,241	4,061,376
Other Countries	$	.....	.....	.....	.....
Total Paper, Pulp Wood and Pulp:					
To United Kingdom	$ 523,155	1,852,240	371,967	1,981,036	4,984,295
United States	$ 7,575,635	14,183,185	29,701,409	24,449,541	45,900,031
Other Countries	$ 865,899	1,525,228	2,866,680	3,896,900	5,671,097
Totals	$ 8,964,689	17,560,653	32,940,056	30,327,477	56,555,423

PULP AND PAPER AT THE NATIONAL EXHIBITION.

Although numerically the pulp and paper firms exhibiting at the National Exhibition, Toronto, were weak, those interested in the industry, and many others as well, learned something of the potentialities of the trade through the displays made by several firms. For instance the Interlake Tissue Mills, Limited, had an excellent display in the manufacturer's building with Mr. John T. Burholder of the head office, Toronto, and Mr. W. Innes of the mill at Thorold in charge. The both was very artistically decorated, much of it bearing evidence of the decorative uses to which part of the firm's product can be put. The color scheme of nile green and pink was carried out effectively by an artistic treatment of decorative crepe tissue with a lattice border and floral decorations hanging from the ceiling. In a nicely arranged alcove at the rear and in the showcase at the front of the both were displayed the firm's products in the way of toilet papers, tissue towels, drug wrap, napkins, decorative crepe tissues sulphite crepe paper napkins, etc. Samples of the goods were distributed liberally and throughout the two weeks of the Exhibition the Interlake tissue Mills products were very much in the public eye.

The Dennison Manufacturing Company had an interesting exhibit demonstrating the many lines manufactured and carried in what might be termed the firm's art department. The Dennisons are big manufacturers of paper tags and handle many other specialty lines. Their Toronto office is at 160 Richmond Street, west, but in October the firm will move to 7 Wellington Street, East, Toronto. Demonstration of what can be made in art work from the firm's lines of tissues and other novelties was given at the booth and proved interesting to the many visitors.

Although the greater part of the space taken over by the British Columbia Government through the eastern commissioner, Mr. Lorne L. Brown, was given over to an exposition of the lumber resources of the province, one department was devoted to pulp and newsprint. Samples of newsprint manufactured in the western province were on display while there could also be seen every ingredient and every stage reached by the finished paper in its progress from the tree to the paper-finishing machine. Legends were displayed setting forth the great growth of the pulp and paper industry in the province, 1918 producing a value in pulp and paper of $4,062,724 which had jumped to $12,554,257 in 1919.

The Abitibi Power and Paper Co. Ltd., have an attractive and instructive exhibit, the main features being some excellent samples of the company's product in the way of pulp and paper and the statistics so set forth that he who runs may read. One does not have to go right up to the exhibit to read that in the woods and forestry department no less than 27 camps are operated and well over a million and a half dollars a year paid in wages. The men employed number 1200 and the cords of pulp wood cut annually is placed at 163,000. The capacity of the newsprint mill at Iroquois Falls is 75,000 tons; groundwood pulp 35,000 tons and sulphite pulp 25,000 tons. The company is increasing its production from 25 to 500 tons of paper a day. Groundwood pulp from 320 to 550 tons and sulphite pulp from 137 to 175 tons a day.

W. J. Gage & Co., Limited, wholesale, and manufacturing stationers, Toronto, have an excellent display in the manufacturers building. A booth has been attractively arranged in which Holland Linen is extensively featured while other lines put out by the company are also effectively displayed.

LIVERPOOL LACKS NEWS.

Liverpool, August 30.—No morning papers appeared in Liverpool today for the fist time in 112 years, and no evening papers for the first time in 50 years, as a consequence of a sudden strike of newspaper compositors here and in Manchester for more pay.

For the first time in more than three-quarters of a century the Manchester-Guardian failed to appear.

It is far better to give work which is above the man than to educate the men to be above their work.—Ruskin.

British Trade News

(From Our London Correspondent).

London, 21st August, 1920.

In the British paper industry there is at the present time a big falling-off in orders and particularly with mills engaged in the manufacture of wrapping papers. This state of affairs is enabling mill owners to clear their books and people who did not expect consignments to be delivered at least two or three months hence are now surprised with sudden deliveries. Further, mills which refused prompt delivery orders in the early part of the year are now open to accept them and deliver the paper inside a month or six weeks, except in the case of white fine printing papers which, of course, are not easily obtainable owing to the constant demand for them in the large printing houses. Prices, however, are unchanged owing to the cost of raw materials. Mill owners are now able to get their houses into "ship-shape" and many of them are glad of the respite. It is rumored that the present dullness of the paper industry may reflect in the prices of raw materials. This, however, is impossible as all raw materials are imported and besides there is an official announcement that in September all freight car rates will be advanced which will have a tendency to increase not only the prices of raw materials but paper quotations may be affected by the sudden change.

Pulp Situation.

Stocks of pulp are very fair in the country and the import returns are satisfactory. There is, however, a dullness prevading the market at present and very little business is passing. Of course at this period of the year a dull market is expected and in another month we will see an unusual liveliness when contracts and winter orders are pouring forth. Shipments of unbleached chemicals and groundwood pulps still continue to arrive from Canada. Buyers are at present slow in fixing up future business; they want to see how prices will go, but the state of things in Scandinavia and in Canada will not relieve them in any way. In fact it is dificult to see how Scandinavia can reduce a quotation when one considers the price pulp mills pay for coal and the recent demands of labor, owing to the increased cost of living, and several other incidentals which all help to keep prices on a high level. No relief may consequently be expected from the continental makers of pulps. Canada is also faced with increased costs in manufacture. The U. S. A. is out of the pulp market here and supplies from Germany, Finland and Denmark are not on a large scale. So far as one can predict pulps will not ease off in prices this winter; if anything they may reach higher levels. There is a feeling that way.

Technical.

The British Papermakers' Association has made further progress in putting the Technical Section into a business-like body. An Executive Committee has been actually established and I hope we will have some good and interesting reports which will eclipse the work of the Canadian and American Associations. One would imagine that a body like the British Papermakers' Association, so long established, would have had a Technical Section years ago. But the war and the twentieth century has changed things in London. Mr. Arthur Baker of the Empire Paper Mills, Ltd., is the gentleman who saw the need for such a body and the papermakers of Great Britain may take their hats off to him. He is the chairman of the Section now and in future will be supported by the following committee:—Mr. F. Heckford (John Dickinson and Co., Ltd.); Mr. J. Jennison (Empire Paper Mills Co.); Mr. J. H. Mowat (Peter Dixon and Son Ltd.); Dr. J. D. A. Macdonald (Tullis Russell and Co.); Major J. Edington Aitken (Inveresk Paper Co., Ltd.) who is vice-chairman; and Mr. J. Strachan (Donside Paper Co., Ltd.). Co-operating members are: Mr. R. W. Sindall (Sindall and Bacon); Mr. H. W. Hart (Wall-Paper Manufacturers, Ltd.) and the Secretary and Treasurer is Mr. A. W. Foster, B.A. (secretary to the Papermakers' Association). Now, this is a splendid committee—all practical men. When they come to give an account of their stewardships and the results of this research work, I hope we will have something to enlighten the industry as a whole. The men are on the committee who can make a good and interesting report.

Canadian Paper and Boards.

During July the following were the imports of paper and boards from Canada:—

Printing Paper, 27 cwt., Writing Paper, 93 cwt., Other Manufactures, 123 cwt., Leatherboards, 200 cwt., Millboards, 19,344 cwt.

Scandinavia and Finland are Canada's greatest competitors in millboards and the same may be said in regard to leatherboards. No strawboard supplies were received from the Dominion in July. Supplies for the British market mostly came from the Netherlands, while the U. S. A. sent small consignments. The total supplies of millboards from all sources in pulp reached 69,914 tons and that of leatherboards 2,261 tons. The market in England is good for all kinds of boards.

Cardboard.

There is a slump in the cardboard box trade at present. Manufacturers put the trouble down to the excess profits duty. Quite recently in some of the big centres attention has been paid to the production of the composite canister, for containing jams and other foods, which has a base and lid of tin and the walls or body consist of papier mache made from Canadian pulp. During the war this class of canister was much in evidence and has remained so ever since. There is, however, a decided dullness today in the industry as manufacturers of jams and other foods are not calling for these canisters owing to a want of activity in the country's merchandise. Some of the machines used in the manufacture of these canisters are of the American type and the pulp is all Canadian. Birmingham is one of the big centres of manufacture.

ENLARGE PAPER MILL.

A building 60 by 300 feet is being erected by the Ontario Paper Company, Limited, at Thorold. A new paper-making machine is being added to the plant's equipment, and it is announced that the capacity of the mill will be thus raised from 230 to 300 tons of newsprint a day. The building of the plant addition is already well advanced.

Fighting the high price of print paper by controlling forest insects is one of the tasks before the New York State College of Forestry at Syracuse, which is having specialists study bugs which damage trees with a view to controlling their damage to growing timber.

UNITED STATES NOTES

A rumor that the International Paper Company is to become a party to an impending huge merger of pulp and paper interests in Canada, has been nailed with a sharp denial from Philip T. Dodge, head of the company. Mr. Dodge authorized a statement last week from New York in which he declared most emphatically that the International is not proposing to part with its mills, control or sale of its products. "In addition to its various newsprint mills in the United States," said Mr. Dodge, "the company is now pushing to completion at Three Rivers, Canada, a mill with a capacity of 240 tons a day. It is expected that this mill will be in operation in the Summer or Fall of 1921. The International Paper Company is not engaged in profiteering or in stock promotions. The 400 publications to which it furnishes paper have been offered continuation of their existing contracts through 1921, limited only by the possible volume of our newsprint production."

Chairman W. B. Colver of the Federal Trade Commission, notified President Wilson last week that he did not wish his name considered for reappointment to the commission at the expiration of his term on Sept. 25. Mr. Colver stated in his letter to the President that he desired to retire from the Commission so that he can engage in private business.

Among the gatherings of paper trade organizations scheduled for the present month is the convention of the Cost Association of the Paper Industry which takes place at the Waldorf-Astoria Hotel in New York, Sept. 27 and 28, and the meeting of the Northern New York division of the Paper Mill Superintendent's Association of America, which is set for September 25 at the Hotel Rockwell, Watertown, N. Y. The American Pulp and Paper Associations' Fall business conference will be held at the Congress Hotel, Chicago, November 11.

In a statement given out last Friday from its New York office, the International Paper Company announced that the price of newsprint in rolls for the last quarter of 1920 will be $6.50 for 100 pounds, or $130 a ton. The price for the current quarter is $115 a ton. Contract prices for newsprint furnished by the company are adjusted each quarter, the price to be changed being based on costs of production. The price for the first quarter this year was $90, and for the second quarter $100.

A $500 fine and costs for the killing of a single fish was imposed recently by the Ohio State Supreme Court upon the Hager Board and Paper Company of Cedarville, Ohio. The death of this fish was cited in an affidavit charging the paper mill people with having permitted their refuse to run into streams, the consequent pollution causing destruction to the finny tribes. The charges against the paper and board company were filed by the State Game Warden, and the fine was paid by George Little and Albert Hager, officials. Deputy Game Warden Karl Keller in his deposition said that the state had gone to an expense of thousands of dollars to stock the streams. To replace the fish destroyed through the pollution, he asserted, would cost $100,000 and would require six years. Deputy Keller pointed out that under the law a fine of $500 is the largest can can be imposed, though a separate fine for each fish killed could be placed against the company. In view of the decision of the court in this action, it is probable that much new equipment will have to be installed in those paper mills along the Miami River which have hitherto permitted their refuse to run into the stream. Trouble from pollution has been caused in the past, but the destruction has been so widespread of late that the action taken was decided upon by the State Game department. The Hager Board and Paper Company, besides carrying the fine, promised the deputy that it would install a system of purifying the water.

By an arrangement just completed, American consumers of dyestuffs may purchase supplies from the stocks of the German product which have been set apart under the Versailles peace treaty as a part of the reparation to be made to allied Powers by Germany. The Textile Alliance, Inc., a non-profit taking organization created by the consumers, will be the medium through which the dyes will be distributed. The announcement telling of this arrangement was given out last Saturday by the War Trade Board Section of the State Department. Purchases will be permitted only of those dyes which are not being produced in the United States.

Chief executive officers and large stockholders of the General Chemical Company, the Solvay Process Company, the Semet-Solvay Company, the Barrett Company and the National Aniline and Chemical Company, Inc., have approved a general plan for submission to the respective boards, for the consolidation of the five companies, through an exchange of stock based on their capitalizations, the consolidated companies will be capitalized at $200,000,000, it is stated.

Replanting of the devastated areas of the Adirondacks with spruce and other soft woods would ultimately solve the pulpwood and newsprint shortage, declared George S. Witham, of Hudson Falls, N. Y., in an address before the Technical Association of the Pulp and Paper Industry last Thursday at Saratoga Springs. Citing statistics to show that the quantity of spruce now standing in New York State may be exhausted in a very few years. Mr. Witham advocated the replanting of devasted areas unfitted for agricultural purposes, and the practice of scientific forestry on them under proper supervision by the state so that there would be provided "a permanent scientifically maintained forest, yielding successive crops of pulpwood and timber for other purposes."

Frederick A. Thompson, who died at his home in Westfield, Mass., last week at the advanced age of 92, had been actively engaged in the papermaking industry for 71 years. He began work when 13 under Zenus Crane and the latter's sons at Dalton, Mass., and when he retired in 1912 from the Cross Mills he had been foreman for 42 years, a record up to that time for tenure of service in the industry. Mr. Thompson's health had been good up to the time of the illness to which he succumbed.

Technical Section

REVIEW OF RECENT LITERATURE.

A-3. Seaweed pulp for paper. Paper, **26,** 264, (1920). A company has been formed in Japan for the manufacture of pulp and paper from the seaweed locally known as "ajimo". The supply is inexhaustible as it reproduces itself in less than 6 mos., and the cost of production is estimated as being 4.8 sen as compared with 6.5 sen for wood and 10.4 sen for sulfite.—A.P.-C.

A-3. The esparto industry. Ch. Groud. Papier **23,** 27-30, (Feb. 1920). A discussion of the esparto industry from an economic point of view more particularly as regards the distribution and working of the esparto producing regions and the utilization of the non-cellulose matters as fertilizers and feed.—A. P.-C.

A-6. New forms of combustion apparatus for use in gas analysis. E. R. Weaver and P. G. Ledig, U. S. Bureau of Standards. J. Ind. and Eng. Chem., **12,** 368-70, (1920). A description of an improved form of the Dennis and Hopkins combustion pipet, and of a combustion capillary of small size somewhat similar to those of Hempel and Levy, containing an electrically heated Pt wire. They are relatively easy to make and should be quite inexpensive if made commercially. —A.P.-C.

A-12. Determination of the tensile strength of glue. George Hopp. J. Ind. and Eng. Chem., **12,** 356-8, (1920). A method is described of preparing test strips of glue, which are then tested in an electrically driven Schopper tester with a capacity of 500 kg. The alignment of the jaws should be as nearly perfect as possible, as the slightest deviation will give poor results due to torsion and shear being set up. Results of actual tests run on commercial samples are given to show that the method gives a feasible way of determining the exact strength and stretch of a glue, its elastic limit, and other physical properties, thus permitting manufacturers to determine exactly the character of their glues, and to vary their processes and raw materials and determine the effect on the finished product. It will also permit the establishment of scientifically selected standards in absolute units. Further work is being done to determine the relation between physical and chemical properties, and tensile strength and stretch.—A.P.-C.

A-12. Testing the strength of glue jellies. Wilson H. Low, Cudahy Packing Co., Omaha, Neb. J. Ind. and Eng. Chem., **12,** 355-6, (1920). The Smith glue tester is by far the best and most sensitive tester on the market. The results obtained by it are improved by the use of mercury covered with colored water (instead of colored water alone) in the scale tube. There is no advantage in using air instead of water in the thistle tube. The scale is made movable in a vertical direction so as to adjust the zero mark opposite the water level. The method of using the instrument is fully described. (A description of the Smith glue tester will be found in J. Ind. and Eng. Chem., 5, 235, (1913). Abstractor's note).—A.P.-C.

A-12. Fibre containing adhesive. A colloidal method for increasing the volume of adhesive water-glass. J. D. Malcolmson, Mellon Institute of Industrial Research, Pittsburgh, Pa. J. Ind. and Eng. Chem., **12,** 174-6, (1920); Paper, **26,** 16-8, (1920). See Pulp and Paper, **18,** 438, (1920).—A.P.-C.

A-0. Automatic methods of gas analysis depending upon thermal conductivity. E. R. Weaver, P. E. Palmer, H. W. Frantz, P. G. Ledig, and S. F. Pickering, U. S. Bureau of Standards, Washington, D.C. J. Ind. and Eng. Chem., **12,** 359-66, (1920). A new form of apparatus for the continuous analysis of gas mixtures, based on the rate of conductance of a gas surrounding an electrically heated wire, is described. Unlike previous deflection methods of limited application, a balance-bridge method applicable to the rapid and accurate detn. of constituents in a wide variety of gas mixtures of industrial importance have been developed. The adaptability of the apparatus for either manual or automatic recording operation is pointed out. Representative analyses showing the results obtained with apparatus constructed for the determination of H, N, CO_2, NH_3, and He in various gas mixtures are given. The construction of the special forms of apparatus required for this method is described. Plans for future work are outlined.—A.P.-C.

B-9. French agricultural (timber and wheat) resources. J. Micol de Portemont. Papier, **23,** 25-7, (Feb. 1920). From a comparative study of French and German productions of timber and cereals before the war, the author concludes that by a judicious development of its resources France can greatly increase its production both of timber and of cereals without mutual detriment and can become entirely self-supporting for these commodities.—A.P.-C.

G-11. Separator for paper pulp. U. S. patent No. 1,333,287, March 9, 1920. John White, Edinburgh, Scotland. Paper, **26,** 233, (1920). The separator consists of a vat or chest divided into compartments by upstanding and depending partitions so arranged that the path of the pulp is alternately downwards and upwards, whereby lighter undesirable particles are retained by the upper edge of an upstanding partition at the upper level of the vat and heavier undersirable matters are brought to the bottom and pass into a chamber below the vat.—A.P.-C.

K-8. Ostwald's color theory in paper tinting. Papier Ztg., **15,** (1920). Paper, **26,** 231-2, (1920). A review of the theory in its application to papermaking by a German papermaker. The Ostwald theory as it is now is of no practical value to the paper colorist, both because the color manufactures have not yet put their manufacturing process on the same basis, and because slight variations in numerous factors besides added color (shade of raw materials, degree of beating, consistency, sizing, loading materials, calendering, etc.,) exert a marked influence on the color of the finished product.—A.P.-C.

K-4; 7. Manufacture of paper from abaca bark. (Manila hemp). U. S. patent No. 1,333.255, March 9, 1920. Akira Imaoka, Tokyo, Japan. Paper, **26,** 233, (1920). The outer bark of abaca is boiled in a weak (2-5 per cent.) NaOH solution, thereby gelatinizing a peculiar kind of pectine contained in the non-fibrous portion of the bark. By beating by any suitable known

method, a stiff, tough paper is obtained without using any sizing material.—A.P.-C.

K-9. Oyster shell composition for paper. U. S. patent No. 1,334,513, March 23, 1920. Frank J. Baumgardner, Cleveland, Ohio. Paper, **26**, 234, (1920). This patent covers the use of finely-ground (250-300 mesh) oyster shells as a filler to be used in the proportion of about 1 of filler to 5 of stock.—A.P.-C.

K-10. The function of alum in rosin sizing. E. Arnould. Papier, **23**, 35, (Feb. 1920). Under proper conditions sizes will give satisfactory results whether they contain considerable free rosin or none at all. This is explained as follows: The sizing effects are due to free rosin. In the case of a neutral milk, the alum first reacts to form Na_2SO_4 and Al resinate, which in its turn is partially or totally transformed into free rosin by the action of the excess of alum. —A.P.-C.

K-11. The efficiency of paper-machine driers. E. Salesses. Papier, 23, 30-3, (Feb. 1920). The "efficiency co-efficient" is defined as the weight of paper (in kg.) dried per hour per unit (sq.m.) of "evaporating surface," which is the product of the sum of the circumference of all the driers by the width of the sheet. Theoretically, this co-efficient should be consistant for each machine, but it varies somewhat owing to variations in the operating conditions. Methods of calculating it and also the weight of paper dried per hour per unit of **actual** heating surface are given. The values given for the above values in **L'Industria della Carta** for June 1919 are not satisfactory because they do not take into account the fact that the sheet is not in contact with the whole surface of the driers, and also that the felt driers are not a part of the **actual** heating surface.—A.P.-C.

K-20. New method of parchmentizing paper. U. S. patent No. 1,333,465, March 9, 1920. R. H. Clayton, J. Hueber, and H. E. Williams, Manchester, England. Paper, **26**, 235, (1920). The paper is passed through a hot solution (130 deg. C) of a thiocyanate, a mixture of thiocyanates, or a mixture of a thiocyanate and a salt which does not adversely affect the action of the thiocyanate and which itself may or may not have a parchmentizing action on the paper. The solutions may or may not be acidified with acetic acid (per cent. by vol.). The paper should be in contact with the solution about 15-30 seconds and is then washed and dried in the usual manner. (See Pulp and Paper, **17**, 851, (1919).

L-5. Nitrocellulose from wood pulp. R. G. Woodbridge Jr., Experimental Station, E. I. du Pont de Nemours and Co., Wilmington, Del. J. Ind. and Eng. Chem., **12**, 380-4, (1920). An account of the experiments carried out by the du Pont Co. on the nitration of sulfite and soda wood celluloses for smokeless powder manufacture. The pulp, as prepared for paper manufacture, is insufficiently pure, severely overbleached, and in an entirely unsuitable physical condition. By suitable purification, sulfite cellulose was obtained which was satisfactorily nitrated on a large scale when mixed with an equal quantity of cotton linters, and the product was practically equal to that from straight cotton. It is not likely wood cellulose will be nitrated for smokeless powder for many years to come owing to the plentiful supply of cotton fibre; but nitrocellulose from wood may find an application in those industries where a nitrocellulose with low viscosity is desired.—A.P.-C.

R-1. The chemical pulp industry in Finland. Papier, **23**, 39-40, (Feb. 1920). A description of the Varkaus Cellulose Factory, Varkaus, Finland. (This was transated from the "Finnish Paper and Wood Industry," Oct. 31, 1919, and reproduced in Pulp and Paper, **18**, 193-4, (1920).—A.P.-C.

R-5. Extracts from the report to the French Government of the "Office National des Papiers autres que ceux de la Presse." Papier, **22**, 255-6 . (Aug. 1919); 279-81, (Sept. 1919); 308-10, (Oct. 1919); 336-8, (Nov. 1919); **23**, 40-4, (Feb. 1920). A detailed review of the present situation of the Fr. pulp and paper and allied industries and of the protective measures which should be adopted to enable it successfully to tide over the transition period during which it will be laboring under great difficulties.—A.P.-C.

R-5. The French paper trade during 1917, 1918, 1919. Rev. Univ. Papeterie, **3**, No. 15, 5-8, (March 15, 1920). A detailed statement of the paper trade of France during the years of 1917, 1918, 1919.—A.P.-C.

R-0.—Technical men in the Paper Industry. H. P. Carruth. Pulp & Paper, **18**, 126-7, (1920). Paper, **25**, 1151-2, (1920). The great need of the day is for the application of religion in the factory, office, store, bank, etc. As the technical man is looked up to more and more as a leader it is his duty to set the example. A. P.-C.

R-0.—How to equip and operate an experimental pulp and paper laboratory. Otto Kress, Sidney D. Wells, and Vance P. Edwardes, U. S. Forests Products lab., Madison, Wis. Pulp & Paper, **18**, 588-91, 619-22, 647-9, 671-2, 699-701, (1920); Paper, 11-4, (June 2, 1920), 24-7, (June 9, 1920), 19-23, (June 16, 1920), 23-5, 32, (June 23, 1920). A description of the equipment of the experimental pulp and paper laboratory at the U. S. Forest Products Lab. at Madison Wis., together with explanations of the reasons which led to the adoption of the given types of apparatus.—A. P.-C.

R-0.—English paper technology examination. Paper, **26**, 12, 36, (June 16, 1920). Questions set in a recent final examination in paper manufacture under the auspices of the City and Guilds of London Institute, A. P.-C.

R-0. Protection of the Belgian paper industry. B. Franklin. La Papeterie, **41**, 355, (Sept. 25, 1919). Conditions in Belgium are such that the import licence system should be maintained with regard to German products. This is due to the low rate of exchange of the mark, which has fallen to 35 centimes; to the non-delivery of the coal which the Germans are to send according to terms of the peace treaty; to the "dumping" policy of the Germans, which was one of their favorite commercial weapons before the war, and which is particularly favored by the actual low exchange value of the mark.—A.P.-C.

WORK HAS BEGUN ON MILLS AT NIPIGON.

The Thunder Bay Harbor and Improvement Company has been awarded the contract for erecting the pulp and paper mill at Nipigon for the Nipigon Fiber Paper Mills, Limited, in which the principals are Col. J. A. Little and W. H. Russell, of Port Arthur. Work has already been started on the mill, which will be of fifty ton capacity for its initial unit, and will be in operation by the end of December. The mill is to be situated one mile west of Nipigon, and the Canadian National Railways is already putting in a spur track.

PULP AND PAPER NEWS

A visitor to the Toronto office of pulp and paper Magazine of Canada this week, was Mr. H. M. Mosdell, managing editor of the St. John's Daily Star, Newfoundland's home paper. Mr. Mosdell, who has made a name for himself in Canada's eastern outpost at one time had the prefix "Dr" to his name. That was after he got through the medical department of the University of Toronto. It was while attending college that he developed a taste for newspaper work and an outlet for his talent was found in the editorial pages of the Toronto Sunday World. He was on the staff of the World for some time and it was while doing newspaper work in Toronto that he was called to the Star, in Newfoundland by Premier Squires. As managing editor of that very excellent paper, Mr. Mosdell has figured largely in building up a first class newspaper property which bears the inprint of his strong personality and ability. He is on his way back from the west after having accompanied the Imperial Press Conference as a delegate from Newfoundland.

Mr. J. Hewitt, of Paper Sales, Limited, Yonge St., Toronto, is spending his holidays at Burleigh Falls.

Mr. V. T. Haney, Toronto representative of the Rolland Paper Company, Ltd., has returned from several days spent at the company's mills near Montreal.

Lieut-Col. Thomas Gibson, vice-president of the Spanish River Pulp and Paper Mills, Limited, Toronto, is spending a couple of weeks vacation in Muskoka.

To carry on the business of lithographers, printers, etc. the Engravers and Die Sinkers, Limited, has been granted a charter by the Ontario Government. The capital stock is $40,000 and the provisional directors are Frances Forsyth, F. I. Forsyth, F. B. Marcellus and M. L. Kirk, all of Toronto.

Paramount Paper Boxes, (Toronto and Hamilton), Limited, has been organized and has been granted a charter by the Ontario Provincial Secretary's department for the purpose of carrying on a manufacturing paper and paper box business, etc., and to operate a printing plant. The head office is Hamilton and the company is capitalized at $40,000. The provisional directors are: W. R. Thompson, C. B. Ellison, F. J. Price, D. H. Drake and J. E. Precious, all of Hamilton. Another organization to be granted a charter, is Reid Bros. who are authorized to engage in a general printing and lithographing business, with allied industries, with head office at London. The authorized capital is $250,000 and the incorporators are: G. M. Reid, and G. E. Reid, manufacturers; S. M. Jepson, accountant; W. Smithson, traveller, and William Kippen, salesman, all of London, Ont., where the head office of the company will be located.

Mr. John F. Ellis, of the Barber & Ellis Company, wholesale stationers, Toronto, has returned from a holiday trip to Muskoka and Lake Simcoe.

A new manufacturing stationery firm is about to start operations in Toronto under the firm name of Sinclair, Allen & Co., Ltd., who have secured one of the floors in the new Daylight Saving Building, 366 to 378 Adelaide Street, west. The principals of the company are Norman A. Sinclair, a former member of the executive staff of Warwick Bros, and Rutter, Toronto and more latterly sales manager of Charles E. Weyand & Co., New York. Thomas Allen, the well-known publisher at 215 Victoria Street, has moved his plant and stock to the new building on Adelaide Street and the two companies will combine their selling forces, although they are separate organizations. The Sinclair, Allen Company state that their efforts will be directed to making in Canada the better grades of papeteries, note papers, writing tablets, envelopes, etc.

Mr. J. E. Middleton, for some years on the staff of the "Toronto World" and the old "Toronto News", has been appointed director of Public Health Education under Dr. J. W. S. McCullough, Provincial Medical Officer of Health.

Newspapermen from various parts of Canada, but chiefly Ontario, were guests of the Canadian National Exhibition in Toronto on Friday last when they were tendered a luncheon by the directors and given the freedom of the grounds. Following the luncheon there were a few informal speeches in which the cooperation of the pressmen in making the fair the great success it has become was acknowledged by the directors of the Exhibition.

The annual report of the Spanish River Pulp and Paper Mills, Limited, issued in Toronto this week, furnishes a good illustration of the thriving condition ot the industry in Canada. The report is for the year ending June 30th last and it is recalled that the company, which was on the verge of a receivership six years ago, when it was reorganized on behalf of the shareholders, has made a remarkable recovery by reason of favorable conditions in the trade and good management. During the past two years especially has the improvement been marked until now the arrears of dividends on preferred stock, amounting to 42 per cent, have been met in one year by an issue of new stock. The report shows an increase of net earnings over the previous year of more than 41.9 per cent. This showing, together with working capital of over $6,600,000 and reserves of over $3,500,000 is an encouraging feature of the statement. According to the statement of President George H. Meade, the production at all the plants of the company continued satisfactorily throughout the year and with normal water supply and the completion of the two new paper-making units at Espanola the net earnings for the year showed a substantial increase. It is expected that the total output this year will be considerably greater as the Espanola extensions were only recently completed and all plants have now been advanced to a high state of efficiency.

Mr. J. A. Bothwell, who is making an extended trip to England and Scandinavia with Mr. Geo. F. Steele in the interest of the Canadian Export Paper Co. has started on the homeward way. A card just received from Mr. Bothwell says that Finland is now in the rear.

The Abitibi Power and Paper Co. is preparing to install equipment for burning bark and other refuse at the boiler house. The plant will consist of two batteries of boilers of 500 h.p. each. The bark will first be pressed and then gradually dried on special grates. Pressed bark, 40 per cent dry, from one cord of wood is equivalent to 50 lbs. of coal.

A report from Fredericton, N.B., says that the Fraser Companies, Ltd., are about ready to start work under the charter obtained last spring. The new project, which includes a huge power plant at Tobique Narrows, involves a development scheme of some $10,000,000.

The Laurentide baseball team on Labor Day defeated Ansable Works, N.Y., at Grand Mere, 7 to 2.

The Gold Bricks of Timmins recently beat Iroquois Falls, 3 to 0 and the team standing is now a tie.

Quebec Pulpwod Auction

It is understood that the Quebec Government is planning to put up at auction before the end of the present year some extensive pulpwood limits in the St. Maurice district.

Paper Bags to be Made in Winnipeg

A company is being organized in Winnipeg to manufacture paper bags. It will be known as the Western Canada Paper Bag Co. A. Seabrook is the promoter, and equipment to cost some $50,000 is being purchased for the plant.

Finnish Paper Industry Reviving

A rapid rejuvenation of the paper industry in Finland is reported by the American Red Cross. Giving figures upon the industry, the bulletin says:

"Although export trade was impossible for eight months during 1919, owing to shipping restriction effective in Europe, 46,000 metric tons of paper were exported from Finland. Virtually all of this was supplied to fifty of the largest periodicals in England, a new market exploited by the Finns after the breaking up of the Russian market."

Western Canada P & P Bonds

Messrs Graham, Sanson and Company are arranging for a flotation of 7 per cent mortgage serial gold bonds of Western Canada Pulp and Paper Co. Ltd., maturing between February 1, 1923, and February 1, 1940. Besides the $1,000,000 bond issue in question the company's capital consists of 25,000 shares of common stock of no par value and $1,200,000 6 per cent. mortgage debenture stock due February 1, 1950.

MACHINERY FOR CAPE BRETON PULP CO.

Six carloads of machinery are being unloaded for the Cape Breton Pulp and Paper Company, St. Ann's, and will be conveyed thither in scows and other craft. Among the shipment are a small railway locomotive and trucks, engine and air compressor besides the first instalment of 100,000 feet of heavy timber to be used in building two large booms at St. Ann's. The work of constructing those booms wil occupy some few months and preparatory to work on the booms various wooden buildings have been erected including one 24x92 for workmen besides office building and quarters for foremen. In the construction of the booms cribs 32x16 will be placed at hundred foot intervals and the main boom will be about 1300 feet long. A second boom will be built farther up the river. Both will be of sufficient strength to resist the heaviest pressure that may be put upon them.

TRADE OPPORTUNITIES.

The Department of Trade and Commerce at Ottawa has announced the following opportunities for trade in pulp and paper:

1532. **Paper.**—A commission agent in Roumania is anxious to receive quotations and samples from Canadian firms in a position to export writing, blotting and silk papers. Following is a table of sizes and weights of papers used in Roumania:—

Size		Weight per 1,000 sheets	
34 x 42	centimetres	from 6—12	kilograms
42 x 68	"	" 12—25	"
38 x 48	"	" 8—10b	"
40 x 50	"	" 12—30	"
50 x 80	"	" 24—40	"
42 x 52	"	" 10—16	"
44 x 56	"	" 16—24	"
27 x 43	"	" 5—12	"
54 x 84	"	" 25—40	"
50 x 65	"	" 24—40	"
58 x 80	"	" 18—30	"
80 x 116	"	" 40—60	"
65 x 96	"	" 25—80	"

The centimetre approximates .3937 inches.

The kilogram approximates 2.204 lb.

1533. **Woodpulp.**—A Manchester firm is in a position to import woodpulp, or would represent manufacturers of same.

1534. **Paper.**—A firm in Calcutta, India, wish to get into touch with Canadian manufacturers of different classes of paper with a view to representing them in India, Burma and Ceylon.

1535. **Kraft papers.**—Glasgow firm would be glad to get in touch with Canadian manufacturers of Kraft papers.

1536. **Woodenware.**—Importer in Scotland is prepared to open negotiations with Canadian firms who manufacture washboards, and clothespegs; also handle rakes, hoes, and digging forks.

TO MAKE ABRASIVE PAPERS IN B.C.

The Government of British Columbia has granted a loan of $22,000 at 6 per cent to assist the establishment of a plant by the Canadian Abrasive Company, Ltd., for the manufacture of sand paper, emery paper etc. This material has been imported from the United States at a rate, according to the Vancouver "Sun," of over a million dollars a year (see editorial page).

With all the ingredients available in British Columbia, Mr. J. L. Near about a year ago started experimenting with the idea of evolving a process whereby the product might be produced in Canada. He interviewed Major Martyn with the result that the latter got into touch with capitalists, among whom were Mr. Moore, of the Canadian Explosives, Ltd.; Capt. D. S. Bullen, Col. Lorne Ross and others and a company was organized with a capital of $100,000. The new plant and equipment will cost approximately $50,000; and it is towards the acquisition of this plant that the government loan will be devoted. A site for the plant has been secured on Mason Street, in Victoria, and work on the construction of an experimental plant is underway. Employment will be given to about twenty men at the start. Paper manufactured at the Ocean Falls mill will be used and there is an unlimited supply of the required hard rock for the manufacture of the abrasive paper.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Sept. 4.—While the same general conditions exist in the pulp and paper trade it has been quite apparent that there has been an easement in orders to the jobbers and a little freer shipment of goods from the mills to the jobber. The latter class are bearing testimony to the fairness with which the mills have been treating the distributors during the present era of prosperity and ups and downs of manufacturing. As a result of a policy of frankness on the part of the mills the jobbers have been made exactly aware of the handicaps under which the mills have been operating in respect to the shortage of raw materials, high cost of fuel and labor and the difficulties generally that have combined to make manufacturing difficult, with the result that both distributors and consumers for the most part are convinced that they have been treated as fairly as possible by the mill men. In practically every instance where shipments have been delayed or orders refused the mills have been at pains to let the reason be known and if prices advanced the causes were set forth. All this has resulted in good relations and an excellent understanding as to pulp and paper conditions between the manufacturer and the distributor.

Skilled Workers Needed.

A feature in the paper trade at the present time is the need for skilled men in the wholesale end of the business. It was pointed out by one of the paper houses in Toronto this week that the trade was suffering through a dearth of expert men — men who could handle and sell paper. It seems to be a fact that an insufficient number of men have been brought into the business and trained and it is contended that there is almost as much room for technical education in the selling end of the game as there is in the mill end. However that may be, a leading jobber told the Pulp and Paper Magazine in Toronto this week that there was lots of room for expert men in the business in Canada and that he would like to see some sort of steps taken to train young men in the handling of paper, as it is proposed to train them in the manufacturing of it.

Coated Paper Sold Up.

Coated paper mills are having an exceedingly busy and prosperous season and most of them are sold up to December and later. The Ritchie & Ramsay mills at New Toronto report that they have orders enough for coated paper to keep them going until December and the Georgetown Coated Paper Mills, Limited, are similarly situated. The latter company has just completed some extensive improvements, the old plant having been duplicated by a building 60 x 300 feet, part of which is four storeys with basement. The addition has been built onto the old building and will be used as a storage, finishing and machine room. The enlargement will afford accommodation for eight coating machines in place of the four now in operation. Two machines are now at the plant ready to be set up and it is expected that before a great while the full compliment of eight will be running. Other minor improvements have been added and included in the machinery equipment is a Holland drive system. The company quotes No. 1 coated book at 21½c and No. 2 at 20½c. Another mill quotes No. 1 machine finished book at 19½c, but will not promise delivery before February, there being enough orders already in to keep the mill running until that time.

Pulp.

The pulp market, both chemical and mechanical, continues to run wild and very little can be had at any price. Although the prevailing price for groundwood pulp is in the neighborhod of $150, it is known that a Toronto mill this week offered to pay the demand price of $170 for a shipment of groundwood pulp and it is expected that the sale will be made at that figure. The same firm paid $200 for unbleached sulphite at Port Arthur and will have to pay the freight down. Bleached sulphite is correspondingly scarce and high in price and the testimony of all the paper mills is that it is almost impossible to get pulp from any source whatever.

Sulphite Bonds Are Up.

The week saw an advance of 2c a pound on all sulphite bonds. Sulphites are now quoted at 19½c: light tinted at 20½c and dark tint at 21½c. This line of paper was the only one to jump forward during the month and it is generally understood that the prices now prevailing for most lines will hold good for September.

Wrapping Papers.

The demand for wrapping papers keeps up and the jobbers say that supplies are just as scarce as ever. Instead of being able to stock up the warehouses are getting very low and are unable to meet the demands that are being made on them by clamoring customers.

U. S. PAPER PRODUCTION UP 22 PER CENT.

It is interesting to compare the production of the principal grades of paper by mills in the United States in July 1919 and July 1920, as shown in the following table prepared from a report of the Federal Trade Commission.

	July 1919	July 1920
Newsprint (Standard and Special Grades of News	113,929	129,853
Standard News	101,850	118,810
Book (M.F., S.S.C. and Coated	75,613	95,526
Paperboard (Total) (Straw Fibre, Leather, Chip, Etc)	169,593	218,771
Box Board	.....	161,453
Wrapping (Kraft, Manila Fibre, etc)	63,769	73,487
Bag (all kinds)	15,934	19,055
Fine (Writing, Bonds Ledgers, etc.)	30,036	34,078
Tissue (Toilet, Crepe. Fruit Wrappers, etc.	14,685	16,850
Hanging, (No. 2 Blank. Oatmeal, Tile, etc	6,643	9,037
Felts and Building (Roofing, Sheathing, etc	29,402	33,053



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Other grades (Specialties not otherwise classified..	19,260	28,808
Total of all grades	538,864	658,518

Note.—The average production based upon the annual reports for 1917, 1918 and 1919 was slightly below the figures for July 1919.

Stocks of all grades except newsprint, bag and tissue increased during the month. Stocks of all grades reported by manufacturers at the end of July amounted to 172,568 tons, including the stocks at terminal and delivery points. In addition to these stocks, jobbers and publishers reported newsprint stocks and tonnage in transit aggregating 209,092 tons.

Ratio of Stocks to Average Production.

Comparing the stocks on hand at the domestic mills on July 31, with their average daily production based upon the combined production for years 1917, 1918, 1919 the figures show that :

Newsprint paper mill stocks equal about 5 days' average output.

Book paper mill stocks equal slightly less than 8 days' average output.

Paperboard mill stocks equal slightly more than 6 days' average output.

Wrapping paper mill stocks equal slightly less than 10 days' average output.

Bag paper mill stocks equal slightly more than 4 days' average output.

Fine paper mill stocks equal slightly more than 25 days' average output.

Hanging paper mill stocks equal slightly more than 5 days' average output.

Felts and building paper mill stocks equal slightly more than 13 days' average output.

Miscellaneous paper mill stocks equal slightly less than 20 days' average output.

Total paper mill stocks of all grades equal slightly less than 9 days' average output.

Tissue paper mill stocks equal slightly less than 12 days' average output.

The time lost in July 1920 was only half the loss in July 1919. Much of this was due to lack of water power, coal and material.

Pulp Production in the U. S.

The following is a tabulation of the production and stocks of finished pulp, in tons of 2,000 pounds on an air-dry basis, for July, 1920, prepared from the monthly review of the Federal Trade Commission:

	Production for month	On hand end of month
Groundwood pulp	123,330	137,440
Sulphite, News Grade.. ..	70,563	14,162
Sulphite, Bleached	49,637	3,808
Sulphite, Easy Bleaching..	6,370	675
Sulphite, Mitscherlich	7,196	1,142
Sulphate Pulp	18,514	2,248
Soda Pulp	36,005	3,738
Other than Wood Pulp....	719	108
Total for all Grades	312,334	163,322

Total stocks of all grades of pulp in the mills on July 31 amounted to 163,332 tons. Mill stocks of easy bleaching sulphite and other than wood pulp increased during the month. All other grades decreased.

Ratio of Stocks to Average Production.

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the reports covering the years 1917, 1918 and 1919, the figures show that :

Ground wood mill stocks equal slightly more than 30 days' average output.

News grade sulphite mill stocks equal slightly less than 6 days' average output.

Bleached sulphite mill stocks equal slightly more than 2 days' average output.

Easy bleaching sulphite mill stocks equal slightly less than 3 days' average output.

Mitscherlich sulphite mill stocks equal slightly less than 5 days' average output.

Sulphate mill stocks equal slightly less than 5 days average output.

Soda pulp mill stocks equal slightly more than 3 days' average output.

Mill stocks of "other than wood pulp" equal about 3 days' average output.

Total mill stocks of all grades equal slightly more than 15 days' average output.

Only about a third as much time was lost in July 1920 as in July 1919. Of the 108,350 total machine hours lost, grinders were down 47,016 hours due to water and power conditions.

Electric wires which touch trees can easily kill the most beautiful shade tree. This may be partly due to the work of the electric current, or to the wearing through the growing surface of the tree by the wire, which deprives the tree of its sustenance.

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FACTS ABOUT ALASKA.

Manufacturers of pulp and paper in British Columbia and Alaska have little to fear from each other and much to gain in the common development of the Pacific coast region.

The Act of Congress of February 1, 1905, allows the exporting of pulpwood and wood pulp from the National Forests of Alaska, and the Act of June 4, 1897, authorizes the sale of timber on all the National Forests. Perhaps B. C. mills will some day import Alaskan pulp wood.

The Alaskan National Forests not only contain approximately 100,000,000 cords of pulpwood timber, but also the second chief essential of a paper-manufacturing industry-enormous water power possibilities.

It should be understood that timber is sold from the national Forests of Alaska only for immediate and continuous operation, and that the general policy or form of contract does not permit the acquirement of timber on a speculative basis. Canadian regulations are now designed to prevent this also.

Fifteen water power projects in Alaska were developing a total of 37,350 horse-power in 1917, for the region of south-eastern Alaska. These plants furnish power for mining and various other industries. The largest plant in south-eastern Alaska develops 5,700 horse-power.

The Forest Service is allowed by law to sell stumpage only from the National Forests. The purchaser of timber has no cut-over problem, since the Government retains title to the land. Any legitimate use of the land incident to the development of the project is allowed at a nominal consideration, or for some uses, free of charge.

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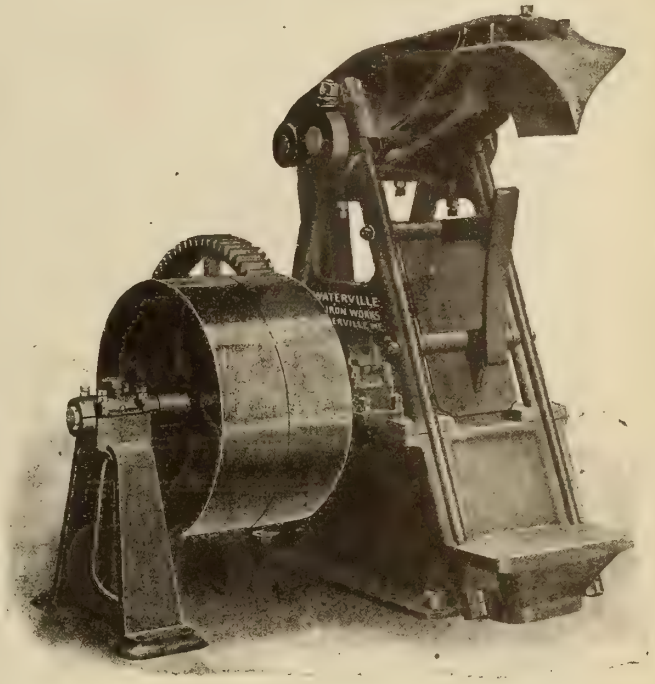
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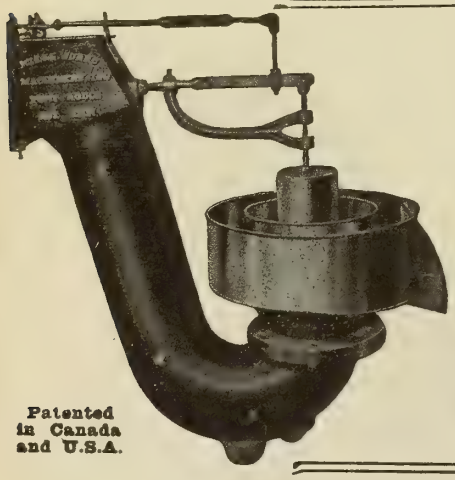
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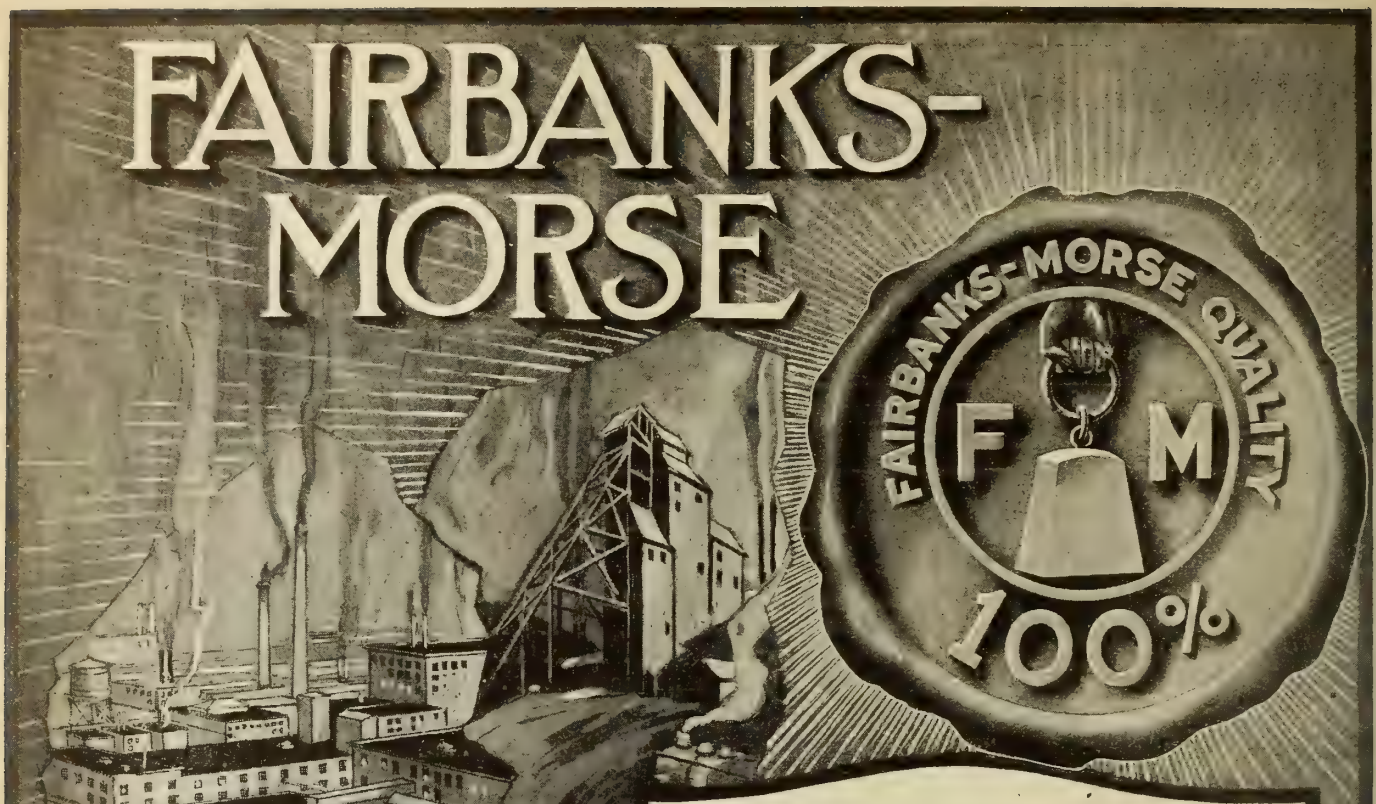
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The presence of Fairbanks-Morse mechanical equipment everywhere is the real tangible evidence of confidence that is placed where quality counts and in service that brings seller and buyer together in a closer relationship which builds for the benefit of all.

This is the reason that The Canadian Fairbanks-Morse Co., Limited, has adopted the 100% quality seal as its standard.

When you place an order with any salesman you are buying both service of product, and service of organization.

Our experts are always ready to help work out your problems and are always as close to you as our nearest branch house.

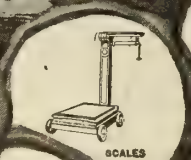
The Canadian Fairbanks-Morse Co., Limited

Canada's Departmental House for Mechanical Goods

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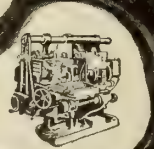


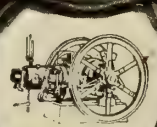














-:- EDITORIAL -:-

BRITISH CASH WELCOME TO CANADA.

One of the most important results from the Imperial Press Conference, as far as Canadian industry is concerned is the enormous amount of advertising which the possibilities of developing our natural resources will get. In speaking of this phase of the conference we would in no way minimize the great value to all parts of the Empire which will result from the intimate contact and fellowship which the delegates enjoyed during their tour of the Dominion. A newspaper man represents as well as, and in some cases better than, a politician, the sentiment of his constituency and at the same time is more of a leader. This leadership, which rests largely on the opportunity and ability to spread information, will be sure to have a considerable effect on the future of Canadian industries insofar as there is a chance for investment of British capital in Canadian opportunities.

The delegates have repeatedly expressed their wonder at the vast resources of the Dominion, especially as regards area and richness of soil, mineral deposits fisheries, timber, and water-powers. These constitute the fundamental wealth of any country and require only labor, capital and brains (management) to convert them into terms of international exchange. Being newspaper men the delegates naturally were deeply interested in the forests and water-powers upon which their ability to carry on their business is becoming increasingly dependent. They were interested also in the many modern pulp and paper mills and wondered greatly at the size and efficiency of these plants. From the remarks it is evident that they were greatly impressed and no doubt their opinions and remarks, while not exaggerating the situation, might be taken as persuasive arguments in favor of the investment of British capital in the Canadian Pulp and Paper Industry. That is one of the results which we hope will follow the return of the press delegates to the home country. The situation is one, however, that may be manipulated to the immediate and considerable financial advantage of the holders of stock in some of our Canadian mills.

In fact there have been persistent rumors of a huge merger of concerns in Eastern Canada. It is one thing to combine closely associated plants, the outlet of whose produce is concentrated in a certain line, or where such combination will result in great increase in efficiency and decrease in cost of production. It is another thing to engineer a consolidation of interests in order to provide an excuse for the issue of stock unsupported by actual investment or other increase in tangible assets, especially if the individual units whose combination is contemplated are already operating efficiently and whose raw material, overhead expenses, and lines of production are already well balanced.

Another phase of the matter regards timber supply. In travelling over the Dominion the delegates from overseas saw considerable quantities of timber but did not begin to see the great stretches of virgin forest that lie behind the areas convenient to transportation which have been so largely cut out and burned over in the days of the recklessness of Canadian lumbermen and pulp and paper manufacturers. Members of the Conference who may have been privileged to see a real forest would probably have been willing on the spot to take considerable stock in a company based on such a firm basis. It is possible, however, that the timber looked at was not typical of the stand on the whole of the area available. Furthermore a pretty water fall does not always indicate abundance of power, which is a prime requisite in these days when groundwood is such a predominating factor in the industry, especially in the production of newsprint paper. There are areas with plenty of timber to warrant the erection of a considerable pulp and paper mill and with plenty of available water power to insure continuous operation. There are other areas where these essential factors are not present in sufficient quantity. It simply rests with the potential investor to look into the proposition he contemplates putting his money into. The Canadian pulp and paper industry we believe to be as sound an economic proposition as there is to be found. The investment of British capital will not only bring a good financial return but will have the advantage to those consumers who desire a larger proportion of Canada's pulp and paper production that their financial interest will be an attraction and a reason for shipping more pulp and paper to Britain.

In short, we want to see more British capital in the Canadian pulp and paper industry, but we don't want to see it invested in junk, burned forest or water from any city supply.

Cotton enters into the names of four kinds of paper pulps—cotton rags, cotton-hull fibre, cotton stalks, and cotton wood, the last having no connection with cotton.

SEDUCTIVE LITERATURE.

Seductive and seditious are not synonymous, but are often nearly so. At the meeting of Canadian Clubs at Montreal last week a resolution was introduced, the object of which was the exclusion of Hearst publications from Canada. The root of the matter lies in the anti-British statements, sometimes veiled, that appear in the Hearst papers. In the United States, and elsewhere, during the war, W. R. Hearst was known as a pro-German. Now he is accused of disseminating propaganda intended to stir up trouble between Britain and her friends and relatives on this side of the Atlantic. Some rather rank stuff has appeared in print, and it is no wonder that good people have taken offence.

A lively discussion of the matter took place at the meeting, when, after it was pointed out that other than Hearst papers were not free from fault, the original resolution was amended, and the meeting finally endorsed the following:

> "That the attention of the Dominion Government and the Canadian Clubs be brought to the virulent anti-British propaganda voiced by certain Hearst publications circulating in Canada, and that it be a matter of recommendation to the Canadian Clubs that they take apt measures to counteract such propaganda."

It was suggested some time ago, through the columns of an American paper journal, that patriotic paper mills could effectively combat such propaganda by refusing to sell paper to such a publisher. Such an attitude would be a laudable one to take, but we do not believe it would work. Money will buy a paper mill. If the papers are seditious, the Government has a remedy; if they are libellous, the plaintiff has the courts. We have no sympathy with Hearst's attitude, but we feel that the best preventative of contagion from his microbes is thorough inoculation with patriotism and intelligence through the press, the public school and the pulpit. Trade unions, clubs and associations should also take up the problem and the task of fostering friendly relations with all peoples, especially those of our own race and language.

CONTEMPT FOR TREES.

A beautiful summer is nearly past, and autumn will soon be here. Many Canadians, as well as the strangers within our gates, have enjoyed the beauties and the sport and the healing balm to be founl in Canadian forests. The hunting season will soon be on, when the camp fire will add to the comfort of the temporary home in the woods. Will these hunters and campers consider the trees as friends to be loved and protected, or just wood? In many cases the attitude will be largely a reflection of the home surroundings of the individual. Does his city or town take pride in its trees? Are they protected from caterpillars, fungi and insects? Are trees planted to beautify the streets and parks? Then the chances are that the individual will be careful of his camp fire, his matches and pipe ashes. To foster a love of trees by more attention in the school room and press and pride in these sturdy beautifiers of the highway is to plant in the mind of the citizen a desire to protect the forest. On the other hand, if the community does not show a proper respect for its trees, the citizens are quite likely to have contempt for the forest.

COBWEBS.

In a British Columbia town recently there was a meeting to consider steps to be taken in the establishment of a pulp mill at that place. It seems that there is sufficient power and pulpwood. In order to make sure that the citizens were deeply interested in the matter and that the proposition would be supported locally a subscription paper was passed asking for subscriptions of $5.00 apiece from those who were interested. We understand that some forty persons expressed themselves as being willing to put up the necessary $5.00 and that consequently the success of the enterprise could be considered as assured. Somebody may get away with that idea but we suspect it would be well for some of those people to go a little further into the cost of establishing and operating a mill before they risk so large a sum. Then when they find how good a proposition a mill is, if all the factors are favorable, they will be glad to invest the much larger sum that will be required.

It is reported from Toronto that Premier Drury was approached by the Backus interests on behalf of their application for a lease of some 2500 square miles of forest. The statement was made that the Lake of the Woods Limits, consisting of 1860 square miles were said to contain sufficient pulpwood for a hundred ton mill for thirty years, that the limit was acquired on this basis but was found later to have been so disastrously burned over that nothing like this quantity of pulpwood could be taken out. It seems to us that this situation indicates three points to be given attention. In the first place there should be a reasonably accurate survey of forest lands, secondly there should be more adequate fire protection, and thirdly the purchaser or lessee of timber limits should assure himself by an independent survey at least approximately of the timber he thinks he is getting.

THE ASSOCIATION'S HAND BOOK.

Since mention was made a few weeks ago that the Canadian Pulp and Paper Association has completed a comprehensive handbook of the pulp and paper industry in Canada, we have received numerous inquiries regarding it. Readers of the Pulp and Paper Magazine who desire copies should write to the Secretary of the Canadian Pulp and Paper Association, 701 Drummond Building, Montreal.

On the Substitution of Aluminum Sulphate in Paper-Making*

By MAX CLINE, Bureau of Tests, International Paper Company, Glens alls, N. Y.

When our worthy secretary paid us a visit a few weeks ago he found us fairly contented. Except for a shortage of cars, wood, wood pulp, coal and pronounced delay in getting other supplies the mills had no worry. It was true that a friendly rivalry between the Woodlands and Purchasing Departments existed as to which would first have to shut down the mills. The sympathy of the chemical section leaned towards the Purchasing Department for if the mills are shut down for lack of wood you can call it an act of Providence, an affliction of the railroad collapse, or an imposition of the Quebec Government, but if the mills are threatened with a shut down for lack of a material obtained through the Purchasing Department some one or other is apt to want to know why the chemists were not prepared, or are not prepared, to offer a substitute that is "just as good".

The secretary brought with him the depressing news that there was a marked shortage in aluminum sulphate and that a number of mill owners were alarmed at the situation. We could hardly believe the news. There was no shortage in sulphuric acid and alum is its direct offspring. It is true that the supply of Bauxite is closely held but alum is made as well from Clay and Cryolite so that its sources are varied and plentiful.

Whatever is the cause for the sudden shortage in the supply of aluminum sulphate, it, nevertheless, stares us in the face. To think that this lowly but very useful paper-making material should suddenly go back on us! Its use in paper-making has become hoary with tradition, predating wood pulp and the paper machine. It seems to be the last straw, and like Caesar we exclaim, "Et tu, Brute!" What is to become of the large school of paper makers who cure their ills by liberal consumption of alum? Who, for example, double their furnish of alum when pitch begins to form on the wire? How many of you have heard some such order in the beater room as this: "Hey, George, put another paid of alum in No. 1—the stock is foaming over the slice and is headed for Milwaukee?" Or, when the pulp isn't quite right and the paper does not come up to test, will increase the alum furnish so that the customer in listening to the rattle might forget to question the strength or the tear?

I have very little to offer on the substitution of alum. I told the secretary so when he urged me to get into trouble. But he vowed he did not have enough stuff to fill up his program and since the members had not heard me say anything for some years it was up to me to make an attempt. Once an editor, always a man thirsting for copy and stuff, ready to bludgeon someone to get it!

Some eight years ago we found that the mills were using too much alum in news and since they had some excuse for alum furnish in that the paper was dyed with acid colors, we got them to use Sulphuric Acid to set the color. We found that 2 to 3 lbs. of Sulphuric Acid per ton of paper was all that was necessary for that purpose. When the proportion of Balsam in the mechanical wood pulp became excessive a little alum was found advisable to prevent the sheet sticking to the press. When we started to use basic colors for dyeing newsprint we stopped furnishing the acid and managed to get along for some time without alum or acid.

At that time we tried Sulphuric Acid for setting rosin in a sized paper in one of our mills. We began with the amount theoretically necessary to break up the Sodium Resinate and increased it by various steps until we had enough Sulphuric Acid to make its cost equal to the cost of the alum which would have been needed to give the required sizing. The paper was poorly sized in each attempt. Some time later we tried the use of Ferrous Sulphate or Copperas in a laboratory experiment. We found that it would set rosin size, but that it would take 3 times the amount required for alum. Since that would make the sizing cost greater, with injury to the color and strength of the paper we made no further attempt in its use. We did not try nitre cake nor can we see why that material would be anything more suitable than sulphuric acid, or a combination of sulphuric acid and sodium sulphate.

The members have no doubt seen and read the numerous articles which have appeared from time to time in the various paper trade journals on substitutes for rosin size such as silicate of soda with starch or starch derivatives.

These substitutes call for the addition of more or less alum and it is possible that alum substitutes may work more advantageously for such sizing than for rosin sizing. I shall not discuss these sizing materials as there are members present who have had practical experience with them and are in a better position to discuss their values. I would say, however, that we recently analysed a sample of cellulose nitrate which was submitted to us as a sizing material for paper. This product as well as other cellulose derivatives may be found advantageous for tub sizing expensive paper specialties. Alum is not needed in their use.

I do not like the words substitute or substitution. If a material or a process is replaced as a result of discovery that some other material or some other process will make a better article or make the same article at a lower cost, it is called an improvement. With substitute arises a fear that a regular has broken a leg and the game is going to smash or that a stringency in the market has arisen and that some poor devil in the paper mill is going to have the dickens of a time!

There is a certain nation in Europe that, a few years ago bit off something more than it could devour. That nation had long been familiar with substitute and the act of substitution so that when it began its stunt it had already a substitute for government, humanity, honor and treaty. As a result of that act it began to be very expert in substitution so that it had a substitute for food, clothing, health, industry; and from all accounts it found all these substitutes very little to its taste. The person, who first in that race gave substitute a name, must have been a very

* Read at the fall meeting of the Technical Association of the Pulp and Paper Industry, Saratoga Springs, N. Y., Sept. 1, 1920.

keen observer for he called it "Ersatz". When you analyze that word you learn that "er" is out or forth and from all accounts it found these substitutes that the whole word is out of sediment or forth from yeast, or in other words, froth, foam, bubbles, gas. Something that is evanescent, chimerical and disappointing.

If the shortage in alum is due to lack of railroad facilities and will continue for that cause, it is idle to speculate on the use of substitutes for the same trouble would prevent our getting freely such substitutes. Furthermore, the mills would be under greater difficulties with wood pulp and fuel which require much greater tonnage for their transportation. With a shortage of freight cars, or poor railroad transportation, the danger of the mills shutting down for lack of wood, pulp and fuel rather than lack of alum is greater even than the relative consumption of those materials by the mills.

One remedy is to conserve our supply of alum and be thrifty in its use. Unsized papers do not require alum. As you know the theoretical amount of alum necessary to set rosin size is 1-3 of a pound per pound of size and that anywhere from three to six and more times that amount is used. As already mentioned there are a large number of paper makers who believe that if a certain amount of alum is of value that a greater amount will give increased service. Many of them are familiar with the use of a close relation of alum—magnesium sulphate—and have learned by personal experience that a small amount taken occasionally is quite beneficial and that larger amounts taken continuously are very mischievous. The same fact applies to aluminum sulphate when used in proper and required amounts it is of value but is damaging when used excessively.

If the alum shortage is due to lack of interest on the part of chemical manufacturers to produce enough to supply the demand of our industry, our remedy is to make our own alum from sulphuric acid and clay. The various teps in the process are simple and do not require equipment other than what the chemical wood pulp manufacturer is familiar with. For direct use in the same mill, separation of the alum solution from the clay residue with subsequent evaporation of the alum solution would not be necessary but could be used direct with the clay residue acting as a filler.

In conclusion I would say that some three thousand years ago a man had a substitute lunch with some substitute 2.75. When he woke up he saw things with a jaundiced eye and said "Vanity of vanities, all is vanity". With him we might say—Vanity is speech on alum substitutes at a time of transportation failure. What availeth the paper maker to furnish the beater from sunup to sunset with nitre cake when his wood is tied up in Canada? Of what profit is there to him who designs to furnish sulphuric acid with his size when his pulp lieth along the yards of the B. & M.? Nor is there production to him that useth copperas in his chests when his dryers are waxing cold.

Mr. L. B. Springsteen, who for a number of years has been Superintendent of Printing of the Strathmore Paper Company, will now have charge of the printing production of "Eagle A" advertising department for the American Writing Paper Co.

The fellow who isn't fired with enthusiasm is apt to be fired.—B.C. Forbes.

"HOUSE ORGANISTS" TO HAVE IDEA-EXCHANGE.

If you write letters, if you use circulars, if you publish a house organ, if you advertise anything, anywhere, at any time, through the medium of direct-by-mail publicity: then you are bound to get real dollars and cents results by attending the Direct Advertising and House Organ Convention at Detroit (Board of Commerce), October 27th, 28th and 29th. Many paper mills have mill papers or bulletins, and many who don't sell paper to companies who do.

It was after the 1919 Direct Mail Convention held at Cleveland that the advertising manager of a great mid-western manufacturing company said, "Frankly and honestly, I believe it was the best convention I have ever been privileged to attend. Personally, I received more *real* benefit from the discussions brought out, at the Cleveland meeting, than I have ever received at a similar event."

The committee in charge of the convention are emphasizing the fact that it is to be a wide-open meeting in every respect, and not strictly a "members only" gathering. A long list of well-known advertising men are to speak on subjects in which they are specialists.

There are a number of special features of unusual interest on the program of the Detroit meeting. An event, which has worked out well in the past, is to be a Swap-fest. The entire afternoon of Thursday will be given over to this unique feature and two prizes will be awarded by President Candee, one to the *user* and the other to the *producer*, who, in the judgment of the three judges to be appointed, ofefrs the best and most useful idea as to improving direct advertising, house organs, or business letters, taken from the speaker's own past experience.

The judges will give preference to the man who gives his idea in the fewest possible number of words. The motto of this particular meeting will be the old familiar phrase: "You have a dollar. I have a dollar. We swap. Both have a dollar. *But* you have an idea. I have an idea. We swap. Now both have *two ideas.*" Previous Swap-fests have brought out more worth-while ideas in ten minutes than the average man hears in as many weeks.

There will be a special meeting of house organ editors at which Chairman Ramsay, editor of "Effective House Organs," will preside and at which helpful suggestions will be advanced.

It is possible to announce at this time that Harry C. Spillman, Educational Director of the Remington Typewriter Company, will be the speaker of the evening." Mr. Spillman's lectures in the past have been ject is to be "Personality as a Basic Factor in Selling." Mr. Spillman's lectures in the past have been unusually interesting and absorbing, and he is known personally to many of America's advertising men.

THE FATAL PUN.

The electrician had arrived home at 1 a.m., and was preparing to undress when his wife glared at him and said:

"Watts the matter? Wire you insulate?"

But the shock was too great. The electrician dropped dead.—Cincinnati Enquirer.

Saving is Having.—B. C. Forbes.

An Automatic Continuous Mixing System for Paper Stock*

By EDWARD J. TRIMBEY.

In the manufacture of newsprint paper, beating, or drawing out the fibers is unnecessary. While beaters are still used in many mills making newsprint they are used merely for mixing the ingredients or for breaking up the sheets of pulp where either the groundwood or the sulphite, or both are used in lap form.

In the larger and more modern mills both groundwood and sulphite are furnished in the form of soft stock, and present practice is to use mixing tanks in place of beaters. The process of supplying two or more paper machines making the same grade of paper, from a common source of relatively large capacity, which is in turn supplied from mixing tanks, is the invention of Mr. Warren Curtis, jr., and while it seems to be not generally known, this process is fully covered by patents. It is applied in several ways; in most cases an agitator is used for mixing the stock and other ingredients, though in some installations the stock is mixed by means of a pump which draws the stock from the bottom of the tank and delivers it tangentially into the top of the tank, thereby agitating and mixing the mass. It is pumped around until it is sufficiently mixed, when the valves are changed and the mixture is sent over to the jordan chests by the same pump.

As compared with a beater system, the mixing tank system had marked advantages, as its use resulted in savings in first cost, floor space, power and labor, though an equipment of mixing tanks for a 200-tons mill would require a flor space of about 500 square feet on two flors, 100 H. P. or more for the pumps and agitators, and one to two men per tour.

During the past year, there has been in operation in one of the largest newsprint mills in the world, an automatic continuous mixing system which is continuous as against intermittent in action, is automatic in its operation and control, and which with regard to further savings in floor space, power, labor and upkeep is as great an advance over the intermittent mixing tank system now in use as they were over the older beater systems. In addition, it has advantages as regards uniformity of furnish and accuracy of control of proportions which cannot be duplicated with any of the other systems now in use, not excepting the expensive method of taking off all pulp in laps and weighing the amounts of groundwood and sulphite furnished to each beater.

Groundwood and sulphite are furnished continuously, either by gravity or by pumping, to their respective compartments of a double vat; each compartment is provided with an overflow dam and a float valve of special design, for maintaining a constant level in the compartment regardless of the rate of flow of stock. Mounted in one end of this double vat is an outlet spout communicating with both the groundwood and the sulphite compartments, and so arranged with a separating partition and an adjustable top that the cross sectional areas for the outflow of groundwood and of sulphite will give the desired proportions of each, and at the same time the total flow can be varied to meet the changing requirements of the paper machines. This separating partition can be locked in any position without interfering with the movements of the adjustable top, and thus maintain a constant percentage of sulphite; it can readily be adjusted to give any other percentage if desired, and the adjustable top is automatically raised and lowered to deliver sufficient total stock to maintain a constant level in the machine chests.

In addition to being adjustable for both total volume of flow and relative proportions of groundwood and sulphite, this outlet spout has valuable regulating features which automatically compensate for minor variations in the consistency of each. When soft stock flows through a pipe or spout under the influence of a given head it will attain a certain velocity which is much less than that of water under similar conditions, as it meets with considerable frictional resistance; if the consistency increases, the frictional resistance will also increase and since the "head" remains constant this necessarily results in a decrease in velocity. It can readily be seen that by proper design the decrease in velocity can be made to counterbalance the increase in consistency so that within a given consistency range there will be a constant rate of discharge of dry stock per unit of time. It is expected that the stock coming to the vats of the continuous mixing system will be controlled by consistency regulators but this automatic compensating feature is of value as a second control to smooth off temporary variations and to act in cases of emergency.

The other ingredients, clay, color and alum are supplied in solution or in liquid form to receiving vats in which a definite head is maintained by means of overflow dams. In the bottom of each vat is an orifice in a brass plate. This orifice being of a fixed area and under a constant head discharges a constant quantity into a second vat beneath, which is provided with a double overflow weir having a separator between the two weirs, an arrangement similar to that used in some stuff boxes. The discharge from one weir goes into the mixture of groundwood and sulphite, and that from the other weir joins the overflow from the upper vat and is returned to its supply tank. The separator between the two weirs is mechanically connected to the mechanism for raising and lowering the adjustable top of the stock spouts for groundwood and sulphite in such a way that when the pulp discharge ports are closed the weir discharging into the pulp mixture is also closed and the liquid all goes out at the overflow. As the stock ports open the separator is automatically shifted to keep the length of the weir always proportional to the area of the stock ports. In this way clay, color and alum are always added in the right proportions. Suitable means are provided for readily increasing or decreasing the percentage of any one of these ingredients as desired without changing the others.

A double ratchet wheel of improved design operates the gears which are employed for raising and lowering the adjustable top of the stock spouts, with suitable means for limiting the travel. The pawl operating this ratchet wheel is engaged by means of a solenoid

*Read at this fall meeting of the Technical Association of the Pulp and Paper Industry, at Saratoga Spring, N. Y., Sept. 1, 1920.

energized through contacts connected to a float in the chest supplying the machines. If sufficient stock is not being furnished by the mixing system the chest level in the machine chest will drop, contact will be broken and the pawl will engage with the ratchet to raise the adjustable top and thus increase the areas of the outlet ports for groundwood and sulphite, increasing the flow. If the level in the machine chest is too high the reverse action takes place. In this way we have an automatic stock-tender. Increasing or decreasing the flow of groundwood and sulphite and at the same time increasing or decreasing the amount of clay, color and alum as one master controller operates all the control gates. All the ingredients are thoroughly and intimately mixed by the interference of stream lines as they flow together continuously.

This gives a system which operates without a regular attendant, exact proportions of clay, color and alum are added regardless of the total flow of stock, and exact proportions of groundwood and sulphite are maintained regardless of either the rate of flow or of minor variations in consistency,—the first consideration is something of which one cannot be certain when depending on a helper to draw groundwood and sulphite to a "mark" on the side of the mixing tank, and the second cannot be secured with any of the present mixing system.

To illustrate the reduction in floor space required with this continuous mixing system as compared with either beaters or mixing tanks, the overall dimensions of an equipment for a capacity of 300 tons of paper per day will be nine feet by six feet by five feet high, with a mixing compartment extending thirty inches beneath the floor. As to power, the only requirement is a one H.P. motor to operate the controls; and as to labor, no regular attendant is required; there is a considerable saving in maintenance cost, and smaller pumps can be used for supplying groundwood and sulphite. Since the stock flow is continuous the amount to be handled per unit of time is not nearly as great as with an intermittent system where the beaters or mixing tanks must be filled quickly.

With this continuous mixing system the uncertain manual control of stock proportions is replaced by an accurate mechanical means, thus insuring a more uniform furnish, better quality at less cost, and better operating conditions on the paper machines.

This continuous mixing system is not limited to newsprint mills alone, but can be adapted to board mills using old papers where the stock is first pulped and then washed and thickened and the beaters are now used only to provide a means of adding filler, color, alum and size. In any mill where the furnish is entirely in the form of soft stock, or where it can be reduced to soft stock by means of a pulper or shredder, and it is necessary to add definite amounts of chemicals or liquids this provides a very compact, accurate and economical means of so doing. In many mills the mixture can be supplied by gravity directly from the continuous mixer to the Jordans and thence to the machine chests, eliminating the use of the Jordan pumps and chests with a further saving in power and upkeep; at the same time, by uniting the former Jordan and machine chests the full storage capacity is retained.

What we need is a law that will make an unjust strike impossible and a just strike unnecessary.—Greenville (S.C.) Piedmont.

DRYDEN TO MAKE GROUNDWOOD AND BOARD.

The Dryden Pulp and Paper Company, of Dryden, Ont., a large producer of kraft pulp and paper, has been purchased by Montreal interests from the English owners. A new company has been formed ta take over the old property and complete the mills, to give them the output for which they were intended.

The amount of securities involved in the new company is approximately $5,000,000. The English interests will retain their holdings of the $1,500,000, six per cent. bonds now outstanding.

The Dryden Company holds 1,157 square miles of timber limits adjacent to Lake Wabigoon and Eagle Lake, in the Kenora district of Ontario, between Winnipeg and Port Arthur containing a large stand of accessible pulpwood.

The company's history dates back to before the war, when it was originally formed as a lumber and power concern. It went into liquidation in 1913, at the time when the lumber business went into depression. Additional capital was secured and the company's sulphate mill which was under construction previous to liquidation was completed. Under the reorganization of the company's capitalization was scaled down to low figure. The pulp and paper plant was gradually developed out of earnings, and additional powers have been partially developed, and the mills, which are laid out for a much larger capacity, have been brought up to the present production of 45 tons of sulphate pulp, 18 tons of building paper and 15 tons of kraft paper per day.

The company's timber limits are adjacent to two lakes of approximately 100 square miles each, which enables it to secure its pulpwood, it is said, at a very low cost per cord delivered at the mill.

The Dryden output of sulphate pulp goes largely to the paper mills in the Fox River Valley region on Wisconsin and in Minnesota, which in past years have been running very short of pulp supply. The building paper goes into the chief Western Canadian market, which is the chief market in this country for that product. Kraft paper is sold in Western Canada and throughout the world under the Dryden trade mark. The new company will add 40 tons of ground wood and 50 tons of board to the present output.

Among the directores of the reorganized Dryden enterprise will be included, it is understood: W. A. Black, vice-president and managing director of Ogilvie Flour Mills and a member of the Abitibi Pulp and Paper Board; J. B. Beveridge, who has for some time been associated in the chief executive capacity of the company; J. N. Greenshields, K.C.; J. H. A. Acer, director of the Laurentide Power Company; Senator Lorne C. Webster and Dan McLachlin, President McLachlin Bros., Limited, of Arnprior, Ontario.

THE FORT WILLIAM PAPER CO.

With a capitalization of fifteen million dollars and headquarters at Toronto, the above company was incorporated by the Department of State at Ottawa, recently. The provisional directors are all Toronto people. The company proposes to engage in every kind of manufacture of paper and pulp.

Find the weakest part of your body before your body begins to wobble. If you know the weakness a few years before the breaking point you may be able to prevent a serious outcome.

What TAPPI Did at Saratoga

It was mentioned in our last issue that business in connection with the Text Book prevented the editor from enjoying all the events of the fall meeting of the Technical Association of the Pulp and Paper Industry at Saratoga Springs and vicinity, Sept. 1—3. For the following account we are indebted to the representative of the Paper Trade Journal, who saw "the whole show":

This convention of the Technical Association was one of the most largely attended meetings in the history of the organization and in the minds of most members unquestionably the most enjoyable. About 350 members and guests were present. The various committees performed their duties in an unusually efficient manner leaving not a moment when those present were not requested to indulge in some interesting or pleasurable pursuit.

President Hatch Opens Convention.

President Raymond S. Hatch called the convention to order in the Casino on Thursday morning. President Hatch introduced Edward B. Ashton, president of the Saratoga Chamber of Commerce who in his address of welcome said:

"Mr. President and members of the Technical Association of the Pulp and Paper Industry: The Chamber of Commerce and the citizens of Saratoga Springs are delighted to have you here for your 1920 meeting, and we extend to you every facility at our command to make your gathering a complete success.

"Surrounded, as we are, by the great mills of the International Paper Company, Finch, Pruyn & Co., The Union Bag and Paper Corporation, the West Virginia Pulp and Paper Company, and numerous smaller mills, such as the Iroquois Pulp and Paper Company with which I am associated, this is a fitting place for your association to convene. This, too, is the Adirondack spruce region and at Palmer Falls, near here, ground wood pulp was originated. May you have a profitable and enjoyable stay here and come and meet here with us again."

George S. Witham, Sr., Responds.

George S. Witham, Sr., manager of mills of the Union Bag and Paper Corporation, responded in part as follows:

"In responding on behalf of the Technical Association of the Pulp and Paper Industry to the gracious address of welcome tendered us by the City of Saratoga Springs, the speaker's task is lightened very considerably by a deep feeling of the appropriateness of this particular section of our country for a meeting of this particular association.

"The Technical association has met in years past in many different sections of the country, and all of these meetings have been occasions replete with pleasure and profit to all of those so fortunate as to be able to attend; however, both as a paper-maker and as a resident of the upper Hudson valley, I have no hesitation in stating that no section of the United States could be selected for this meeting which would be more intimately connected with the development and progress of the paper industry than that in which the various sessions of the present meeting will take place.

"Not far from here, in the foothills of the Adirondacks, was made the first ground wood pulp ever produced in America, a development so significant in the history of the paper industry that it is needless for me to comment on its importance. For many decades the Adirondacks furnished one of the principal sources of supply of wood for paper making in the United States; and, although necessarily diminished, that supply is not yet by any means exhausted, and should, with proper methods of reforestation, remain a permanent asset to the nation. The Adirondack region cannot well be put to profitable use for agricultural or other purposes, and it is to be hoped that such measures will be taken by National and State governments that will remain throughout the centuries a permanent, scientifically maintained forest, yielding successive crops of pulp wood, as well as timber for other purposes, and at the same time affording a forest region for sporting and recreative purposes, of which the densely populated cities of the northeastern United States are permanently in need.

"That such an idea is no idle dream is abundantly proved by the fact that in Europe large amounts of pulpwood are being cut annually from forests which have been in use for a period of time which makes the entire history of the State of New York seem but a brief chapter.

"There has been a great deal of discussion during the last few months concerning the tendency of the Canadian Government to refuse the use of their reserves of pulpwood to American paper manufacturers, and to gradually withdraw all possibility of our permanently depending on that source of raw material. The adjustment and settlement of this problem is a matter that we may well leave to the politicians of the two nations involved. There is no reason to doubt that a reasonable and mutually satisfactory settlement can be arrived at, for during a period of over a hundred years—the United States and Canada have successfully arbitrated numerous more serious disputes —disputes concerning fisheries, boundaries, tariffs and many other matters, with the result that the boundary line between the two countries stands today —a most hopeful fact—the longest international boundary in the world, unmarked by a single fortification in actual use, and, in times of peace, unguarded by a single soldier.

"However, harking back to the forests of the Adirondacks, the lesson for us in the present situation is that if the matter of forest conservation had been taken in hand years ago, we would not have been ever in the humiliating position of having to negotiate with any other nation for pulpwood essential to our paper industry. With the tremendous resources of forest wealth originally in the possession of the United States we have nothing to blame but our own short-sightedness as a nation for our present predicament. However, it is no use to cry over spilt milk. We have made our mistakes and—I hope—have learned the resultant lesson. The thing to do is to think seriously about this matter of conservation and to provide for the future.

"All of the development of the paper industry, is the fruit of the work of technical men, such as the

members of this association, on whose behalf I am now speaking. I have attempted to explain to those of our friends not familiar with the association and its work, just what and why it is. In thanking Mr. Ashton and Citizens of Saratoga Springs for their cordial and graciously expressed welcome, delivered by the president of the Chamber of Commerce, I feel that I will not be saying too much, if I state that the Technical Association of the Pulp and Paper Industry has, by its past work and its future prospects, fitted itself to be spoken of as a body which the City of Saratoga Springs honors itself in honoring."

Report of the Secretary-Treasurer

The following is the report in part of the secretary-treasurer and executive committee presented by Thomas J. Keenan, secretary-treasurer:

Mr. Chairman, before proceeding with the report of the Executive Committee, I would like the privilege of expressing my great appreciation of the address made by George S. Witham. George S. Witham is unique in the industry. He is a man who has risen up through the ranks. He has been through every department of the paper mill, and knows whereof he speaks much better than I or my associates perhaps who are younger than I am. He has just published a book which is one of the most valuable contributions to the literature of paper making which has appeared within several decades—this textbook of the pulp and paper industry. The remarkable thing about his book is that it deals with the mechanics of the subject in such an informing manner. He speaks as one in authority, who has handled the machines he describes; and I am sure that every superintendent, every man who has to do with the manufacture of pulp and paper, will welcome this book by Mr. Witham, and I am sure that it is a high privilege for the Technical Association of the Pulp and Paper Industry to have Mr. Witham welcome us in reply to the speech of the president of the Chamber of Commerce, in such an informing manner.

I thank the gentlemen for allowing me to relieve my system of those sentiments! But if you will read Mr. Witham's book, you will appreciate my point of view.

Report of the Executive Committee

For the Executive Committee, Chairman Raymond S. Hatch reported a steady increase of membership since the annual meeting held in New York four months ago, the total membership now exceeding 600. Two members had been lost by death, George C. Sherman and Henry Earl Surface. It was recommended that a special committee be appointed to draw up suitable memorial resolutions.

It was stated in the report that after long and careful deliberation the Executive Committee had decided to abandon the idea of publishing a trade journal through the TAPPI Publishing Corporation. In place of this the association is to undertake the publication at least semi-annually of a volume of Proceedings, Transactions, Abstracts of Literature and original articles. The Committee said that a beginning has been made by the publication of a revised edition of the Paper Testing Committee's report. The work bears the title "Paper Testing Methods," and constitutes a practical treatise on approved modern methods for testing papers by microscopical, chemical and physical means. The work is illustrated from photographs and one of the chapters deals with the fibres used or proposed for use in papermaking. Members of the association will be supplied with the volume free of charge and copies will be on sale at $1 each.

The committee recommended an increase in the annual dues of members and associate members to $25, the subscription for juniors being allowed to remain at $5 as at present. As this necessitated an amendment to the Constitution and By-Laws unanimous consent was asked and granted for a suspension of the rules. The amendment was adopted by unanimous vote.

In conclusion the Executive Committee expressed hearty appreciation and thanks in behalf of the association to the paper manufacturers of the Hudson River and associated industries for the splendid entertainment and educational features which had been provided for the fall meeting.

The Executive Committee applauded "the admirable spirit of co-operation displayed by the various paper trade journals in advertising the meeting," and assured these journals of its appreciation and thanks for services of the kind mentioned.

Resolution Adopted

At a later sitting of the association a resolution was adopted expressive of the great loss sustained by the association in the death of Henry Earl Surface, who had served long and ably as Chairman of the Committee on Bibliography. The late Mr. Surface was graduated as Bachelor of Science and Chemical Engineer from the Ohio State University. During the years 1907 to 1914 he conducted numerous pulp and paper investigations for the United States Department of Agriculture. From 1914 to 1915 he was consulting engineer for the Government of Tasmania. He was also for a time lecturer in Forest Products at the University of Wisconsin. The Committee on Resolutions submitted the following minutes through George H. Harvey.

Henry E. Surface.

It has pleased the Divine Ruler to remove from us Henry E. Surface, with whom it has been a pleasure for members of the Technical Association to work for many years, and we desire to record our great loss.

Henry E. Surface's wide knowledge of the pulp and paper industry, his untiring energy and capacity for painstaking investigation, his absolute sincerity and devotion to his task, his integrity of purpose and sterling character will always endure to his memory and be a source of inspiration to his associates. We, the members of the Technical Association of the Pulp and Paper Industry, express our sorrow for the loss of his advice, assistance and friendship and convey to his family our deep sympathy in their affliction.

Report of Bibliography Committee.

In the absence of Clarence J. West, chairman, the following report was read by Secretary Keenan:

"The work of the Committee on Bibliography has suffered a great loss since the last meeting in the accidental death of Henry E. Surface, whose work is well known to all the members of the Technical Association.

"The work of the committee has been held up during the interval since the last meeting of the Technical Association because of the plans which were being made for the new technical journal. It was Mr.

Surface's idea that the bibliographic contributions should be held until the new journal was under way. Because of this, there are in the hands of the committee at the present time ten bibliographic contributions: Dumercy, Bibliography of Paper Making, translated by Dard Hunter; A Reading List on the Sizing of Paper, with Particular Reference to the Chemistry of the Process; A List of the Research Writings of the Staff of the Royal Institute for Testing Materials; A Bibliography on the History of Paper Making in the United States, prepared by Miss Maud V. Dickenson; A List of the Research Writings of the Bureau of Standards; A Reading List on Filter Paper; a rather complete bibliography of Paper Making Materials other than Wood; and three bibliographic manuscripts compiled by the Library of Congress on Special Aspects of Paper.

"The work of the committee will be continued along the lines which were laid down by Mr. Surface. His long continued activity in this committee, and his very great interest in the work lead us to believe that we can do no better for the present than to continue along these lines.

"The committee is open to suggestions from all members of the Technical Association, and asks the wholehearted support of every member in this work, which we believe to be of vital importance."

Report of Committee on Heat, Light and Power.

The following report from the Committee on Heat, Light and Power was read by Howard S. Taylor, chairman.

The report of the Heat, Light and Power Committee at this meeting can touch only on the future, due to the fact that since the request of our president that I assume the chairmanship, a new committee has not been thoroughly organized. We hope, however, at the next meeting of this association, to be in a position to present for your attention a paper on the many subjects of general interest, and it may be that within the near future you will be requested to indicate your preference as to subject, as by such procedure on your part a subject can be chosen that will be of interest to perhaps the greatest number, and I therefore ask that should you members receive such a request in letter form that you assist your committee in as far as possible with an early answer.

With the broad scope as indicated by its title, the Heat, Light and Power Committee has possibilities for action that if utilized should bring up for discussion on subjects that are constantly in the minds of both the Technical and Operating Departments, especially at this time of ever increasing demand for production and corresponding demand for increased speed throughout the mills such as electrification of machinery; heating and ventilating of buildings, especially machine rooms; steam turbines against reciprocating engines, etc. These are all subjects that have a bearing on increased production and efficiency, and therefore must be of special interest to the industry at large.

It is expected that very shortly the names of those who are to make up this committee will be announced, and I sincerely hope that our efforts will be entitled to the hearty co-operation of the association as a whole, as only by such co-operation can any real benefit be derived from discussions of papers that we may present for your attention.

(Report of Committees will be continued.)

Wednesday Afternoon Session.

During the afternoon special papers were read and the convention group picture was taken.

At 4 o'clock the ladies started on a sight-seeing trip which covered the Springs, Reforestation Nursery, Yaddo, etc.

An Enjoyable Banquet

The TAPPI banquet, held on Wednesday evening in the large main dining room of the Grand Union Hotel was an unusually enjoyable affair. Much of the credit for this is due to Frank T. E. Sisson, manager of the Racquette River Paper Company of Potsdam, N.Y., who was in charge of the banquet entertainment and who saw that things were kept lively from beginning to end. During the courses of the savory dinner high class cabaret artists and chorus singing added greatly to the enjoyment of the occasion and just previous to the after dinner speaking George Carruthers, president of the Interlake Tissue Mills Limited, of Toronto, Ont., told one of his best Scotch dialect stories and J. N. Stephenson, editor of the Pulp and Paper Magazine of Canada, also related one of the good stories with which he is always so abundantly supplied.

C. R. McMillen Toastmaster

The banquet was one of the numerous hospitalities extended by the Hudson Valley Paper Manufacturers. At the conclusion of the dinner C. R. McMillen, vice-president of the Union Bag and Paper Corporation, as toastmaster took charge of the proceedings. Mr. McMillen stated that he was not in practice, but he did a good job nevertheless. He stated that we were passing from an old to a new era and asserted that paper was assuming increasing importance in the new order of things. He paid a high compliment to the positions that were being occupied by members of the Technical Association of the Paper Industry in the transition period.

L. H. Shipman Speaks

The toastmaster first introduced L. H. Shipman, of the Spanish River Pulp and Paper Mills Limited and chairman of the Technical Section of the Canadian Pulp and Paper Association. Mr. Shipman said he brought a word of good cheer from the Canadian Section and extended a hearty invitation to have the American members attend the next meeting of the Canadian Section.

Address by Geo. W. Sisson, Jr.

The next speaker was George W. Sisson, Jr., president of the American Pulp and Paper Association, who spoke well on the obligation of the United States to function internationally in an economic rather than a political capacity.

Mr. Allen Curtis, manager of production of the International Paper Co., and Dr. Hugh P. Baker, secretary of the American Paper and Pulp Association also made brief and interesting remarks.

Mill Visitations

Thursday and Friday were devoted to mill visitations and Thursday evening was devoted to a delightful sail on Lake George.

At 9 o'clock Thursday morning two automobile parties were formed, one proceeding to the Hudson River Mill of the International Paper Company at Corinth and the other to the mill of Finch, Pruyn and Company at Glens Falls. At both of these mills the members were extended every courtesy and were shown

how ground wood, sulphite, newsprint, hangings, etc., are made under thoroughly modern conditions.

At noon both parties met at Glens Falls and were taken to luncheon at the Parish House, which occasion proved one of the most pleasurable ones of the convention. The luncheon was most appetizing and the atmosphere in which it was served made it doubly enjoyable.

At the conclusion of the luncheon the members proceeded by automobile to inspect the plants of the Sandy Hill Iron and Brass Works, the bag factory and the Fennimore Sulphite and Paper Mill of the Union Bag and Paper Corporation.

At the latter plant special interest was manifested in observing the "Witham Sr. System" of Temperature Control and the "Witham Jr. Heat Reclaiming System" installed on two paper drying machines—also P. & W. Controllers applied to each of these dryers for automatically discharging the entrapped air as well as the condensation from drip-headers, one of these controllers having replaced 8 traps.

The "Witham Sr. System" was designed and invented by G. S. Witham, Sr., General Manager, Union Bag and Paper Corporation—the "Witham Jr. System" by G. S. Witham, Jr., General Superintendent Union Bag and Paper Corporation—and the P. & W. Controller by F. W. Pattno, Superintendent, Robeson Process Company, Au Sable Forks, N.Y., and G. S. Witham, Jr.

Sail on Lake George.

After the visit to the plants of the Union Bag and Paper Corporation the party proceeded to Lake George. An evening excursion was taken on the lake. Luncheon was served on the steamer and music was furnished throughout the long enjoyable sail by the band of the Union Bag and Paper Corporation.

At 9 o'clock on Thursday morning chartered trolley cars were taken for Schenectady where, in charge of W. W. Cronkhite, the mammoth plant of the General Electric Company was visited. After about two hours spent here the party assembled at the dining room of the works where luncheon was had and a brief address by the manager of the works was listened to. The afternoon was spent in visiting the paper machine felt mills at Albany of F. C. Huyck & Sons and the Albany Felt Company.

Committee of Arrangements.

The members of the committee of arrangements to whom the thanks of the association are so greatly due are as follows:

Charles F. Rhodes, chairman International Paper Company, Glens Falls, N.Y.

George S. Witham, Jr., in charge of transportation and printing, Union Bag and Paper Corporation, Hudson Falls, N.Y.

C. A. Woodcock, treasurer of the Committee, Finch, Pruyn & Company, Glens Falls, N.Y.

Archie J. Kennedy, in charge of banquet, Sandy Hill Iron and Brass Works, Hudson Falls, N.Y.

W. W. Cronkhite, Reception and in Charge of General Electric Company visitation, General Electric Company, Schenectady, N.Y.

Frank T. E. Sisson, in charge of banquet entertainment, Racquette River Paper Company, Potsdam, N.Y.

Sanford M. Hall, in charge of hotel reservations and seeing Saratoga, American Pulp Stone Company, Saratoga Springs, N.Y.

LOCATING DESIRABLE TIMBER LIMITS IN CANADA.

Concomitant with the increased cost of paper and indeed, the imminence of a newsprint famine, the eyes of the civilized world are being directed towards Canada's vast forests which contain such untold wealth in the shape of standing timber. Buyers from foreign countries whose object it is to purchase the precious timber limits continue to invade Canada, but theirs is no easy task, for while at first sight, our endless miles of virgin forests should present many opportunities for an attractive purchase to any one with sufficient capital, yet the choice limits have long since been investigated and ear-marked by those enterprising men who had the foresight to anticipate the present situation. Prospective buyers should therefore endeavour to get in touch with men who possess valuable information relative to Canadian timber limits before they rush in, relying simply on a well worded report, and purchase a limit whose value turns out to be negligible.

The Canadian Woodlands and Pulpwood Agency, with offices in Montreal, is well equipped to render valuable assistance to a prospective buyer of timber limits. Upon investigation, the writer found that this concern possessed a complete system of ingeniously arranged, multi-colored maps with the timber areas marked in different colors. Each area bears a number as does also each map, so that it will correspond with the number on the list compiled by the company. This list contains the names of practically every owner of a timber limit in the Dominion. By taking advantage of the company's system of maps, the buyer can, at a moment's notice, be shown any particular section of the country with the boundaries of the limit and the owners thereof. He has before him the drivable rivers and the ports and railway sidings to which his cut timber can be transported. The company's cruisers have, of course, made complete reports of the various limits and these, together with topographical maps and all other necessary details, are kept on file.

As mentioned above, American and foreign buyers with the object of buying up all available timber limits, continue to invade Canada in such numbers that it puts one in mind of a miniature gold rush. British capitalists should not be caught napping. The apathy of British investors in this respect, as compared to those from other countries, leads one to believe that they are not sufficiently well informed of the extent and accessibility of the Dominion's timber areas. Now is the time, before it is to late, for our cousins across the seas to realize that in Canada's majestic forests, lies one of the most valuable assets that the British Empire can boast of.

F. D. G.

The Cost Association of the Paper Industry will meet in Convention at the Waldorf-Astoria Hotel, New York, Sept. 27 and 28. Everybody welcome.

The pulp mills of the Bathurst Lumber Co., were obliged to shut down for a few days recently because of lack of coal.

Shade trees may be destroyed by leaky gas mains, which poison the roots, making it impossible for the tree to secure nourishment from the ground. Gas killed trees are often thought to have been killed by insects, and weakened trees are often completely killed by borers or by fungi

The Kipawa Plant of the Riordon Company

By J. N. STEPHENSON.

Without casting any reflection on several excellent pulp mills which he has had the privilege of visiting, the writer feels safe in saying that the Kipawa plant of the Riordon Company, Ltd., is the best he has seen. This huge plant is the crowning feature in the steady growth of the business begun in 1857 by John Riordon and the result of his courageous and far-sighted policy which has been ably followed and supported by Charles Riordon, the present head, and the directors of the Riordon Company.

This modern sulphite pulp mill of the Riordon Co. makes only the highest grade of bleached sulphite pulp and consequently has several features of equipment and operation apparently not considered essential in other plants. The whole plant is a distinct credit to the engineering department of the Riordon Company, Limited. The success of the undertaking supports the contention of a past chairman of the Technical Section, that when it comes to designing a mill and installing equipment, the financiers should not interfere with the engineers.

This mill of the Riordon Co. is surprisingly easy of access. One leaves Montreal at 8.45 p.m. arrives at Mattawa for breakfast and takes the branch train for Temiskaming, which is reached at 9.30 standard time. Here, at the foot of the Lake Temiskaming, where Gordon Creek tumbles the waters of Kipawa Lake into the Ottawa River, is the location which C. B. Thorne, technical director of the Riordon Co. selected in 1913 as the ideal spot for a mill. On this spot there stands today a modern plant making 140 tons of superior pulp, where only forest trees stood two years ago.

In telling this tale it will be easier to use the first personal pronoun.

Plenty of Power.

Members of the Technical Section are everywhere, and there are several at Kipawa. One of them met me at the station and we drove to the power dam across the channel of Gordon Creek. From here a 4 ft. stave pipe takes water, which is first screened, to the mill and town for manufacturing and domestic uses. No fire pumps are needed, as the pressure is more than sufficient to throw a stream over any of the highest mill buildings. An 8 ft. stave pipe a mile long carries water to the fore-bay at the lake shore. Provision is made at the dam for a second pipe the same size, and plans are made for a tunnel through the rock if this should be preferable. The present provision is for 15,000 h.p., which can be increased to 30,000 from the present dam, or to more than 40,000 by water storage works. The company control the waters of Kipawa Lake, and have a dam at the old outlet through the Kipawa River, which can be closed when required.

The little settlement a mile up Gordon Creek is called Lumsden's Mills, after the man who conducted an extensive saw mill and lumber business here. The place was taken over by the Riordon Company. The sawmill is inactive at present.

From the re-enforced concrete forebay (and gate-house) one steel pipe has been constructed, and there is provision for four more, to the power house, 205 feet below. One vertical turbine and generator unit of 3,600 h.p. capacity is now operating, and a second is partly installed. There are two exciter-generator units, one electrically driven and the other water-driven, for starting. Current is sent out at 6,600 volts to sub-stations. Main switches, cut-outs and circuit-breakers are in a separate room, enclosed in individual cells. The switchboard and master control board are located on a gallery over the generator floor, and on the gallery the attendant has comfortable quarters in a bright room furnished with desk, bed and chairs, and an adjoining bathroom. The turbines are readily accessible, as none of the equipment is underground. The water discharges directly into Lake Temiskaming, where the depth is about 30 feet. At this narrow part of the lake only on the very coldest days is the ice strong enough to obstruct a canoe.

At the company's wharf near the power house are a number of fine motor boats, in which members of



C. B. THORNE,

Vice-President and Technical Director of the Riordon Co. and Engineer in charge of Design, Construction and Operation of the Kipawa plant of the Riordon Company.

the staff find enjoyment. In one of these we went to the sorting gap a mile up the lake, where a station of the Upper Ottawa Improvement Co., whose action to a degree resembles the work of St. Maurice Co-operative Driving Association, separates the mill logs from those belonging to the Booth, and several other mills down the Ottawa. The Kipawa logs are floated into a large pocket formed by the natural contour of the lake and held by a fine boom of 2 ft.

square B.C. fir timbers, each 40 ft. long, which are cleated in pairs and double-chained. This makes a strong boom, which is safe to walk on and which will last indefinitely. When the logs are wanted at the mill a number of them are collected inside a chain of logs called a sack and towed by the company's steamer down the lake to the foot of the jack-ladder. Here the manufacturing operations proper begin.

The Wood Preparing Department.

As the logs pass up the jack-ladder in 16 ft. lengths they are checked for number, diameter, and size, and according to kind of wood by the company's checker and by a representative of the Upper Ottawa Improvement Company. This gives a check on logging operations and constitutes the basis for charging wood to the plant. The logs are barked in full 16-ft. log



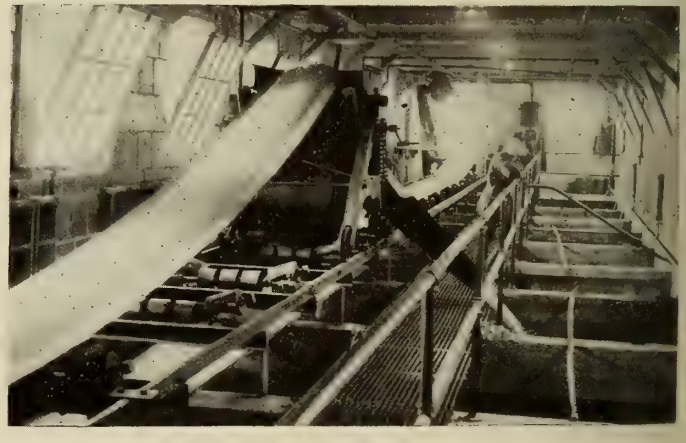
Tending Floor of Boiler House. Travelling Weighing Hopper Charging No. 3 Stoker.

lengths in the patented apparatus designed by Mr. Thorne. In being tumbled over one another by means of the powerful cams the bark is efficiently rubbed off from the water-soaked logs without wasting any of the wood or damaging the fibre on the surface.

From the barkers the logs drop upon flat cars and are hauled by the yard engines to the piling ground, where a crane and grapple stacks the full lengths in piles on either side of four lines of track, someting like a quarter mile in length. This yard can be extended when necessary. The wood for the mill may be taken from storage by the cranes, placed on flat cars with self-dumping bottoms and hauled to the hot pond, or the wood may be taken directly from the barkers if desired. Besides the Company's wood, which comes down the lakes, there may be a considerable amount of wood bought from farmers which comes by car in 4-ft. lengths. This is stored in a convenient yard, or may be sent directly in to the wood preparing department for 4 ft. wood, and is barked in machines of same construction as those used for 16 ft. logs. The logs when brought to the mill are floated in through the hot pond to a jack-ladder, which carries them to a saw-deck, where a slasher saw cuts them into two pieces, and these are carried on chains to a sorting table, where any stick that is not perfectly clean is pulled to one side and thoroughly cleaned by hand. Then the clean 8 ft. sticks or the 4 ft. sticks from the farmers' wood pile are sent to the chippers, where the funnel, 16 ft. long, insures a constant heavy pressure of wood against the chipper knives with the result that a very uniform size of chips is maintained. From the two chippers the chips are elevated to a breaker from which they pass to the three rotary screens. The over-size and slivers are sent to a rechipper and returned to the screens. The sawdust and other waste drops to a cable scraper conveyor and is carried to the boiler plant. The chips meanwhile pass to a belt conveyor which carries them to the chip loft over the digesters.

Before going farther it would be well to mention the very convenient location of the mill as regards railway facilities. The mill site is the space in the Y formed by the main line of the C.P.R. to Lumsden's mills and beyond, and the branch to the townsite and the wharf and landing for steamers plying between Temiskaming and Haileybury. It will be recalled that in the early days of the Cobalt mining development this point was the end of the steel, and supplies were carried by water sixty miles up Lake Temiskaming. The main line passes up a considerable grade at this point, so that rail wood, sulphur, limestone, coal and other supplies of like nature can be brought in directly on trestles and dumped for convenient transportation to the point of consumption. This greatly facilitates both the handling of freight and the storage of supplies, and was a factor in the selection of the site.

The boiler plant at present consists of 5 B. & W. water tube boilers of 600 boiler h.p. capacity each. They are equipped with recording instruments for temperature, pressure and carbon dioxide, as well as meters for determining the distribution of steam consumption and with a weighing hopper for the coal which is stored in an overhead bunker. Economizers are being installed and three more boilers are being added this summer. This will complete half of the

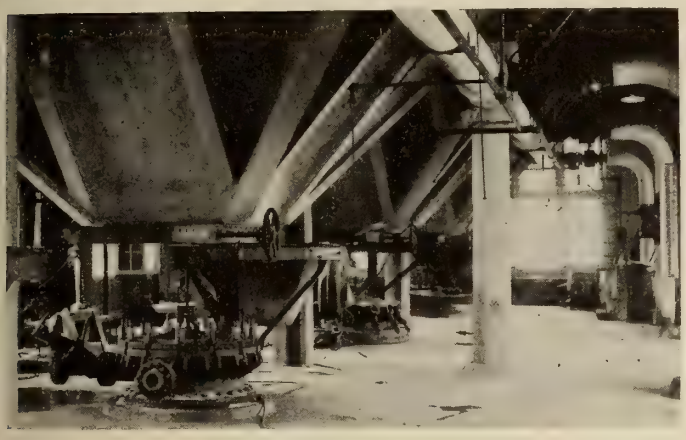


Chip Conveyor Belt, Tripper and Bins.

boiler house and the other half will be constructed so that the boilers face each other with a common operating floor and a common bunker from which the coal will be readily weighed and fed to the mechanical stokers. Under the operating floor is an ash tunnel, which is entirely enclosed so that the ashes can be readily dumped into ash-cars without scattering dust over the machinery and from which they will be readily carried out on light tracks to the ash dump. (At present the ashes are being used for filling in a portion of the new site.) The whole boiler house is above ground, as are all the other buildings, because of the careful selection of the site, so that all operations are well lighted.

The Acid Plant.

Like every other department of the mill, the acid plant is arranged for convenient expansion by using a temporary wood wall on one side, while the present units form a complete working installation. Sulphur is brought in directly from the storage under the trestle and, after weighing, is carried by a short elevator to a container over the burners, which will hold 24 hours' supply. From this the attendant, as occasion demands, fills the melting chamber at the end of the burner. Rotary burners are used attached to large combustion chambers. The same elevating and storage arrangements will serve when two additional burners are placed on the outside of the two now in operation. The gas is cooled in another piece of apparatus designed by C. B. Thorne and practically perfect results have been obtained.



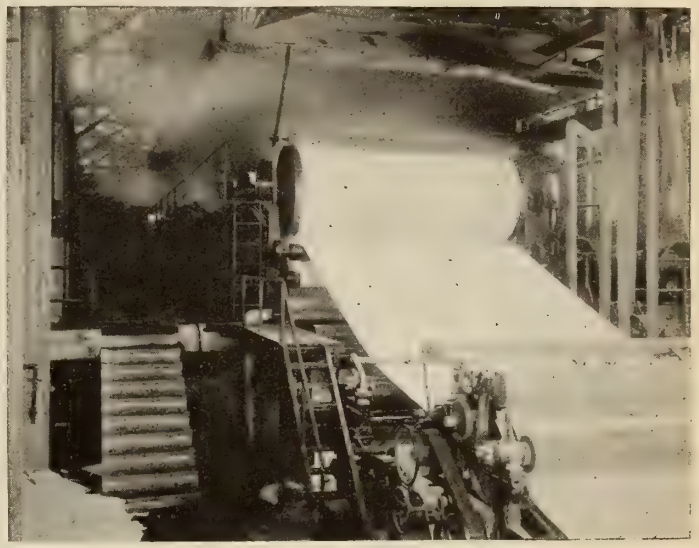
Part of Charging Floor, Digester House. Note Bottom of Concrete Chip Bins and Steel Filling Funnel.

The cooled gas can be conducted into either of the two limestone towers which are built of re-enforced concrete. The connecting pipes are of smooth tile embedded in concrete. The usual system of making acid is carried on, the gas passing first into the strong acid tower and from there passing later through the weak acid tower into which water is showered. Meanwhile the weak acid from the bottom of this is showered over the limestone in the strong acid tower, and the strong acid from the bottom of the second tower then goes to the recovery towers. It is here again that Mr. Thorne's engineering knowledge and ingenuity are seen at work. The construction and operation of the recovery systems in which last traces of sulphur dioxide from the relief of the digesters produces an acid of high and uniform strength is a very important factor in the production of high grade sulphite pulp. The recovered gases are, of course, cooled before passing into the recovery towers and a special type of cooler designed by Mr. Thorne is used in this connection also. From the acid towers the acid is first passed through a settling basin so as to catch sludge from the limestone and thus keep the acid cleaner. The acid is stored in three tanks, through which it passes in series so that a uniform acid at a temperature practically constant at 30 degrees centigrade is always ready for use in the digesters.

A clever idea is the use of tile in concrete for ventilating and heating ducts. There will be no corroded pipe to replace every little while. Each department has its individual indirect hot-air heating system.

A Model Digester Plant.

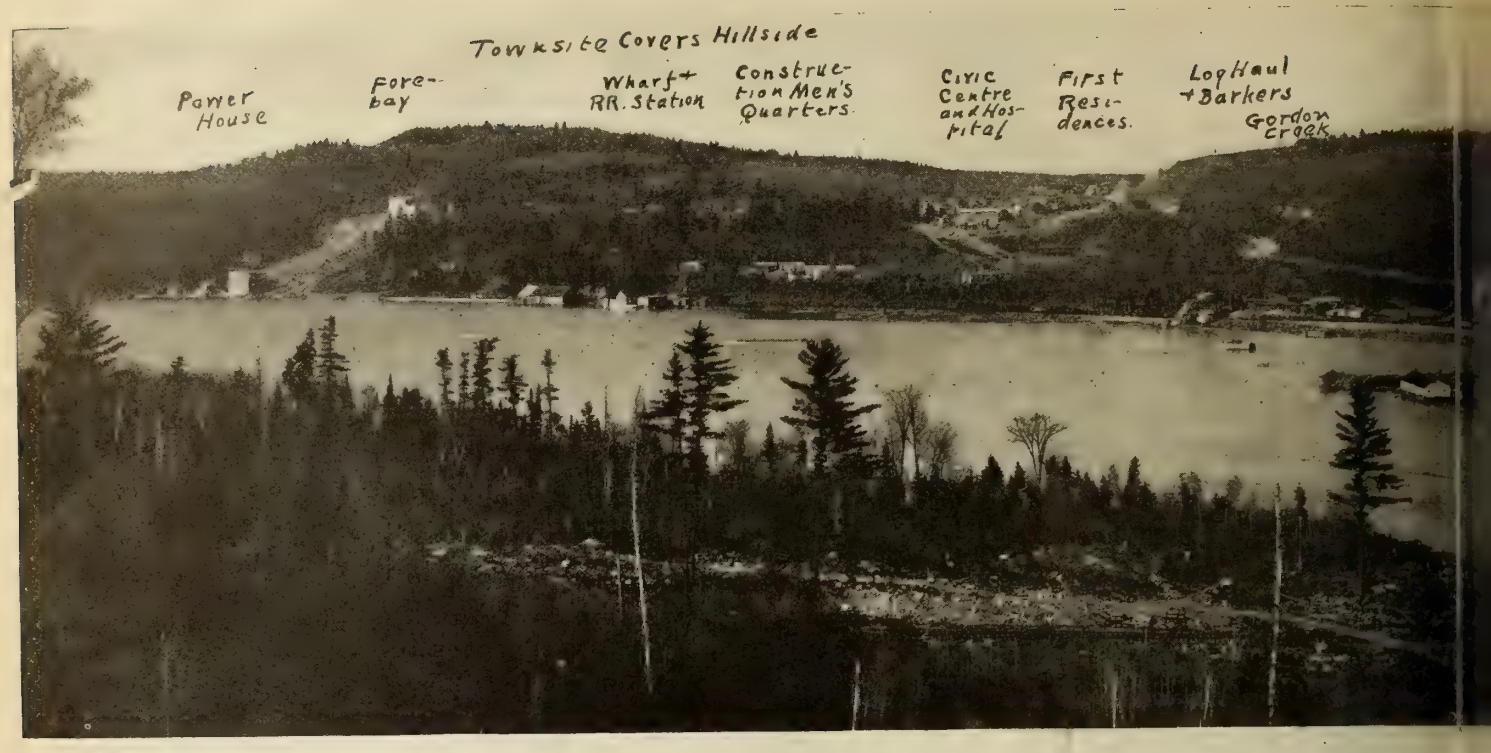
At the present time there are four digesters in operation and work is under way for an extension to accommodate five more which will be complete this year or early in 1921. A considerable part of the material is already on the ground. The digesters are 17 x 56 ft. and have a capacity of 34 cords of chips, from which 19 tons of pulp is made per charge. The cooking varies according to the particular purpose for which the pulp is intended, but the quality is constantly maintained at the highest possible point. One of the remarkable features of this plant is that an average of only from 210 to 215 pounds of sulphur per ton of bleached pulp, equal to 195 lb. unbleached, is being constantly maintained. The limestone consumption runs about 280 pounds per ton and the quality of wood and control of cooking is such that an excellent white pulp is obtained with a bleach consumption of from 12 to 14 per cent on the basis of 35 per cent available chlorine. The whole plant is of re-enforced concrete and brick, so that it is absolutely fireproof, and where steel beams are necessary they are encased in concrete both for protection against possible local conflagrations, such as might occur in the chip bins and also to protect them from corosion by possible traces of acid in the atmosphere. The cooking period is controlled, not alone by samples of cooking liquor, but finally by a careful examination of a sample of pulp taken direct from digester. In this way it is possible to cook down the chips until they are thoroughly delignified and there are no shives. The effect of this procedure is evident in the color, strength and uniformity of the stock and particularly



Dry End, Pulp Drying Machine.

in the low proportion of screenings, which amounts to only about 1½ per cent. In connection with the cleanliness of the pulp, it is interesting to note that smoking is only prohibited where there is a possibility of the ashes contaminating the stock, such as might result in the bleachers or machine room.

The acid is admitted to the digesters shortly after the chips have begun to flow in and being introduced at the bottom the incoming liquid naturally forces the air practically all out of the digester and this makes the cooking process take place more readily and efficiently.



Panorama of the New Sulphite Mill of the ... the South-west, looking ac ss

This reduction aids in supplying the 100 degrees approximately of superheat at which the steam enters the digesters and this quality of steam results in a decrease steam consumption per ton.

The bottom digester casting contains a steam inlet for assisting at the beginning of the blow and the digester content is blown into one of the four blow pits, each of which has a capacity of two charges. Because of the care in cooking no battle plate is required. The elimination of this plate also does away with the breaking up of knots, and consequently the stock is free from these objectionable dark specks. These huge concrete chambers are furnished with showers and hose streams for washing the stock, after the waste liquor has drained off through the perforated bottom. The thoughtfulness of the engineers is shown in the provision that has been made for recovery of the strong waste liquor in case it be found advisable at a later time to make use of this presently wasted material.

Screen Room.

The thoroughly washed stock is passed first through a centrifugal knotter and is then thickened as a supplementary washing. It is then diluted to the proper consistency and passed through the coarse flat screens which are fitted with plates with cuts .020 inches wide. From the flat screens the stock passes over patented felt bottom rifflers where the thickness, depth of stock and rate of flow is very carefully regulated. Here any coarse fibres, pieces of knots and mineral matter settle and the stock is then passed to the fine screens which have plates cut eight or nine thousandths of an inch.

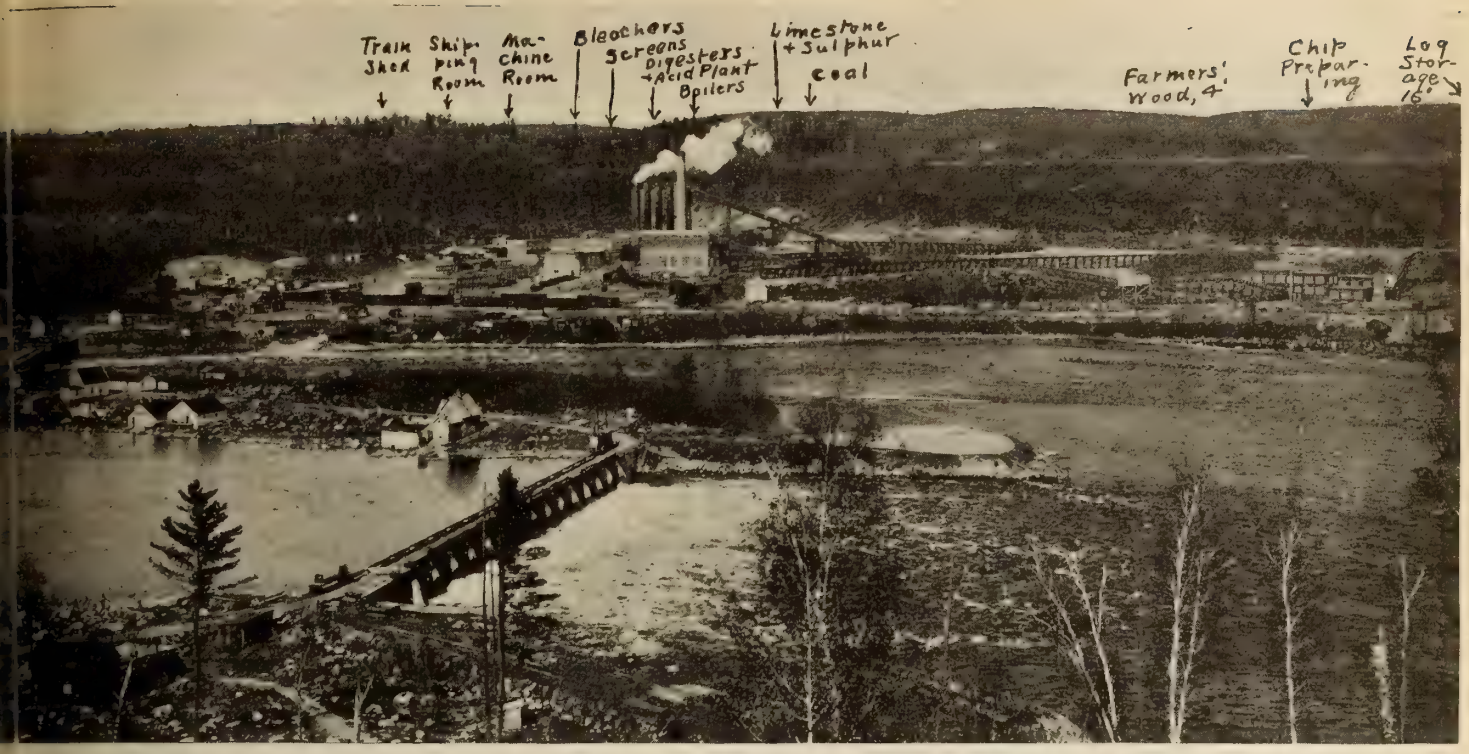
Bleachery.

Before bleaching, the stock is again thickened so as to make the bleaching operation more rapid, efficient and economical. Seven Bellmer bleachers with a capacity of eight tons each per charge are used in the bleach plant. They are built right into the mill and the operation is observed through a narrow opening, around which is a concrete fence. It is practically impossible for dirt to get into the stock once the knots and similar impurities are removed by the rifflers and screens.

At the present time bleaching powder is being used. This is mixed in a conical vessel supplied with piney agitator and stored in sufficient quantity to make it easy to maintain constant strength, and to obtain clear bleaching liquor. All bleach and chlorine piping and containers are painted in green and appropriate distinguishing colors are used for other pipe lines such as stock, water, high and low pressure steam, etc.

The original plan of the engineers called for an electrolytic bleach plant but the installation of this department had not been contemplated just yet. The scarcity, high price and poor quality of available bleaching powder at the present time has made it necessary for the company immediately to erect a temporary bleach plant, where 180 cells will be in operation in a few weeks to take care of the present emergency. The capacity will be the equivalent of 16 tons of bleaching powder in 24 hours.

A bleaching plant in re-enforced concrete is under construction and will be ready next year with a capacity that will take care of the full production of 500 tons of pulp per day, the ultimate capacity for which the mill has been designed. In the bleach plant, as in other departments, the advantage of having a location that permits materials to be moved by gravity from the railway to the point of consumption is evident.



...ny's Kipawa plant at Temiskaming, Que., from ...u River from the Ontario side.

The Machine Room.

Passing from the Bellmers the stock is thoroughly washed from all traces of chlorine, and is again screened. The screening system and the care taken in regard to the cleanliness of the stock is certainly a revelation and were it not for the quality that makes the advantage of such care obvious, one would question whether it was worth while to take so much trouble. One is impressed throughout the plant, however, that the ultimate aim of Mr. Thorne has been the ideal plant for making perfect pulp, and it is certainly the keeping of this ideal constantly in mind that is resulting in a close approach to the end desired.

From the re-screens the pulp is thickened to a consistency which makes it the more readily stored in the chests and more conveniently delivered to the machines. The machine chests are furnished with another of Mr. Thorne's novelties in the form of an impeller similar to that used in the Bellmer bleacher, so that the stock is kept thoroughly agitated while in storage.

The drying machine differs from that ordinarily seen in a pulp mill on this side of the water in that it is of the Fourdrinier type rather than the cylinder. There are one or two others in Canada used for this purpose and there is one Fourdrinier wet-end that is being used as a de-watering machine. The Kipawa machine, however, dries a sheet 148 inches wide at the rate of 90 tons per 24 hours. A vapor absorption device is being added which, by a more efficient re-removal of the evaporated moisture, will result in an increase of 10 per cent in efficiency, and the capacity wi l then be 100 tons of dry pulp per day. The average test is 90 per cent air dry. The manner of threading the sheet over the driers gives not only the maximum contact of the sheet with the dryer surface, leaving an exposed arc of something like 18 inches of a 5 ft. dryer, but also exposes a maximum amount of surface of the heated pulp, from which the moisture readily evaporates.

The pulp is cut into strips and chopped off any length that the customer desires, so that the bales may be made 27 x 36 inches, 36 x 39 or whatever may be desired. Samples for moisture, cleanliness, color and strength are taken at frequent intervals, and the bales are stamped with the number of the bale, the moisture test and the wet weight, so that when received by the paper mill the amount of dry pulp is immediately known. Two baling presses are used in making compressed bales for shipment.

At the present time the sheets are taken from the machine by hand, but an automatic layboy will soon be installed that will do away with the services of two men per shift. This mention of men recalls the rather remarkable fact that the whole plant in turning out 140 tons per day with the employment of only 188 men. This is no doubt a record, at least in Canadian experience, and it is a record that the management has hopes of improving.

A second machine is now on order, and will soon be in operation on the other side of the room now occupied by No. 1. All provision has been made for its installation. At present the pulp that is not taken care of by the drying machine is run over the two wet machines in the adjoining department. Another wet machine is also on order.

The car tracks enter the building adjoining the wet machine room which is the shipping room department. Two tracks passing through this department make it possible to load six cars at one time.

Pulp bales are hauled with electric trucks from press to cars.

All rotten wood is discarded completely. All chips are tested for moisture content as well as for the uniformity of size.

Testing the Pulp.

A special laboratory is maintained for the purpose of testing the pulp for color, cleanliness, strength, etc., in accordance with the latest method.

Started Without a Hitch.

The starting of a big mill is a matter of considerable anxiety and it is a great source of satisfaction to Mr. Thorne, Mr. Ketchen and the other able members of his staff down to the last workman, and it is a matter for sincere congratulation that the work of each department, from the shovelling of the first sul-



View of Company's Sulphite Mill from North-East.

phur into the burner down to starting of the drying machine, went off without a single hitch. Each piece of apparatus and each process performed its function from the beginning with entire satisfaction, and there have been no interruptions to the continuous production of first quality pulp. It may be that the management will find places here and there where the work can be made to run a little more smoothly or efficiently, or where the introduction of some machine will save manual labor, but there cannot be very many mistakes in a mill in which the acid maker has almost nothing to do but to see that his hoppers contain sulphur and his pumps are properly oiled or where a digester foreman is supplied with acid of constant temperature and strength and chips of uniform size and quality and whose continuous records from his recording instruments show him at all points the exact performance of his equipment. A disintegrator is furnished for macerating the "broke" from the drying machine so that it can be returned to the system, but if a man were operating this machine on piece work he would certainly starve to death.

The Town Site.

Carving a town out of a virgin forest is not a matter to be undertaken lightly or to be accomplished hurriedly. The original inspection of the location took into consideration the beauty of the spot for a healthful, attractive community as well as because of the excellent manufacturing facilities furnished by the location of the railway, waterways and power, and the contour of the comparatively flat space at the foot of Lake Temiskaming. Competent landscape architects and the expert town planner, Thomas Adams, have laid out an ideal town site on the beautiful slope overlooking the waters of the lake and river, across which extends an eye-resting view of hills covered with the dark green of spruce and the lighter green of birch and poplar, broken here and there with a piece of pasture land or a brown field just ploughed for a crop. On this beautiful spot there have already been erected some 56 houses for the permanent occupation of the workmen of the mill. There is an attractive and convenient hospital building as well as a commodious community centre in which there is a moving picture theatre, other recreation facilities and the offices of the town. A filter plant with chlorinating apparatus and the necessary pumps driven both by electric and gasoline motors is already in operation. There is even a fully equipped jail with proper accommodations for both sexes should anyone be so unhappy as to break the hitherto peaceful record of the community.

By fall it is expected that some 200 houses will be ready for occupancy. These, with the cafeteria, will accommodate the staff of workmen at present employed in the mill. The cafeteria has sleeping accommodation for 100, each man having his own comfortable room furnished with a bed, table, chair and hot and cold water. Besides this there are extensive lavatory facilities equipped with shower-baths and tubs. It may not seem possible, but the company is furnishing room and board at the rate of $1.00 per day. The dining room will accommodate 200.

The houses are all built on the semi-detached plan. Most of them have six rooms, and they are built on a sufficiently great variety of plant to do away entirely with a chance for monotony of aspect. They are frame houses with Bishopric board inside to carry the plaster and outside are sheathed with lumber and tar paper and encased either in brick or stucco. They make a very attractive and comfortable home. Each is finished in stained fir on the first floor and white painted pine above with hardwood floors throughout and equipped with hot water heat. There are ceiling and

wall lighting fixtures with base outlets and even provisions for lighting the commodious wardrobes. A number of the occupants have installed electric ranges as the company furnishes the power at an exceedingly nominal rate.

One can scarcely desire a better built or more convenient house and one would go a long way before finding such at the present time. The rent seems hardlly sufficient to pay any interest, let alone a return on the investment.

A separate housing company has been incorporated to conduct the affairs of the town-site.

Members of the staff, not otherwise provided for, are taken care of in the staff house, which is the old Lumsden home, where very comfortable quarters are available a fact that the editor can testify to as well as to the excellence of the cooking and service. Adjoining the staff house is the recreation hall which contains what is said to be the best dance floor in the north country. Tennis-courts and other means of recreation as well as motor-boating are available for those who indulge.

This plant must be considered as being ideal in every respect. Everything is taken into consideration. Improvements and novelties in regard to manufacturing process and labor saving have been introduced. Sanitary conditions for the men in the mill have been taken care of. The rooms are bright and pleasant to work in. A model town is being built for the purpose of giving the employees comfortable, practical and good-looking houses. The nature of the country has been maintained to give the town its charm. The construction of the Mill, Power Plant and Town has been carried out as a strictly engineering proposition, and one which is extremely successful.

Altogether the editor's visit to this new town was a most enjoyable event, and his thanks are extended to the company for the cordial entertainment and the frank discussion of the many interesting points about the mill and the town.



First Unit of Power Plant at Temiskaming, showing Gatehouse and Forebay.

With a man of Mr. Thorne's standing, as head of the organization, surrounded by able engineers, the development has been carried to success and the proposition will surely succeed.

Our bankers and business men might well take example from this and carry out all future development as an engineering proposition, the manner in which the Riordon Pulp & Paper Company have done it. This would not only be a benefit to the shareholders, but also to the benefit of the Dominion.

PAPER SECURITIES AS PERMANENT INVESTMENTS.

In their August circular Peabody, Houghteling & Co., Chicago, deal special with pulp and paper mill securities. This firm has been prominent in underwriting operations of several leading Canadian companies. The article says :

The choice of a permanent investment involves two main considerations : the adequacy of the security, under all conditions likely to arise from any years, for the protection of the invested principal; and the adequacy of the available income, under like conditions, for the protection of the interest or dividends which the invested principal is expected to produce. There are, of course, other considerations carrying more or less weight, according to the individual requirements of the investor, but the two above referred to go to the very essence of every bond, note, or preferred stock issue and must in every case be kept in mind if a wise purchase is to be made.

Contrary to the apparent opinion of some, there is a good deal more to the question of what is an adequate security or a good prospect of earnings than may be learned by studying a balance sheet or reading the official letter of a company's president, however important these may be. A balance sheet is chiefly an index of the result of past operations, and the official letter is usually a combined history and prophecy which depends for its value largely on the breadth, foresight and conservatism of the man who wrote it. Both are valuable and both have a place in the examination of an investment, but neither balance sheet, offical letter, appraisal, or expert's report is as fundamental a criterion of the stability of an investment as a very simple factor in regard to which nearly every individual is qualified to judge for himself.

This factor, which in the case of a long term investment should take precedence over all others, is the necessary and permanent character of the industry in which the borrower is engaged, for unless the industry is essential to human welfare, in a broad sense, it will be impossible to predicate continued prosperity, over a long term of years, for any company engaged in it.

Without attempting a definition of what constitutes an essential industry, we may assume that the production of pulpwood fibre and newsprint paper comes within that term. In a United States Government publication, dealing with the important part which Pulp and Paper products take in the maintenance of our national life, this significant paragraph appeared: "People read newspapers, books, magazines and placards which are printed on about three-sevenths of all paper manufactured; they box up articles in about one-fourth of it; wrap purchases in about one-seventh; write and typewrite on one-eighth; put a trifle more than one-twentieth of it into buildings and upon walls; and use the remaining one-hundredth in sanitary and miscellaneous ways." That the demand for these products of every day use has been on the increase for many years is shown by the fact that in 1880 the production of the United States, per capita, was 18 pounds, while in 1916 it had risen to 118 pounds. Subsequent to 1916 the production in this country fell off somewhat, the increasing demand being met only in part by the production of Canadian mills. This demand has been increasing for many years—directly, with the growth of population, and indirectly with the spread of education which results in more reading and a higher standard of comfort and convenience.

So much for the necessity and consequent importance of the paper industry. The determination of the strength of the bonds or notes of a particular company engaged in that industry is not difficult if we keep in view the elements essential to its complete success. These are:

1. A supply of pulpwood, so located as to be easily delivered to the mill at reasonable cost, and sufficient to insure operation of the mill for a term of years well exceeding the life of the securities under consideration.

2. Sufficient water power for the cheap and continuous operation of the plant.

3. A modern and conveniently planned mill, capitalized at reasonable figures and with sufficient working capital.

4. A location permitting cheap delivery of raw material used in manufacture, and favorable freight rates on the finished product.

5. Experienced management.

Given the foregoing conditions with a liberal equity behind the bonds or notes, it is safe to predict that the latter will be duly paid off and that there will always be an ample margin of earnings to meet interest charges. A company so equipped and so financed can find a steady and profitable market for its product, because it will always have the advantage over others less favorably situated, nor is it in danger of disastrous competition from new mills, for the available sites for plants of this kind are not numerous nor can the development of those sites which do exist more than keep up with the growing demand for wood fibre products. Time, as well as money, skill, and persistence are required for the completion of such an undertaking.

Our experience with securities of this kind has been as satisfactory as it could possibly have been. In the ten issues we have originated and marketed there has been no loss of principal or interest, and more than 25 per cent of the securities have been paid off serially or prepaid at a premium. This record is largely due to the fact that in preparing to finance a property of this kind we take nothing for granted and leave nothing to chance. The supply of timber, the character and amount of the water power, the design of the mill, the nature of the transportation facilities, the experience of the owners, and the market for the product, all these and other less important details, must meet with our approval before we invest our own funds or ask our clients to invest theirs.

Apart from the investment value of securities of this kind, there is sometimes available an opportunity for a substantial profit, which is attractive to most investors however conservative they may be. The notes of one pulp and paper company, with which we are familiar, were recently offered with the attached privilege of converting them on favorable terms into the common stock of the company, which has since sold well above par.

A feeling of confidence goes with the purchase of a bond or note issued by a sound company producing a commodity which will always be in demand. We recommend to investors that they include in their permanent holdings well selected pulp and paper mill securities.

LAKE ST. JOHN PULP AND PAPER COMPANY ORGANIZED.

The Lake St. John Pulp and Paper Co. Limited, was recently incorporated under the laws of the Dominion, with a capitalization of $4,000,000, consisting of 20,000 shares of 8 per cent. cumulative, non-participating preferred stock and 20,000 shares of common stock; par value of shares is $100. This company takes over the holdings of the Metabetchouan Pulp Company.

The mill is to be located at the mouth of the Metabetchouan River and on the main line of the Canadian Northern Railway, bordering on Lake St. John. The Company has its own water-powers on the Metabetchouan River, where some 22,000 H.P. can be easily developed, and also has contracted for additional power with the Military Electric Company at St. Jerome, Que., which will be furnished at once, if required, while the Company is developing their own water power.

There is abundance of spruce and other woods within easy distance of the mill, contracts for two years supply having already been placed.

The capacity of the mill will be 50 tons groundwood pulp per day to start with. It is expected the mill will be in full operation during this coming winter. Additional grinders can then be added, together with changes and other machinery, and by the fall of 1921 the capacity of the plant will probably be doubled.

The Company will control by lease in its own name, right or through its subsidiaries, areas of timber and pulpwood lands as follows:—

174¾ square miles or 111,840 acres on the Matabetchouan River and other small streams near Lake St. John, Que. The cruise on this property was made by Mr. C. D. Ouellette, of Quebec City, Government Bush Ranger; also Ovide Potvin, Alfred Felion and Maime Brassard, of Ste. Andre, Que. These men report after one month's cruise, 1,100,000 cords of pulpwood of the very finest quality (only trees over 4 inches on the stump to be cut). Messrs. Burke and Dixon, of Bangor, Maine, accompanied by Mr. Jas. J. Steele, of Montreal, visited the property late in June and early in July last. Messrs. Burke and Dixon stayed 21 days on the limits, and they report 850,000 cords of spruce pulpwood on 140 square miles, the balance of 34¾ square miles they did not go over, but from trappers they met, they were told that it was densely timbered with the best quality of very large spruce. These cruisers confirm the first cruiser's reports, and concluded by saying that a very conservative estimate over all would be 10 cords to the acre, or 1,118,400 cords. They report having measured as much as 40 cords on some acres.

The Company also holds an option on 10 square miles of timber or 6,400 acres near St. Andre, Que., bordering on a small river running into the Metabetchouan River, on which there are some 80,000 cords of pulpwood. This is only a short distance from the mill site near St. Jerome Village.

Also, large quantities of spruce pulpwood can be had from the farmers and settlers around Lake St. John at reasonable prices, and contracts are now being entered into with these farmers, to supply wood for a number of years to come. They are anxious to do this, so as to get a mill built on Lake St. John at the mouth of the Metabetchouan River. This will enable the Company to leave its own limit untouched, if so desired, for years to come.

Qualified men who have studied the situation state that the wood can be delivered in the mill at $2 per cord less than at any other mills in the Province. This is due to the unusually short "drive" required, less than two weeks being required to deliver the wood in the mill. The loss to some mills through "sinkage" alone is a very serious factor in their log costs at the mill.

Water Powers and Property.

The Company will own or control in its own right three water falls on the Metabetchouan River, which can be developed at a nominal cost, to produce up to 22,000 H.P. when developed. The Company is about to enter into an agreement with a Company at Lake St. John, who own an 80-ft. water fall, partly developed, on the Metabetchouan River, about 3½ miles from Lake St. John. They are further to develop this power, which will give up to 4,000 H.P. at cost to run mill until the Company's own power is fully developed. It will require 65 H.P. per ton of pulp, which is quite ample for all requirements of a 50-ton daily capacity mill.

In the opinion of experts, the value of the wood on the Metabetchouan Timber Limit, formerly owned by the Metabetchouan Pulp Company, is $2.50 per cord on the stump, on the basis of 1,118,400 cords, would be worth $2,795,000. The water powers which are owned outright by the Company, say 22,000 H.P. at $6 per H.P. undeveloped (this is a much less value than some experts place on such powers), are worth $132,000. The mill site on the Railway and River at Lake St. John, consisting of five acres of land at $1,500 per acre is valued at $7,500. Exemption from taxes for 10 years (figured on the valuation of plant, etc., and at present rate levied on such property), amounts to over $25,000 making a total value of $2,959,500. There are other valuable concessions the Company holds, such as contracts for power, wood, lumber, etc., the value of which it is difficult at present to estimate.

Fire Protection.

About seven years ago the limit-borders in the St. Maurice and Lake St. John District formed what is known as the St. Maurice Protective Association, Limited. This Association employs competent rangers, who have districts which they patrol almost daily during the Summer months. This is done by canoe, speeders, and on foot. Towers have been built, and fire-fighting appliances have been systematically distributed through the district, and also telephones have been installed in some districts.

Since the Association has been organized fire has been practically unknown. The Government has given it wide powers to regulate any and all farmers as to the season fire is to be started for clearing off their lands. The cost to all limit-holders during the seasons of 1917 and 1918 was only 1-3 of a cent. per acre, which is much lower than any other organization of its kind in Canada, and about 200 per cent. less than ranging could be done by each limit-holder.

It can readily be appreciated the value an association such as this gives to standing timber, as owners can feel absolutely safe from fire loss through the carelessness of others.

Management and Affairs.

Mr. Jas. J. Steele, who is one of the best known mill construction men in Canada and United States, is heavily interested in this Company, and is Vice President and Managing Director. He will be in charge

of all construction work at Lake St. John. Mr. Steele has had a life-long experience in erecting and constructing mills of all kinds as well as paper mills, and the Company is most fortunate in securing his services. The other officers are: President, F. W. McKinnon, M.D., Ottawa; Secretary, J. D. Kennedy, Montreal; Treasurer, F. W. Fee, Ottawa; Solicitor, J. Ogle Carss, D.C.L., Ottawa.

Timber Supply.

It is estimated that the timber available from the limits now owned by the Company and surrounding territory will ensure a supply for our mill when increased to 200-ton daily capacity, for a period of over 100 years; in other words, it might be said that sufficient supply can be depended upon for all time. These limits were acquired in 1900 and 1901, some 20 years ago, with water power rights. They are more favorably situated than most other limits in the Province of Quebec.

They are located in the very centre of the best farming district in the Province. The country surrounding is thickly populated. The limit is considered to have the best pulpwood in the Province. The Canadian Northern Railway runs along its western side. The limits are practically untouched, except a small corner which was burnt over some 20 years ago, since which time an entire new growth has developed in this area. Because of the closeness of lakes, water powers, rivers and the best railway facilities for shipping, etc., it has been lately remarked by one of the largest lumber dealers that if he owned it he would not accept $5 per cord on the stump for it.

Referring to the wood that can be bought in the district, Mr. Samson, Mayor of Quebec City; Dr. Mooney, of Quebec, who owns the Little Peribonka Mill and limits, and other prominent men, both in Quebec and Lake St. John, advised building a mill at once, as a mill would be a great money-maker, even if the Company had no limits, because the farmers and residents can furnish pulpwood enough to supply a 200-ton daily capacity mill for 50 years to come.

Farmers and settlers take out yearly in the Lake St. John District from 100,000 to 150,000 cords of pulpwood; 100-ton daily capacity mill requires only from 32,000 to 35,000 cords of pulpwood per annum. From personal knowledge of the District, both Mr. Steele and Mr. Kennedy know that a supply of 75,000 cords of wood per year can be safely counted upon for the next 50 to 75 years, from farmers, settlers and small limit-holders, and at a cost below any other pulp mill in the Province, and without using any of the Company's timber lands.

It has been asked what the cost of a 50-ton daily capacity plant would be when completed. This is very hard to estimate, owing to labor and market conditions, but from engineers' reports on water power development cost, contractors' estimates on erection of buildings, installation of machinery, purchase of machinery, and all necessary equipment, as well as other unforeseen expenses, it is safe to say that $450,000 will be required for the erection of mills, etc., and $200,000 for the development of the water powers, making a total outlay of $650,000 for a 50-ton daily capacity mill.

Further information regarding stock issues, etc., may be obtained from the Lake St. John Pulp Syndicate. 157 St. James St., Montreal.

BRITISH TRADE NEWS.

(By OUR LONDON CORRESPONDENT)

London, Sept. 1, 1920.

Paper An International Problem

This week the annual general meeting of Messrs. Benn Brothers Ltd., the large printers, was held under the presidency of Sir John Benn, Bart. In the course of an address to the shareholders, the President said the question of paper had caused the directors no little anxiety. It had been, indeed, by far the greatest of the difficulties with which they have had to deal. Paper was an international problem, and there could be little hope of easement until the world generally settled down to work. They had, he thought, seen the end of profiteering by outside speculators, but they were still faced with the unfortunate determination of many of the large mill proprietors to take full advantage of the present shortage. The directors were basing their calculations for the current year upon their belief that the present position could not last and that there would surely be some measure of relief from the intolerable position of the moment. Speaking on the importance of trade paper, Sir John said in their pages the scientist and the inventor, or the man with an idea, gets an early reward for his talents. Such mundane things as business and workshop management efficiency are discussed and still our industrial life asks for more. This was the best evidence of their claims for the trade Press to be classed as a national asset.

SERIOUS COAL CRISIS.

The miners threaten to come out on strike on the 20th September if 14s. 2d. is not taken off the coal per ton and they allowed an extra 2s. per shift. The Government suggest that payment should be made on the output. Miners also want the coal mines nationalized and they have voted in favor of it. Now should this strike come about, I see work in the mills dislocated; indeed, they may have to shut down. There is also a danger of the railroad men joining the miners. Should they do so the transport workers may come out also and then we will be faced with one of the greatest crises in labor upheaval that England has ever experienced. Many labor leaders are trying to prevent a strike and it is to be hoped for the sake of the pulp and paper industries in the United Kingdom the Government will find some way of satisfying the miners and so save untold suffering though unemployment in the mills.

Industrial Chemists.

According to the annual report of the National Association of Industrial Chemists the number of unemployed chemists is increasing very rapidly. The future outlook for them at present is distinctly discouraging and it is suggested they should unite to preserve their own interests.

Great Fires in Russia.

It is quite evident the raw material for pulp in the Russian industry, when it is revived,—if ever it will be—is suffering considerably at present through the ravages of fire. By way of Sweden comes the news that terrible fires are raging in Russia in the forests and towns and villages have been wiped out. Tens of thousands of acres of forest in the Moscow district alone have been destroyed and it is feared some pulp mills have gone up in the flames. In pre-war days Russia practically supplied Germany with pulpwood so that the two countries will feel the loss occasioned

by the destruction of vast forests, so badly needed in these post-war days.

State of the Paper Industry.

There is still a good demand for newsprint and for other papers inquiries are numerous and a good volume of business is passing for this time of the year. Kraft is easier in price at £80 a ton. The Burnley Town Council have passed plans for extensions to the Burnley Paper Works, Calder Vale, and the Heywood Town Council have also accepted plans for an extension to the Heap Bridge Paper Mill, owned by Messrs. Yates, Duxbury & Sons Ltd. Most of the British Mills are extending or increasing their capital and these are signs of progress and increasing trade.

Notelets.

German paper clothing can now be bought in London for less than the cost price of a song book.

Papermakers are well supplied with pulp for the present. Large shipments continue to arrive from Canada. The greater part consists of groundwood—but it will soon find a market in England.

Quotations for all pulps are unchanged. The market is dull.

The West Indies is now talked about as a centre for papermaking from bamboo. Those who have visited the West Indies, like myself, know that papermaking would be on a very small scale. Labor will be cheap enough but one would like to see more bamboo.

The technical schools in papermaking are now getting their winter programs ready. Classes are usually arranged for boys and men.

Chemicals are dearer in England owing to the railroads increasing rates.

The envelope was introduced in 1820 in Birmingham, but it did not come into general use until after 1840, the year stamps were introduced. Today the trade in envelopes and the paper for them is enormous. enormous.

A good many U. S. A. papermen are on a visit to England looking round—but not for pulp.

PULP AND PAPER WILL BE THERE.

When the Sixth National Exposition of Chemical Industries opens its doors in Grand Central Palace, New York City, Monday, Sept. 20, it will be the biggest display of its kind that has ever been seen. The total number of exhibitors to date exceeds 450, as against a high record for previous shows of 358, made in Chicago last year.

To house this large display four floors of the Palace are necessary, and the Chemical Show is the only exposition, outside of the annual automobile show, that requires such enormous floor space. There will be a remarkably wide range to the exhibits this year, and it has been decided to divide the exposition into sections. The Fuel Economy Division and the Material Handling Division, both new this year have attracted many prominent concerns.

Five symposiums are on the week's program, and at all of these men of prominence in the chemical world will speak. The symposiums are divided into the following classifications: Fuel Economy, Materials Handling, Industrial Management, Chemical Engineering and Ceramics. Motion pictures will be a feature every evening, and these should prove of great interest to the public.

One of the features of the week will be the meeting of Chemical Warfare Post, American Legion. At the request of this post the management set aside the evening of Wednesday, Sept. 22, for them to transact business. The post is composed of men who served in the war, and will be open to all C.W.S. men.

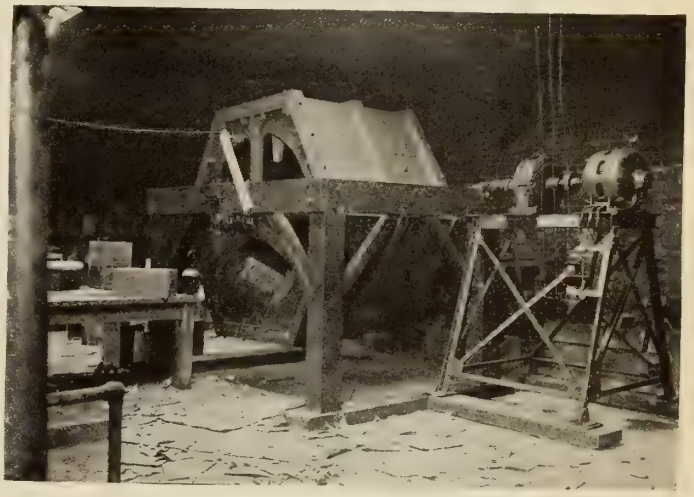
Dr. Charles H. Herty, chairman of the advisory board of the exposition, will open the display at 8 p.m. on the evening of Monday, Sept. 20. He will be followed by Charles L. Reese, who will talk on "Co-operation in the Industries," and Erastus Hopkins, who will talk on "Problems of the "American Exporter". Sir George E. Foster, Canadian Minister of Trade and Finance, will be the guest of the evening.

The motion picture program for the opening night consists of two subjects, "The United States Ammonium Nitrate Plant No. 2 at Muscle Shoals," by courtesy of Dwight P. Robinson and Co., and "Modern Packaging Methods," by courtesy of the Pneumatic Scale Corporation.

HOW STRONG IS A BOX.

In a test for strength of shipping boxes, the object of which is a simulation of the rough knocks, bumps, and jars of handling which a loaded box may encounter in railroad traffic, there has been designed a machine by which the railroad usage which a box may meet in a 2,000 mile haul can be duplicated in four or five minutes.

The first machine of this kind,—known as the drum box testing machine, was designed by the U. S. Government Forest Products Laboratory at Madison, Wis. The Mellon Institute installation is an improvement over the original tester in that the inconvenience of overhead pulleys and shafting has been done away with by the substitution of a reduction gear for cutting down the motor speed to the drum speed of 2 R.P.M.



A valuable field of investigation, and scientific study of the construction and materials of packages is opened up by the new machine, such as best methods of interior and exterior packing for fragile or irregular shaped objects; the determination of proper specifications for containers carrying various commodities, etc.

An offer of free service in the designing of scientific packing methods for various commodities capable of being shipped in fibre containers, which includes the use of this equipment, is being advertised by the Container Club of Chicago, an association composed of corrugated and solid fibre box manufacturers of the United States.

PULP AND PAPER NEWS

Mr. N. L. Martin, Secretary of the Canadian Paper Trade Association has sent out a call to the annual meeting of the Association to be held at the King Edward Hotel, Toronto, Oct. 6th and 7th. The members of the Book and Writing Paper Section of the Canadian Pulp and Paper Association have been asked to be present and an invitation has been extended to Mr. W. C. Ridgway, General Secretary of the National Paper Association of the United States to attend the gathering. An acceptance has been received and Mr. Ridgway will give an address. Important matters to be considered with the manufacturers are the protection of the paper dealer and direct selling by the mills. The secretary has asked for written views on these subjects and these will be tabulated and a consolidated report on them read at the meeting.

The United Farmers do not yet see their way clear to commence the publication of a daily newspaper. They will lead up to it gradually. At the annual meeting of the United Farmers Publishing Company in Toronto this week, the president, Col. J. Z. Fraser, announced that though the rising cost of everything connected with a newspaper, made a daily practically impossible, before the end of the year, The Farmers' Sun, the U. F. O. official organ, would likely be published three times, instead of twice a week.

The Jost Pulpwood Company of Campbellton, Limited, has been granted incorporation with power to deal in general pulpwood and lumbering business and with a capital stock of $75,000 and head office at Campbellton, N.B. The incorporators are P. M. Jost, A. E. Weaver, Dougall Cushing, G. S. McFadden and D. L. Labbe, all of Quebec province.

The members of the Imperial Press Conference reached Toronto this week on their return journey after visiting the Canadian West and on Tuesday were the guests of the directors of the Canadian National Exhibition at a noon day luncheon at which Viscount Burnham was the chief speaker. Before leaving on their special trains for the east the delegates were entertained at a banquet at Government House.

Mr. George Erskine of the Toronto office of the George H. Mead Co. was in Montreal this week attending a meeting of the board section of the Canadian Pulp and Paper Association.

The many friends of Mr. L. E. H. Harvey, of the Toronto office of the George H. Mead Company, will be pleased to learn that he is progressing favorably after having undergone an operation in a hospital in Montreal.

Among the improvements being made at the plant of the Abitibi Power and Paper Company at Iroquois Falls, Ont., is the rebuilding of their barking drum plant. For the past three years they have been operating four American barking drums, and recently placed their order for four additional drums with the Canadian Barking Drum Co., which will increase their barking capacity fifty per cent.

Good progress is being made with the rebuilding of the mill of the Don Valley Paper Co., Ltd., Toronto. The walls have been completed and in a short time the paper machine will be housed in what is practically a new mill. It was not found necessary to move the machine, the walls having been built to replace the old ones.

Mr. R. T. Taylor of the Keystone Press, Montreal, was in Toronto this week visiting his friend Mr. Charles Allen of the Allen Paper Co. Ltd.

Mr. R. B. Foulis, superintendent of the Georgetown Coating Paper Company, and his wife and family, who have been visiting friends in their old home in Scotland, arrived home this week after a very enjoyable trip abroad.

Mr. W. E. Duncan, president, and Mr. J. R. Evans, Australian representative of the Export Association of Canada, Limited, were visitors at the head office of the Provincial Paper Mills, Limited, in Toronto this week. Mr. Arthur M. Holmes, a paper buyer from Wellington, Australia, also called at the Interlake Tissue Mills office.

E. Pullan and Co., Limited, wipers and waste papers, Toronto, has an excellent exhibit at the National Exhibition in Toronto, samples of mop cloth, polishing cheese cloth, sweat cloth, cotton waste, lace curtains, polish linen, etc., being attractively arranged. The display created a good deal of interest and was viewed by many interested in the reclaiming of waste materials.

Considerable progress has already been made by the Fort William Paper Company, Limited, recently organized, with a capitalization of $15,000,000 and whose new mill at Fort William is now under construction. The unit now being built is a groundwood mill, with a capacity of 120 tons of groundwood per day. Although not connected with the Spanish River Pulp and Paper Mills Company, the new board comprises several men who are also officers of the Spanish River Co. The officers of the Fort William company are as follows:

President, John G. Sutherland, Dayton, Ohio; Vice-President, Lieut.-Col. Thomas Gibson, Toronto; Secretary and Assistant Treasurer, J. G. Gibson, Toronto; General Manager and Treasurer, W. L. Bird of Fort William. These four gentlemen and U. M. Hurlburt of Dayton, Ohio, form the Board of Directors.

Dr. Ralph H. McKee, who delivered the interesting address on fuel and alcohol from sulphite waste liquor at the summer meeting of the Technical Section, passed through Montreal, Monday, on his return from a business trip to England.

The Mattagami Pulp and Paper Mills are making extensive improvements and additions at Smooth Rock Falls, Ont. Several outbuildings are being erected as well as a new dining hall and a machine shop. Houses to accommodate sixteen families have been completed, while the foundations have been laid for eight more cottages. The company is very busy at the present

time and finds a ready market for all the sulphite pulp which it can produce.

The question of granting the English River timber limit concession to E. W. Backus again came before members of the Ontario Cabinet in Toronto this week when Peter Heenan, M.P.P. and others, including the Mayor of Kenora, made a further statement in support of the application. Premier Drury, Hon. W. E. Raney, Hon. Peter Smith and Hon. F. C. Biggs were present and heard the case presented but gave no decision. The feeling around the Parliament Buildings, it is stated, is that what is asked will not be granted.

Reference has been made to the water supply extension at St. Johns, N.B. and the Nashwaak Pulp and Paper Co. It is understood that when the additional water is available, the company will increase considerably the output of their product.

William J. Bishop, Ltd., have the contract for building the booms and crib dams for the Cape Breton Pulp Co., to which reference was made in our last issue.

J. T. Tractors, Cleveland, Ohio, have sent out a booklet with a couple of good pictures showing tractors on a logging operation.

Mr. J. A. Bothwell, General Manager of the Brompton Pulp and Paper Co. and Vice President of the Canadian Export Paper Co., sailed from Antwerp, September 8th, on the Lapland.

On an average of thirty-five carloads of pulpwood from Northern Ontario is being shipped into Thorold every day, according to railway officials. There is also a quantity of pulpwood being sent into Merriton. To offset this on an average of twelve cars of paper is being sent each day from the mills of these towns for distribution. Of this shipment eight cars alone are sent each day to Chicago, and the remaining four are sent to distributing agents in Ontario.

A despatch from North Bay, Ont., says that the Mattagami Pulp and Paper Co., Smooth Rock Falls, are increasing their present capacity by one hundred per cent., which means that the new production will be 250 tons of woodpulp daily.

MICRO-ORGANISMS ON OLD PAPERS.

(From La Revue Universelle de la Papeterie)

At one of the meetings of the Academie des Sciences the question of the presence of microorganisms on papers was brought forward.

The raw materials which enter into the manufacture of paper are subjected to so many causes of infection that there is no wonder that they carry numerous microorganisms. Contrary to the general opinion, these organisms are not destroyed by the various treatments to which the pulp is subjected, and they even resist a temperature of 120 deg. C. in the autoclave. Dr. Galippe has proved this. It is in this manner that laboratory filter paper is contaminated. For other kinds of paper, the harm, if it exists, is without importance.

Neither time nor heat have any effect on these infinitely small organisms, which can move about and reproduce themselves indefinitely after having been restored to life in the culture medium.

Dr. Galippe conducted his experiments on papers of the 18th and 15th centuries, and even on Chinese manuscripts older than the invention of printing and on Egyptian papyrus of about 3,000 B. C. In every case microoorganisms were found.—A.P.-C.

REGARDING SHIPMENTS TO WEST INDIES.

The following letter is printed, not because of the compliment to our International Number, though that is appreciated, but because the man on the spot has something important to say regarding shipments of paper to the West Indies.

The Editor,
Pulp & Paper Magazine of Canada.

Dear Sir,

I have to acknowledge the receipt of your letter of the 9th July, and by recent opportunity the copy of the Industrial Number of the Pulp & Paper Magazine, for which I have to thank you. I have perused this Magazine carefully, and have done so with great interest. The information given in regard to invoicing and shipping being very complete.

I would take the liberty of remarking that under the head "Invoicing", shipments of paper to the West Indies should always be accompanied with a certificate of origin. Several complaints have been received at this office from local firms in reference to omissions in regard to this matter. When the certificates are not forwarded importers are deprived of the benefit of the preference rate of duty, and then have to obtain a rebate when the certificates are forwarded.

In reference to "Shipping", I would state that it is very necessary that shipments should be made through Canadian and not through New York points, as it is within the writer's knowledge that shipments of paper to New York have necessitated packing it in cases, which adds considerable to the cost, and in addition, West Indian merchants object very strongly to paying for Canadian goods in New York currency, and several protests have recently been made by firms in regard to this practice.

Printing paper to the West Indies is generally shipped flat in bundles at about five reams.

I am very glad to have the list of pulp and paper mills in Canada given in the Magazine, as I am receiving several West Indian inquiries from agents in regard to Canadian paper mills and houses.

Yours faithfully,
LEWIS M. B. MEYERS,
Actg. Canadian Trade Commissioner.

Barbadoes, B. W. I.
August 23, 1920.

HAMMERMILL BUYS QUEBEC TIMBER.

Quebec, Sept. 13.—The Matane Lumber and Development Railway, owned by O'Brien and Doheny, has sold all its assets, real and personal, to an American company, the Hammermill Paper Company, of Erie, Pa. The deal, which involves the price of several million dollars, was completed last week in Montreal.

The timber lands acquired with the mill site, river improvements, etc., lie on the Rivers Matane and Cap Chat, on the south shore of the St. Lawrence, comprising an area of 133,000 acres.

L. G. Belley, K.C., of this city, who directed the purchase for the Hammermill Paper Company, states that his clients are to take immediate possession of their holdings, and will start their fall and winter operations this week.

The Hammermill Paper Company is a big industrial concern, manufacturing high-grade paper, its plant being situated with docking facilities on Lake Erie. Its head office in Canada will be in the city of Quebec.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Sept. 10.—The consensus of opinion among paper men generally is that the mills will have to protect themselves against the increased freight rate of forty per cent and that this and other circumstances will cause a stiffening of prices a little later on. There is, of course, the other view that the price is going to be regulated in the old way according to the law of supply and demand and that with the closing down of factories and the laying off of hands which is being done at the present time, the demand for paper products is going to fall off which in turn will mean lower prices. It is not held, however, that any slump in prices is coming. The fact appears to be that there is a decided slackening off in orders at the present time. But the quiet time among the printers and less enquiries for paper among the jobbers, have had no effect on prices and the fact remains that stock is just as hard to get and the warhouses are just about as low in stock as they ever have been during the recent rush years of the paper trade.

Box Makers are Quiet.

In one department of the paper industry at least a distinct lull in business is discernable. The closing of a number of the boot and shoe factories and other institutions using paper boxes has had a marked effect on the paper box trade and this is said to be showing some signs of reacting on the manufacturing end of the box board industry. Despite the fact that most of the mills report business good, the users of board in Toronto and district say that they are experiencing nothing like the difficulty in getting supplies of board now, while a few weeks ago it was almost impossible to get sufficient to keep the box manufacturers working. While this is so there does not appear to be any indication of any slackening of business as far as the box board manufacturers go. Mills are just as busy as ever and they have all the orders they can handle, although it is predicted by some that sooner or later the industry is going to be affected by the slackening of demand for paper boxes.

Bristols Going Up.

While prices in Canada have been holding firm, local jobbers have been advised of increases on American lines not made in Canada. Index Bristols, for instance, is a line extensively imported into this country and the records among the jobbers in Toronto show that from July 25th to August 30 there was an increase of 1c a pound. When the increased freight rates are considered and allowance made for the difference in exchange, it is reckoned that the Canadian jobber has to pay at least a cent and half a pound more for his index Bristols. In the same period Bristol board for shipment in September went up a cent a pound which indicates that there is no weakening of prices in these lines across the border.

After Canadian Business.

It has developed during the past week that both English and American houses have been after Canadian business and some jobbing houses are said to have made purchases of English book papers, although immediate shipment of course was not promised. The English paper bought is about the same price as the Canadian No. 1 but the purchaser has the benefit of the exchange and is able to make a fair profit on the imported article. In this connection it is worthy of note that a Scotch paper seller who has just reached Edinburg after a visit to Canada states in a letter to a Toronto jobber that on his return he found paper prices to have advanced from two to three cents a pound during his absence and that it was being predicted that the autumn would see a further advance. In the meantime supplies were not any more plentiful than they were a year ago in that country. It is known also that the week saw American salesmen in Ontario endeavoring to place orders for sulphite bonds from the mills in Maine. They quoted a price of 18c, but that didn't include duty and exchange considerations which would make the price higher than the goods can be obtained for in Canada where the price is 22½c. per pound. While no business was done with the Canadian dealers as far as can be learned the fact of the American mills seeking a market in Canada is taken as an indication that the American manufacturers have an eye to the future when the demand for their product on their own side of the line will not be so great as it is at present.

Pulp Still High.

The manufacture of paper is still being carried on under the greatest difficulty as far as the scarcity and high price of raw material are concerned. One Toronto mill this week paid as high as $170 for ground wood pulp and the buyer did not secure it without considerable combing. Other lines of pulp and ingredients are proportionately high and much of it is almost unobtainable, particularly groundwood pulp.

Rag and Paper Stock.

The waste paper market as a whole has been quieter the past two weeks, with practically no changes in prices except on hard and soft white shavings which showed a slight advance under renewed inquiries from consuming sources. Dealers as a general rule look optimistically to the future and higher prices are still talked of in the trade. One dealer reports having received $6.00 per cwt for No. 1 kraft but this is considered an extra quality packing. Mixed papers are moving in usual quantities and some of the mills report good stocks on hand. There are enough orders in the market however, to keep the price firm. Most paper stock dealers are watching the pulp situation closely as they feel that this will be the determining factor in the mixed and newspaper market this fall.

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$21.00—$22.00
No. 1 unbleached cotton cuttings	$16.50—$17.00
No. 1 fancy shirt cuttings	$12.50—$13.00
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$12.50—$13.00
No. 2 white shirt cuttings	$13.00—$13.50

City thirds and blues (repacked), No. 15	$3.75—$4.00
Flocks and satinettes	$2.00—$2.25
Tailor rags	$2.00—$2.10
Gunny bagging	$2.00—$2.25
Manila rope	$6.00—$6.50
No. 1 white envelope cuttings	$8.00—$8.50
No. 1 soft white shavings	$7.00—$7.50
White blanks	$5.75—$6.00
Heavy ledger stock	$3.75—$4.25
No. 1 magazine	$3.50—$3.60
No. 1 book stock	$2.75—$2.90
No. 1 manila cuttings	$5.00—$5.25
No. 1 print manila	$2.25—$2.50
Folded news	$2.25—$2.35
Over issue, news	$2.50
Kraft	$5.25—$5.50
No. 1 clean and mixed papers	$2.10—$2.20

NEW YORK MARKETS.

New York, September 11.—Although buyers of paper are keeping out of the spot market as much as possible, there is still a great deal of trade activity in various quarters and the situation displays no earmarks of easiness. On the contrary, paper prices are firm to strong and the tendency in the majority of cases is distinctly upward. With the fall drawing near and everyone looking for the usual stimulation of demand that develops at about this time of the year, unsold stocks of all kinds of paper are being held with renewed firmness ,and consumers looking for fresh supplies are finding it necessary to meet full quoted figures to cover their wants.

It must be said, however, that the spot market is showing greater quietness than in a long time. Buyers evidently are eking out contract supplies in such a manner as to enable them to refrain from absorbing further amounts of paper excepting in a limited way, and the movement of supplies to the transient trade is probably lighter than it has been at any period thus far this year. Some representative members of the trade express the belief that the present condition of the market can be likened to the "calm before the storm," that is to say, that buyers are keeping out of sight preparatory to descending on the market later on with a view of covering fall and winter requirements that have been left open up to the present. At any rate, paper manufacturers and dealers expect a busy autumn, and everything would seem to point to their expectations being realized. Large business concerns are planning huge advertising campaigns, retail establishments are preparing for a banner fall and winter business, paper box plants are booking voluminous orders for their product, publishers are seeking ways and means to secure additional paper so as to enlarge their publications; in short, various factors are in favor of a heavy consumption of paper during the next few months.

Possibly the most important market development of the past several days is the announcement by the International Paper Company of an increase of $15 a ton in its prices on newsprint for the last quarter of this year. The price for the current quarter was $115 per ton and the increase as announced will make the price $130 a ton, or 6.50 cents per pound, for newsprint in standard rolls in carload lots f.o.b. mill. The I.P. states that the advance in prices is necessary because of the rising cost of production. Other newsprint manufacturers are falling in line and are increasing their contract prices in accordance with the new basis fixed by the International.

There is a fair demand for spot lots of newsprint, and the great bulk of supply being offered is finding ready buyers. Small lots of roll news is selling at 14 cents a pound and higher in some cases although a more representative market price for prompt shipments at present is between 11 and 12 cents. Publishers obviously are keeping as much out of the market as their pressing wants will permit, being enabled to do so to a greater extent at the moment than hitherto for the reason that now is the time of the year when the consumption of newsprint is at about its lowest. A brief conversation with any publisher will divulge that nearly every newspaper in the country is short of paper required to fill out requirements over the balance of the year, and there are many members of the trade who predict that publishers will flock into the market again in search of supplies in the near future.

Book papers rule quotably strong and supplies are far from adequate to satisfy the wants of consumers. Mills are running at capacity and are shipping out their product on contract as quickly as it becomes available. Very little tonnage for the remainder of the year remains in manufacturers' hands and those having some output not contracted for are not anxious to dispose of such supplies for the present. Prices on book papers range around 17.50 cents a pound for machine finished book, between 19 and 20 cents on supercalendered and from 21 cents upward on coated book.

Wrappings are moving in consistent fashion and at steady prices. Demand for kraft wrappings features the market and most manufacturers are sold up on this grade. Tissues are firm in price and are sought in steady volume, although most of the movement into consuming channels is on contracts. There is a relatively active call for glassine papers and cover stock, and mills are finding it next to impossible to accumulate stocks of these papers.

The board market is firm and active. Box makers are operating their plants at a lively basis and are consuming increasing quantities of board while preparing customers for the fall clothing season. Prices on board range around $120 per ton for plain chip and $130 for filled news and manufacturers say that rising costs of production are likely to compel them to advance quotations further shortly.

GROUND WOOD.—A little easier tone has developed in ground wood and sales have been recorded at what represents slight declines in prices. Spruce ground wood of prime quality has been sold in some cases down to $130 a ton at grinding mills, and there have been reports of offerings in out of the way instances at as low as $125. The reason for this change in complexion of the market is said to be the anxiety of certain producers to dispose of small tonnages of pulp rather than to hold it at the high prices recently ruling. Grinders as a general thing have but light stocks on hand and most of them are not the least nervous over the outlook, it being the common opinion that mechanical wood pulp will be in strong demand once the summer period of dullness is past. There is consequently no great amount of selling pressure in evidence although some factors have weakened the market to an extent by unloading some supplies.

CHEMICAL PULP.—Quotations on chemical wood pulps are maintained and there is a lack of important feature in the market other than that arrivals of pulp from Scandinavia have increased to an extent. Steamers from Norway and Sweden with pulp in their cargoes have reached New York and other Atlantic ports during the past few days with comparative frequency, and judging from their manifests receipts of sulphite from these sources have been probably larger than in any similar period since prior to the war. Importers say, however, that practically all of this supply is on contract, and that, aside from putting some paper manufacturers in a position where they can afford to refrain from buying domestic pulps for a time, the effect on the market here is negligible. Prices on domestic grades rule steady, and there are no signs of supplies becoming freer.

Arrivals of foreign pulp at New York during the week include 9,400 bales from Hallstavik, 1,466 bales from Gothenburg, 10,522 bales from Christiania, and 2,990 bales from Trieste.

RAGS.—The rag market is characterized by a steady undertone and in respect to some grades, whites in particular, there is a strong advancing tendency apparent. Evidently paper mills are still experiencing difficulty in obtaining all the bleaching materials needed and are therefore buying proportionately larger quantities of white than colored rags, resulting in a keen demand for the former. New No. 1 white shirt cuttings have sold at better than 25 cents a pound at shipping points, and indications are that the advance in this grade has not yet spent its force. Old No. 1 repacked whites are bringing 14 cents and more, while new unbleached muslin cuttings are held at 19 cents, white lawns at 21 cents and No. 1 washables at 12 cents. Roofing rags are quotably unchanged at a basis of around 2.25 cents for No. 1 packing, and there is little or no alteration in the situation for thirds and blues, which are freely available to consumers at 4.50 cents at shipping points. Chief strength lies in the new rag end of the market and dealers lay much stress on the difficulty they encounter in replenishing stocks of such rags.

Receipts of foreign rags at New York this week include 95 bales from Antwerp 38 bales from Trieste, 88 bales from Rotterdam, and 204 from Hamburg.

PAPER STOCK.—Waste paper prices continue to rise and business has been recorded during the past several days at new record levels. Folded newspapers lead in demand at present and this grade of old paper is selling at as much as 2.75 cents a pound f.o.b. New York. Mixed paper is firm at around 2.15 to 2.20 cents, and there is a ready demand for kraft and shavings. No. 1 hard white shavings readily command from 9 cents upward, with some transactions reported up to 9.50 cents, while soft white shavings of No. 1 quality are bringing 8 to 8.25 cents at shipping points. The only quiet spot in the market is in flat stock. Book mills are buying rather sparsely and old books and magazines are obtainable at relatively low prices, No. 1 packing of heavy books being freely available at 3.25 cents.

OLD ROPE AND BAGGING.—There is a slack demand for old bagging and offerings of No. 1 stock at 2.50 cents are mostly going unaccepted by mills. Old rope is moving in moderate amounts at a price basis of around 6.25 cents for No. 1 Manila rope.

Arrivals of foreign material at New York this week include 220 bales of bagging from Antwerp and 50 bales from Calcutta, and 116 bales of rope from Gothenburg and 66 bales from Trieste.

THE MARKET FOR CHEMICALS AND FEEDS.

Alum.—Bauxite is still very scarce, because of car shortage. The small amounts of alum available are assigned to water works by priority.

Salt Cake.—Utah is offering this material at a price equivalent to $45.00 net ton Montreal delivery. Saskatchewan has sodium sulphate in crystal form, but freight costs make shipment prohibitive unless some means of drying at low cost be devised.

Soda Ash is slightly weaker in N. Y., but the Canadian market is well sold up. It is understood that the output from Amherstberg is to be increased and this may be available before the end of the year.

Bleaching Powder.—Is still very firm, the market even getting tighter; 8 cents a pound has been asked for spot at New York. Demand is very high and transportation situation still very difficult.

Salt cake, soda ash, and caustic soda depend on the output of muriatic acid, and this commodity is held back by attitude of miners, and the large use of gray salt. The decrease in use of gray salt for ice cream may ease the situation slightly.

Hay.—Ontario, Quebec and Eastern States have good crops which are not being moved very well owing to lack of help and transportation. $30.00 to $31.00 on carloads is the present quotation in Toronto, but indications are that the price will be a little lower when crop is made available. It is understood that the farmer will stand the increase in freight as the market should be rather easy.

The general feed situation is about the same as last month except that the new freight rates increase flour by about 25 cents per bbl. All feeds are thus affected to the extent of about $2.40 per ton.

CHAMBER OF COMMERCE AT PARIS HAS ACTIVE CANADIAN SECTION.

Among British Chambers of Commerce established abroad, that of Paris is conspicuous for its enterprise in serving the requirements of British Trade and Industry, and, furthermore, possesses a very active Canadian Section.

The Committee of this Section is composed of persons themselves interested in trade with Canada, and consequently is in a position to supply all the requirements of Canadian Members. The membership of the Chamber is restricted to firms of British nationality, it receives no subsidy from the Canadian or British Governments, and carries on its most necessary work entirely through the subscriptions of its members. To enable the Chamber to take up a firm position and thus sufficiently combat foreign competition, it very naturally deserves to continue to add to its membership.

Among other things it puts its members into touch with suitable agents in France, obtains information on the Commercial standing of French firms, supplies exact Customs classification of goods, notifies changes in French Customs duties and proposed commercial legislation, communicates enquiries from French buyers of British goods and, furthermore, publishes a very useful Bulletin of information.

Applications for membership should be made to the Secretary of the Canadian Section, British Chamber of Commerce, Incorporated, 6, rue Halévy, Paris.



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INQUIRIES SOLICITED.

THE PULPWOOD INDUSTRY OF GASPE.

"Old Subscriber" thus addresses the Montreal Star:—

Every time one picks up his newspaper the costs of newsprint is brought to his notice, his daily paper costs more and more, and a workingman cannot understand why this should be. There are large areas of pulpwood in Gaspe, a United States company with headquarters at New York, is doing an extensive business cutting the wood and shipping it on steamers to some part of the State of Maine where are large paper mills and it is put in the finished state. This firm ships over 200,000 cords of pulpwood yearly. This wood is easily attainable as most of it is floated right to the mill wharf with very little expense. This firm employs a very few men, and it pays the lowest wages for labor, also this firm will pay only $6 to $6.50 per cord of 142 feet, not under 5 inches top, placed on the river bank, to local people for pulpwood from the people's own land, but the bad feature of this industry in Gaspe is that the Government do not make this company build a paper mill here, if they want to use our raw material, where they could put this wood into a finished product right here in Canada, and give employment to a large number of men. There is lots of surplus labor in this district and it would keep the population from moving to large cities, and would leave money in the country which otherwise goes to the U. S. A. I do not believe in organized labor as a rule, but it would most certainly improve the workingman's lot at Gaspe.

MANITOBA PULPWOOD LOCKED UP.

Lack of transportation facilities is the only hindrance to the development of a good pulp industry in northeastern Manitoba, according to F. K. Herchner, inspector of Dominion forest reserves, who returned last Friday from a six weeks' inspection trip through the district between Norway House and Brassey Hill, about 100 miles from Hudson Bay. Mr. Herchner said the supplying of transportation facilities was a problem for the future.

To quote the Winnipeg Free Press:—"The timber along the Hayes river, as far north as Swamp Lake, is of a good hard quality, and in some places I found spruce 24 to 26 inches in diameter. Owing to the rapids, river transportation on a large scale is out of the question however, and travel is done entirely by canoe," Mr. Herchner said. "Most of the timber cut is used for fuel, and the very small quantity of lumber needed by the few settlers is whipsawn. The only saw mill in the district is owned by the Roman Catholic mission at Cross Lake.

"Very little timber has been destroyed by fire this summer, in spite of the unusually dry condition of the bush. Although a number of small fires have sprung up, they have been quickly checked, and the fire ranger at Norway house has had his men on the alert, following up campers and putting up caution signs in many places. Twenty-two Indian patrols are employed in this district alone, covering the area between the Black River and the east shore of Lake Winnipeg and Nelson river and the Ontario border. Many of the fires in this part of the country were caused by lightning," Mr. Herchner said.

BEHIND IN COAL.

Writing in the United States Paper Maker, "C.F. M." says:

Whatever the cause, the fact remains that the railroads are far behind in their coal deliveries: so far behind, indeed, that there is little hope for them to catch up this year. When winter comes on the railroads will find themselves busy keeping the houses warm and supplying public utilities; and the industries will simply have to run on short time, if at all. That situation may tremendously reduce the supply of paper: it may also correspondingly reduce demand, though I do not think the effect will be so noticeable in that direction. Certainly it will do nothing to help us catch up.

Is there profiteering in paper? Well, I would not say it is as bad as that. Generally speaking, I believe the mills are reasonable. The fabulous prices we hear talked of apply to a very small percentage of the total production. The great bulk of all the paper now being made is sold at a fair price. Of course some fancy prices are obtained by "speculators on the sidewalk": and it is intimated that here and there we find a mill sold for six months ahead that can nevertheless dig up a few pounds for immediate delivery to the highest bidder. And there is always some high bidder at hand.

But we must not forget some of the mills have experienced many lean years. Now that they have the opportunity it is not surprising that they are inclined to pass their plates for a second helping. After all, paper makers are mostly human: some of them generously human. Take them as a class, I like them.

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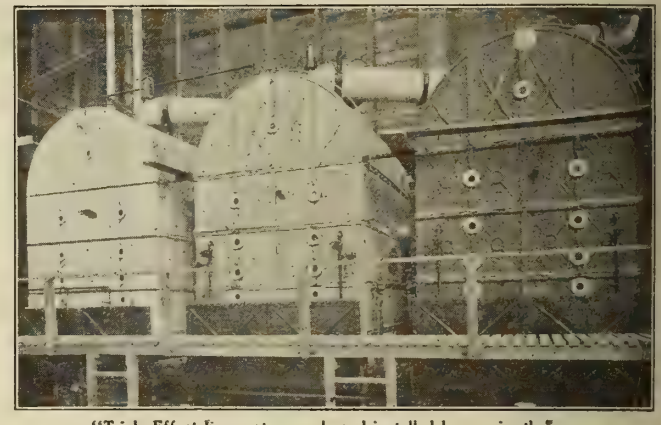
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VOL. XVIII. **GARDENVALE, P. Que., Sept. 23rd, 1920.** **No. 39**

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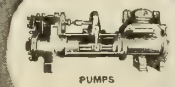
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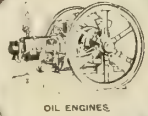

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-:- EDITORIAL -:-

RED.

Perhaps the one topic that has been most before the public through the press of the United States and Canada during the past week has been the explosion that occurred in front of the United States sub-treasury building and the offices of J. P. Morgan and Co., in New York. A great many opinions have naturally been formed and expressed on the subject and the best detectives on the continent are busy with the investigation. There is considerable inclination to consider that the work of the Red element is at the bottom of this outrage. The United States has already taken a strong stand with regard to such alien enemies who unfortunately are only too often encouraged by the so-called free thinkers, advanced socialists, etc., among influential citizens.

Whether or not the New York affair was a Bolshevik outbreak, there is no doubt but that there is a great deal too much propaganda going about unanswered and unchecked which is intended to arouse suspicion, distrust and unrest among the people of Canada and the United States. The difficulty is doubtless in considerable part due to the failure to acquaint the new comer, and particularly the illiterate new comer, in the duties and obligations of Canadian and American citizenship. An illiteracy test of a very elementary character is applied to the immigrant but practically nothing is done to provide for or to encourage further educational effort. Thus, the immigrant is naturally influenced most by the first smooth talker who comes along and arouses his enthusiasm. It is probable that in most cases the workman who comes over here from Europe or elsewhere would have been well satisfied to make normal progress and to advance into a position of comparative wealth and comfort—great in somes cases by comparison with former conditions—were he permitted to make progress according to his own ability and ambition and not interfered with. There are however, too many agitators who make their easy living by stirring up such people to false ideas of grievance and injustice and it is now certainly time for something very definite to be undertaken to counteract the work already done and to inoculate those who have not been poisoned against such propaganda, which in spite of its name it really most anti-social. On another page is a quotation from a speech delivered almost a year ago that bears very directly on the subject of the activities of the radical element among labor. Until nation-wide, united effort is made along the lines suggested by Mr. Webb it is encumbent upon every good citizen who has a voice or a pen to use it in the interest of good citizenship.

That organized labor in Canada is thoroughly awake to the danger of an active and unopposed Red element and to the obligation that Trade Unionism along with other such organizations is under to preserve order and stability in the country is well shown by the fine note that ran through the meetings last week at Windsor, Ontario.

If less effort was wasted by both laboring men and employees in fighting each other and this energy blended into a well organized and enthusiastic campaign for good citizenship and the best possible conditions of living and labor there would be practically no need to fear such events as transpired in New York. There will be no need and no support for them.

IS IT A WILD CAT?

In the Pulp and Paper Magazine last week notice was given of the incorporation of a new pulp and paper company together with a description of their limits, list of officers, etc. It has been mentioned that some rather extravagant statements were given in the prospectus which the company issued and consequently the proposition is looked upon by some of the more conservative financial houses as a wildcat scheme. For instance, there are not many areas in Canada that would average ten cords to the acre and it seems also that the company has figured this stand as being available on the very considerable area of water included in the limits. Furthermore it seems that some of the cruisers have included in their estimate trees down to four inches on the stump. The revised timber regulations of Quebec place a minimum diameter for spruce pulpwood at 12 inches except for certain swamp types where seven inch wood may be cut. No mention is made of the existence of any burned areas, extensive windfalls or dead timber due to the ravages of insects, fungus or frost, apparently all standing trees over four inches in diameter having been counted as pulpwood.

The most extravagant statement however, is the estimate of profits. The Financial Post of last week jumps, with both feet as it were, on the statement of the promoters that they can make groundwood for $19.50 or less and sell it on a two year contract for

$150 per ton. The Post presents it this way as a simple problem in arithmetic:

150 — 19.50 = 130.50.
130.50 X 15,000 = 1,957,500.
Just like that!
Which, being interpreted, is:

The Lake St. John Pulp and Paper Co. have discovered a means of manufacturing groundwood pulp these days for $19.50 a ton. And they can sell it for $150 a ton! Or, 517 per cent. profit! And on two years' contract at that, so see how sure it all is—those profits.

There are others besides the Financial Post who would like to see those contracts or to meet a few large consumers of groundwood who are as eager as that to cover requirements for two years or even less.

The limits of the company and their water-powers are doubtless located according to their map. The amount of water power has been inspected, to some extent at least, by provincial authorities and according to the statement of Mr. F. T. Kaelin made in 1915, the river mentioned in the prospectus has available eleven thousand H.P. The statement regarding fire protection appears correct and certainly the existence of the St. Maurice Protective Association is one of the greatest assets of the pulp and paper companies of Quebec, but we don't find the predecessor of the new company among the members.

It is in connection with new propositions of this kind that there is the greatest opportunity for misrepresentation and the greatest need for investors to go carefully and weigh all of the factors. On the other hand is the opportunity, if the proposition is sound, to assist in building up the industry, and some one must make a beginning. The success and soundness is largely a matter of the experience and integrity of the men behind the proposition. In this case the editor is not acquainted with anyone connected with the new company and therefore has no opinion whatever to express, but as readers have often noted on these pages, we want to see everybody have a fair chance to get a good start with an honest proposition.

PLEASE PASS US A RAILWAY.

"A railway is just what is needed to open up the resources of north Frontenac. There is an area from one to three miles covered with maple, hemlock and basswood that has never been cut, while the lakes are teeming with fish, twenty-five pound salmon being the ordinary catch. As a county man, he states, these things will be presented to the railway board when the application is made for a branch line to the feldspar mines."

So we read in the Kingston, Ont. "Whig" regarding the wants of north Frontenac county as expressed by a "county-man". It sounds as if he spoke as one asking for a pound of butter because he had a slice of bread. Railroading has apparently changed from the time when a man like John R. Booth, or a concern, having material to dispose of, built their own road and by enterprise and industry made it pay. Is the little patch of wood, which might engage lumbermen a couple of years, all there is for the railroad? Would a road open an agricultural area for which there is an urgent demand or should it be left to grow forest? In this case a light logging track or even a tractor road might be better. What would the gentleman say if we were speaking as provincial or federal man?

COBWEBS.

Advance proof of the 1921 Safety Calender of the National Safety Council has come to light. It is a dandy. Another case of laugh and learn.

From the pictures in the last number of the "Brown Bulletin," the Brown Corporation has selected a beautiful spot for its forest nurseries at Cupsuptic Lake.

While magazines are calling attention to the difficulty they have in getting paper, an American periodical last week carried a full page advertisement in a Montreal paper.

Of the 40,345 acres of timber lands in the St. Maurice Protective Association area in 1919, 34,170 acres were cut over or old burns. Almost half the total being cut-over land. What was wrong with the cutting?

Gee whizz! We had to pay **seven cents** for a Montreal Gazette on the train. The street price is five cents. We admire the publisher's courage to charge what his paper is worth. It was worth seven cents, so there is no kick coming.

Present paper prices in Britain do not indicate immediate imports in quantity to Canada. We have recently seen the following quotations per pound: M.F. or S.C. Printing (book), 8d.; Imitation Art, 9d.; Vegetable Parchment, 1s. 7½d.; Write Printing (extra quality), 10½d. These are very nice papers, but at 8d. plus 25s. for export packing and about £1 per ton freight, the market will have to be a bit lighter before much business is done.

Fears that the pulp lands of Ontario have about reached the vanishing point are dispelled by the news that a few thousand acres more have been found and turned over to United States paper interests.

—Barrie, Ont. "Advance".

Agitators as Advertisers*

I attended a dinner of The Sphinx Club, given at the Waldorf, in New York, two weeks ago last night. This was the 163rd Sphinx Club Dinner in something like twenty-three years; and since the Sphinx Club functions very largely through dinners, it may be considered something of an expert on giving dinners and in the selection of after dinner speakers.

The third speaker was Mr. Sherman Rogers, who appears to be something of a free lance on labor; and who opened his remarks by a statement that he felt out of place, the tuxedo which he stated he wore for the first time that night apparently completing his discomfort.

Rogers had the large knuckles of a man who has worked hard with his hands. And his face, from time to time as he talked, fairly writhed with the intensity of his feelings and his efforts to express them. But he gave the key-note to his views on the labor situation by expressing his opinion that when the railway men, to use his words, went to Washington two years ago and, figuratively, presented a pistol to the head of the Government,—saying, "We demand this and that, or we'll strike," they should have been told to strike.

Rogers stated his convictions that a great deal of preventable trouble originated right there, and has been going on and growing ever since through radicals having obtained at that time a false idea of what they can really do.

Rogers began then to outine his own experiences as a laboring man, first—going into what happened to him among the lumber camps in the Pacific northwest just previous to the Seattle strike, at which time he was foreman of a gang of lumber jacks. "These men," he said, "are mostly I.W.W.'s now, but as fine a bunch of men at heart as ever drew the breath of life. They were thoroughly contented and happy; better off with the six dollars a day they were making than ever before in their lives. Then suddenly," he said, "the whole situation changed—in a night. A band of agitators swept through the country and the next morning the men were out of hand." He questioned his own particular gang, "What is the matter with you," he asked. "Aren't you satisfied, aren't you making big wages?" "Yes," they sneered back, "we are, we are making six dollars a day; and the Lumber Companies are making Sixty Dollars a day out of each one of us." There was no holding them. They went down to Seattle and took part in the strike.

"This statement," Rogers said, "that the Lumber Companies were making Sixty to One Hundred Dollars a day per man out of its workers was untrue. They were actually on the verge of bankruptcy, but the men did not know this. They had been told to the contrary, and they believed it." No effort was made, apparently, to set them right.

In Chicago, before the stock yard strike; in Pennsylvania, before the steel strike; in New York, along the waterfront; wherever he has been and had the opportunity to investigate, according to Rogers, the same general type of statements are made to the workers. "Yes, you are making so much; but your employers are making ten times as much per day out of your efforts." These statements, he claims, have invariably been untrue, but he makes the point that a lie is as bad as the truth **if the men believe it.** He states, too, that literally tons of literature in their own language is going into the homes of these men preaching the same false doctrine—with never a word of the truth finding its way to them. The public is apathetic and indifferent. The American Federation of Labor, with the rank and file sound at heart, seems scarcely more alert.

Two to five per cent. of rotten apples are ruining the whole barrel. He quoted Foster and other labor agitators time and again from their various published utterances, in which they urged the I.W.W. and the direct-action groups, to sink their own identity, to disintegrate, **but to join the American Federation of Labor and smash it from within.**

The Literary Digest for October 25th, quotes Sherman Rogers from the New York World as follows:

> "Approximately 300 strikes are now in effect in the United States and Canada. The most peculiar phase of the situation is the fact that nine-tenths of the present strikes are outlaw walkouts, and as a result, the conservative leaders of The American Federation of Labor are greatly concerned over their loss of authority.
>
> Mr. Rogers summarizes the results of his investigation as follows:
>
> One—The present unrest is not caused by economic disturbances.
>
> Two—Working men, generally speaking, are saving more money than at any time in the period of American history. And in proportion to the cost of living, are receiving the highest wages ever paid in this country.
>
> Three—nine-tenths of the present epidemic of strikes is the result of a wide-spread campaign, headed by a skilfully conducted, methodically organized body of revolutionary leaders, whose sole object is the disruption of the present social sysem. Their campaign of slanderous misrepresentation, intended to cause suspicion and class hatred, is being vigorously waged throughout every city, village and hamlet in the United States.
>
> Four—Conditions will rapidy regain normality as soon as there is a concerted movement among loyal Americans to acquaint working men with the truth in the same manner that the radicals reach them with gross misrepresentation."

Apparently, the American Federation of Labor is largely like the public, and is being swept along by the radical five, or four, or three per cent. or less, which is rapidly gaining control; which, in fact, has already apparently gained control to such an extent that the leaders can no longer govern their men, and are yielding to radicalism more and more in the effort to hold what influence they still have.

All the while nothing is being done to meet the **advertising drive** of radical agitators, to save decent labor as well as ourselves, from what they are driving us towards.

A lot of us, apparently have felt that this thing is a disease; that the country is sick; that there isn't anything special that we can do about it; that we must just wait until the country gets over it.

As I listened to this speaker at the Sphinx Club

*Extract from an address before the Advertising Club of Baltimore, October 29, 1919, by Frank D. Webb, Advertising Manager of The Baltimore News.

Dinner, however, I came more and more to believe that this thing isn't a disease except to the extent that a very small, noisy, poisonous minority of men, who gain —and expect to gain more by it—are vigorously engaged in spreading disease germs.

They are using advertising for this purpose, very bad advertising, because it is generally untrue. But it is getting results and we are letting them get away with it. Instead of letting them make money out of it, because they are so successful—let's see that they don't make money out of it because they are so unsuccessful. Instead of its being an occupation paying better than any possible honest work could pay, let us educate the masses of American Labor through advertising until this business of being an agitator becomes one of extreme peril at the hands of the would-be dupes; alongside of which, almost any honest occupation, no matter how moderate its pay, will look good by comparison.

Rogers mentioned a number of Cleveland firms, in which locality there has been a good deal of labor trouble, and which banded together for the purpose of putting the facts before their employees. This group included among others, I believe, The Hydraulic Pressed Steel Company. Instead of hand-picking their labor and keeping those out who were apt to make trouble —they invited them in. The more radical they were, the more the companies wanted them. And free speech and meetings were encouraged. The only stipulation being that, whenever such meetings were held, the plant manager, statistician or owner, or some such authority, was on hand to speak at the same time agitators spoke and to see that the men got facts. Not a strike, according to Rogers, has taken place in a single one of the plants in this association since that time. And even in the steel strike, employees of the Hydraulic Pressed Steel Company did not go out. Strikers marched down past the plant with a brass band at their head, but not a man left his bench.

In expressing his confidence that the great masses of the men are honest at heart, Rogers says that he has even had several talks with Big Bill Haywood and believes that he has almost converted him, simply by proving facts Haywood heretofore doubted.

If this man is anywhere near right, let us go in the game too. If the truth put squarely before them will get the results he feels it will, and there are other incidents, from other sources, which would seem to prove the same thing, for the love of Heaven let us give them the truth.

Sherman Rogers spoke of one strike which was called in which he heard the grievances of the employees and the answer of the employers, who are stating these facts to the strike leaders. "Why don't you tell the men those things?" he asked. "The leaders are paid to call strikes and to win strikes—not to call them off. You are telling your facts where they can do no possible good."

The Rev. H. P. Molyneux, Pastor of St. Brendan's Catholic Church, Braddock, Pa., is quoted by Iron Age as having said in the course of a sermon several weeks ago, that the Steel Strike is not being brought about by intelligent or English speaking workmen, but by men who have no interest in the community and who do not have the welfare of the men at heart. He said that in the previous two weeks he had talked with at least two hundred millworkers with regard to the strike; all intelligent English speaking workmen, some from his own parish, some from outside. "I could not find one instance," he said, "where the men wanted to go out on strike. They all stated positively and clearly on the other hand, that they were well treated and satisfied with conditions."

"There is one thing I have noticed about these strike leaders," continued Father Molyneux, "and that is that with very few exceptions they never had on a workman's blouse in their lives, never went into a mill in a pair of overalls. These men were never seen with the honest sweat of toil on their brows, the tan brawn is not on their hands. They are a lot of smooth oily-tongued talkers with a kind of sympathetic whine appealing to you. They are royal gentlemen of leisure, they always wear fine clothes. A strike should be the last resort for redress of a grievance and all other means should be exhausted before men resort to a strike."

The point is, those strike agitators make money out of it. Therefore, the folly of the men who argue, "Let's fight this thing out right now **and settle it once and for all.**" This is the strike agitators' business and we don't settle them once and for all. They will keep at it as long as they make money out of it.

Let's advertise so well that the strike agitators, who come into a community, will run up against working men who know the truth in advance of their coming. Let's do the work so thoroughly that in time we won't be put in the position of having to **answer** lies, but will have told the truth to labor so well that they will detect the lies when they hear them first recited. And crooked agitators when that state of affairs comes to pass, will address falsehoods to enlighten working men in peril of their lives. Let a few of them get beaten to a jelly by men angry at being lied to. Let a few of them get the medicine which is now administered by strikers to decent men, only asking to be let alone and allowed to go on with their work, and strikes won't be so popular and strike leading so popular and lucrative a calling.

John T. Frey, Executive Officer of the International Moulders' Union, and Editor of its official journal, tells an absorbingly interesting story in November Metropolitan on what can be done merely through employers and employees getting together.

Every movement of that sort is worth while, and the proper sort of foundation on which to build advertising. Firms should know the address of every employee, the language spoken in each home, the personnel of every family group, etc., so that just as the radicals—the I.W.W. and the various direct action groups, appeal to them with radicalism, with false doctrines, etc.—in their own tongue, we can appeal to them with the truth in their own tongue.

If a strike is threatened, and we have gotten in possession of **all the facts**—not merely the surface bunk which the agitators put out to influnce public opinion —but the real thing with which the agitators are filling the minds of the most ignorant, is the strike so likely to be called do you think if in addition to full page statements of all the facts in newspapers, appeals based on the facts are directed at the women in the homes in their own language? Put the justice of the situation up to them. Will they stand for the misery and discomfort to them of an unjust strike, or one that can be avoided? Hardly. The strike agitator will go up against the balance wheel, if we can get the truth to the women, which will make his efforts four times as difficult.

"But this plan is too much trouble—or too expensive."

Is it a patching to the trouble, the mounting expense of everything that comes into our daily lives, the largest single factor in which is steadily decreasing production? Is anything too much to undertake to avert the downright desperate danger into which we are so steadily running and at such high speed? At that, the trouble and expense isn't greater than that met and surmounted daily by the average well organized advertising department of any large concern.

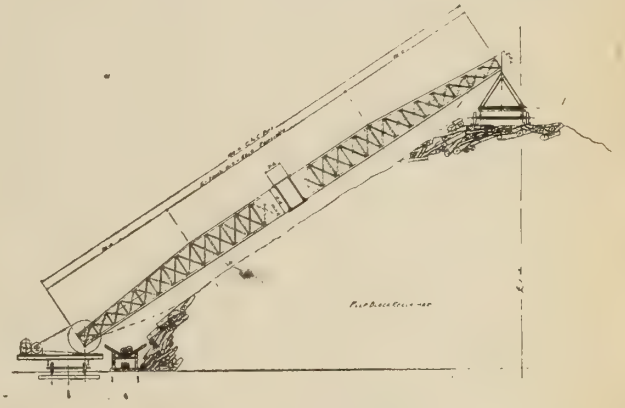
This is simply a new advertising proposition, or rather a slightly varied phase of the same old one. We want to sell our own proposition to our own forces. We have been so busy selling it to everybody else that we haven't bothered with our own employees. Let's tell the truth to both public and employees at the same time.

There is an opportunity for everyone of us in this drive as individuals and organizations. Any trouble any of us see developing in our own various industries, at any time when it is no bigger than a man's hand, we should immediately investigate, at the earliest possible moment bringing advertising to bear on the situation. At the same time we should report it to the Club, so that the organization can work to prevent growth by removing cause.

Strikes are the fashion everywhere; men strike for anything. In some localities they strike first and announce what they're striking for afterwards. Let's substitute real advertising for the advertising medium of the strike. In sixty to ninety days, if we do our part, and spread this idea broadcast at the same time (as no one should know better how than advertising men) the whole face of things should change. A new idea could be driven into the heads of American people. It should be possible to kill the idea that strikes are the only possible way of getting differences adjusted in less time than that, and with the various communities all over the country thinking peace instead of internal war, as at present—with a spirit of "get-together", instead of "fight-it-out," universally abroad in the land, calling these big stand-and-deliver monstrosities would be impossible because the great mass of labor would have been won from false radicals and instead of following blindly towards ruin for themselves and everyone concerned, would be fighting to achieve the wonderful possibilities which are now open before this country as never before in the history of the world—if we can once get together. And with advertising we can get together.

DRAGGING DOWN PULPWOOD PILES SAFELY.

A device recently perfected and which bids fair to revolutionize the handling of the wood from storage at the pulp and paper mills is a reclaimer being marketed by the Canadian Reclaimers, Limited, of Toronto, which has just been organized with Mr. R. W. McKenzie, formerly of the research department of the Abitibi mills as President and Managing Director. The reclaimer picks off the pulpwood blocks from the storage piles and when it is stated that the machine is capable of delivering 40 cords per hour into the conveyor, its value as a labor saving device can be readily seen. The main principle in the designing of the reclaimer was to retain the angle of repose of the pile, so that the blocks would come into the conveyor as needed. Accomplishing this, the machine was designed with a bottom carriage running on a portable track on the ground. Connected to this carriage is a boom lying at approximately the angle of repose of the pile with its upper end resting on the crest of the pile on a small truck. This boom, by means of idlers, carries chains which drag down the slope of the pile and which pull the blocks into a portable conveyor at the base of the pile. The chains have pointed attachments set at such an angle that they will engage the wood and start it in motion. The sage in the chains makes it possible to dig a swath from 4 feet to 8 feet in depth into the storage pile. After the chains have dug to their capacity, the reclaimer is moved laterally



along the pile and the dragging continued until the full length of the pile has been covered. The boom is then shortened and the machine is moved back along the pile, dragging as it goes. By thus taking the wood from the face of the pile rather than from the bottom, it accomplishes the systematic handling of the blocks. It also eliminates the dangers due to slides which are a serious problem when the angle of repose of the pile is broken.

The reclaimer promises to fill a long felt want in pulp and paper mills and rossing mills where they have no stackers, for when put in use as a stacker, it is built up as it makes the pile. By the time the wood is all stored in the fall, the machine is in place to be used as a reclaimer. When used to stack wood it again cuts the cost considerably over some of the present methods of operating. It is claimed by the promotors that there is no other machine in the market that takes the wood from the pile and that there is a big field for the machine both in Canada and the United States where it is proposed to operate. As yet the machines are being constructed under contracts with other firms but later on the company plans to manufacture its own product throughout. Others associated with Mr. McKenzie in the enterprise are W. C. Soubliere, T. Linsey Crossley, E. A. Kemp, A. E. Marks and W. J. Boyd, the latter three prominent financial and business men in Toronto. The company has an authorized capital of $50,000.

It is gratifying to note that, in connection with their agreement between the city of Fort William and the Fort William Pulp Co. there is a clause relating to labor conditions which has been thoroughly discussed in public and fully approved by the citizens. Nothing like a good understanding at the start.

"A careless man is shortsighted," says the Safety League.

PULPWOOD FROM LABRADOR.

To a person who is familiar with the northern extension of our Atlantic coast which goes by the name of Labrador, it is always amazing to discover the misconceptions concerning that region, which exist, almost without exception, in the minds even of educated and otherwise well-informed persons. The words "lonely", "remote", "desolate" seem to picture the qualities which the mention of Labrador unfailingly calls to mind, while the association with icebergs and an occasional seal imply an immediate juxtaposition to the North Pole. It follows, therefore, that one is usually met with an incredulous smile when he states the fact that Labrador lies between almost exactly the same parallels of latitude on this side of the Atlantic which the British Isles occupy on the other, and that for all the ignorance which exists concerning it, the coast is literally just around the corner from us—much nearer the northeastern extremity of the United States than Alaska is the northwestern.

Climatically Labrador is divided into two regions, the coast and the interior. The former is a few miles wide and is Arctic in character, the latter is a few hundred miles wide and is what one would expect to find in the fifties of north latitude; that is to say, it is well watered, densely forested and quite similar in character to the North Woods, hot in summer and cold in winter. This amazing disparity in climate between two regions so close together is due entirely to the fact that the polar current, setting southward out of Davis Strait, prevents the seaboard from ever growing warm. There is floe ice along shore until late in the spring and there are bergs, though not in sufficient numbers to be a serious menace to navigation, all summer long; and the temperature of the sea water rarely gets far above 32 degrees. Thus, it is the Arctic condition of the coast which is abnormal, if one may use that word of an established natural condition, and it is the north temperate climate and flora of the great interior which is "normal" and as it should be; but the sea coast forbidding aspect has so long been synonymous for Labrador that it is hard for any one to believe that there can be anything but barren tundra behind.

I shall never forget my own surprise at my first glimpse of the hinterland. We had been for days skirting the coast in one of Dr. Grenfell's hospital launches and had seen nothing but ice and bare rock—not a bush or a blade of grass. At last we swung west around a great headland and started threading our way up a narrow defile between immense hills of a blackish rock. After about a half hour's steaming we came upon a little clump of dwarfed tamarack nestling in a hollow. Then suddenly the vessel turned a sharp corner and we came out abruptly upon the waters of a beautiful big lake, surrounded by gently rolling hills covered to the water's edge by a forest of spruce and tamarack so dense that one could see scarcely ten feet back into it. The air here was warm and the sky overhead blue; we felt as though transported back by some magic to the shores of an Adirondack lake. Yet this was all deep water, easily navigable by the largest ship. Perhaps half a dozen white men at most had ever seen it before us.

This description will fit, with modifications as to distance, the head of almost any one of a nearly innumerable series of inlets and fjords, for the coast is very much indented and looks on the chart almost like the fringe of a rug. Hamilton Inlet penetrates the farthest—nearly 150 miles straight back from a line drawn across the outlying headlands—and its inner half, Lake Nelville, is a veritable inland sea of about the size and shape of Long Island Sound. When I last visited this water its shores were strewn with quantities of saw logs from a raft which had broken up in a storm. This was the aftermath of the efforts of a half-baked Nova Scotia concern. It lacked the equipment to collect the logs, and it did not long survive their loss.

More recently, however, the knowledge that there is behind that forbidding, desolate coast an almost limitless supply of readily accessible wood has begun to attract interest for purposes other than lumbering. Pulp wood is every year more greatly in demand and more difficult to secure. Moreover, timber which is not sufficiently tall or heavy for profitable lumbering is commercially valuable for pulp wood. In many cases this has resulted in denuding forests of their young growth. Labrador is probably the one place on earth where this would do no harm, unless it be to an occasional spruce hen. The country is singularly devoid of game.

The timber consists chiefly, almost entirely in fact, of spruce (Picea nigra) and tamarack (Larix americana). In size it runs from a few inches to two feet in diameter at the butt. The farther inland one penetrates the larger the timber grows, but my personal observation has been that two feet is about the limit, except for occasional trees. It grows most abundantly around the heads of inlets and along stream courses. The higher hills are bare, as are likewise considerable stretches of elevated plateau.

Roughly speaking, the northern limit of the timber is in about 57 degrees north latitude. At least I have seen none to the northward of this at a distance some fifteen or twenty miles back from the coast, though at Davis Inlet in 55 deg. 5' it is abundant. This means that there is a belt of timberland some 400 miles long north and south, which is immeditely accessible by navigable waterways which is immeditely accessible by navigable waterways to an average depth of perhaps 30 miles, without counting the great interior basin of Hamilton Inlet. The timber is suitable for pulp wood and is of little or no value for any other purpose.

A pulp wood enterprise has already been undertaken upon the Alexis River, on the southern portion of the coast, not far from Dr. Grenfell's hospital and mission post at Battle Harbor. Others will doubtless follow and it may be that the inundation of the "lonely Labrador" by foreign workers is just around the corner of the future if given adequate means and knowledge. —J. T. Rowland in "Scientific American."

The English Electric Company Ltd., in addition to their four other plants in England has purchased the Siemans Works at Stafford and has taken over the business of the Siemans Company of Canada Ltd. The English Electric Co., Ltd., will handle a complete line of electrical equipment. Offices will still be at Transportation Buiding, Montreal, and Mr. C. W. Stokes remains as manager.

It is stated that while on his visit to Canada, Mr. G. R. Hall Caine was made a trustee of the American Paper and Pulp Co., and a director of the Saguenay Pulp and Power Co., The Chicoutimi Pulp Co., Ltd., the St. Lawrence Pulp and Lumber Co., and seven other subsidiary concerns.

Mould Growths on Wood Pulp

By FREDERICK BARNES, Shawinigan Falls.

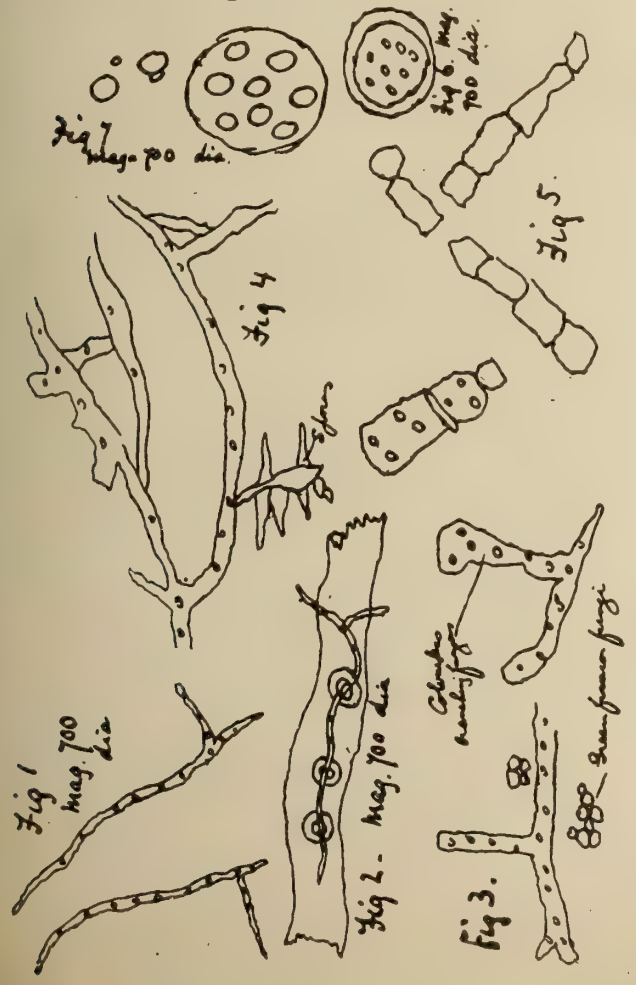
With the growing interest in the investigation of causes for the deterioration of pulp, the literature is being searched for information on the subject . In the Pulp and Paper Magazine for January 1912, there appeared the article by Mr. Barnes which is here repeated, as that issue is not available to many of those now interested in this matter.

The following notes were obtained during the period when the writer acted as chemist to a large English paper mill using large quantities of mechanical and chemical pulps.

The mill in question kept large quantities of pulp stored in the open in large stocks, exposed to the weather for long periods of time . During the year 1907 some of the stocks of mechanical wood pulp were opened up and discovered to be seriously damaged by rot; to such an extent had the deterioration gone, that many a thousand dollars' worth of pulp was utterly ruined and 20 to 25 per cent. of the pulp was rendered soluble in water.

During the years 1908-1910, many shipments of both Scandinavian and Canadian pulps were found to be more or less damaged by fungoid growth and rot. The writer examined a large number of samples from the contaminated bales microscopically with the view of determining the main cause of the deterioration.

Numerous kinds of fungi and mould growths were observed, some of which are illustrated here. The chief effect of these growths was a more or less black-



ish discoloration in the pulp produced by a microscopic fungus, described as a species of Clados porium:

Fig. 1 shows the mycelial threads of this fungus, sketched under a power of 700 diameters.

Fig. 2 shows the mycelium growing through one of the discoid markings of bordered pits of coniferous wood.

It is evident from this, Fig. 2, that the fungus is of very minute nature and its destructive power very great. This type of fungus is evidently responsible in most cases for the systematic decay of groundwood pulp, the main work of breaking down the fibre substance being done by enzymes emanating from the fungus.

The mycelium of this fungus was observed in most cases where decay had set in, though in the cases where the degradation had proceeded to a maximum, the mycelial threads (if any) had disappeared along with all trace of fibrous structure.

Fig. 3 shows a type of green fungus growing on the surface of the sheets of paper in the interior of a bale of Norwegian hot-ground pulp. The mycelium of the fungus was colorless, the green color being due to quantities of green fission fungi.

Fig. 4 shows a type of white fungus growing on the surface of the sheets in the interior of a bale of mechanical pulp. The white threads were covered with spores. Large quantities of spherical and elongated cells, motile and otherwise, were present, also motile bacteria.

Fig. 5 shows a sample of black fungus found in a bale of Nova Scotian pulp. This fungus was sparsely scattered through the pulp, but showed up very conspicuously, due to the relatively large dimensions of the growth.

Fig. 6 shows a type of organism preponderating in a sample of rotten Norwegian pulp.

Fig. 7 shows the fission fungi responsible for the decay of the outside edge of a bale of Quebec pulp. The interior of the bale was infected with the dark mycelia of Cladosporium. In this case, the fission fungi probably found a good feeding ground on the already infected pulp and rapidly rotted the external parts.

The Chromogenic moulds noticed were chiefly of a brick-red color; this particular mould only developed on bales which had stood exposed to the air for considerable periods. The growth was entirely a surface action, obviously aerobic in character. This type of mould had very little tendering effect on the pulp. Yellow and violet moulds were also noticed.

In one case, fungus had attacked some Swedish moist sulphite pulp. The sample examined was from a bale at the base of a stock, and was permeated with the mycelia of fungus; the cellulose fibres were broken up into short lengths as in rotten ground wood. The larger types of branching fungi noted above, do not appear to deteriorate the pulp to a great extent, as they are of rapid growth and surface action.

To determine the rapidity at which fungoid growths and other discolorations in pulp increased in area, an experiment was conducted as follows: Five bales of pulp, contaminated in various ways, were taken. After thorough examination, all the conspicuous

markings were carefully outlined on the moist pulp with violet pencil; the bales were then removed and built up into a compact stack, surrounded on all sides, top and bottom, with moist sound bales. The stack was finally covered in with cotton felt and left untouched for six weeks, then re opened and examined.

The discolorations pencilled off were: (1) Black fungoid growth at edges of sheets; (2) White branching fungus; (3) Small, dark grey spots (Cladosporium) scattered about sheets; (4) Greyish markings due to reaction of iron and tannin bodies; (5) Dark brown stains.

On re-opening the bales it was found that (1) The black fungus had sensibly increased in area; (2) the white fungus had pushed into the bale far beyond its original limits; (3) the grey Cladosporium spots had increased slightly in area; (4) the grey iron stains had spread slightly; (5) the brown stain had increased about 20 per cent. well into the bale. These tests prove fairly conclusively that in the short space of six weeks a sensible increase in fungoid growth and in other contaminated areas had taken place, and serve to show the danger of keeping infected pulps in the stock for any length of time.

The brown stain in the pulp seems to have originated entirely from outside sources as it contained more tannin bodies than the unstained pulp. A probable explanation of this is that the bale had been placed on a wooden platform or wharf in contact with a pool of water rich in extractive matters from wood bark.

This sort of thing is to be avoided, as the more impurities an organic body contains, the greater tendency there is for that body to decay.

Experiments were also carried out to ascertain whether rotten wood pulp could affect sound pulp by direct contact Pieces, of rotten pulp were made up with good pulp into bundles and wired up, then incubated for several weeks. No trace of deterioration of the sound pulp could be detected where the bundles were opened up.

PULP AND PAPER COMPARED WITH OTHER EXPORTS.

A further analysis of the tabulated report of Canada's pulp and paper exports and touching on other wood products is given as follows in the Ottawa Citizen.

In wood and wood products alone Canada sends the world a quantity which exceeds in value what she receives from outside her own borders by $219,254,875. In the twelve months ending July 31st, 1920, Canada exported as measured by value received the following quantities:—Newsprint, $60,084,414; other paper, $12,060,050; manufactured wood, $122,706,285; wood pulp, $57,919,248; and other manufactured wood, $3,919,651, a total of $256,689,648. Imports in the same period were as follows:—Paper, $11,912,692; and wood, $25,522,081, a total of $37,434,773. In both cases for every item this represents a great increase over the same period in the previous year and a still greater over 1918. Contrasting the above figures with those for the twelve months ending July 31st, 1918, it is seen that there has been a phenomenal increase in exports to the value of $124,660,770 or 95 per cent. and of imports to the value of $13,893,281 or 59 per cent.

In the paper exports newsprint bulks large as the great money getter for Canada. An analysis for the first four months of the present fiscal year, that is April, May, June and July—shows that the foreign demand for this chief product of Canada outside of those originating on the farm is still on the increase. One can fairly deduce, seeing that the export for 1920 for these four months brought into Canadian pockets $21,916,549 as against $15,035,927 for 4 months in 1919, the same rate of increase would hold good for the rest of the year. The increase in quantity for this period was only from 4,269,216 to 4,906,188 cwt. showing that a greater increase probably came from raising the price than increasing the export sales. The total of all papers sale for these four months in 1918, 1919 and 1920, respectively, was as follows:—$14,487,110, $17,532,409 and $26,423,454. The total foreign wood pulp sales compared for the same periods were respectively, 4,431,459 cwt. valued at $12,220,692 for 1918, 3,417,740 cwt. valued at $9,534,827 for 1919, and 5,904,075 cwt. valued at $26,070,593 for 1920 to July 31st. This year at least paper manufacturers outside Canada are getting their partly manufactured supplies.

Pulpwood Exports.

In pulpwood also they are getting more than last year though not so much as in 1918 as shown by the following figures for the first four months of 1918, 1919 and 1920:—645,723 cords valued at $6,232,254; 328,386 cords valued at $3,260,241; and 368,851 cords valued at $4,061,376.

The United States as greatest buyer of paper is paying much more this year than last.

Here are the comparative figures for all paper manufactures exported to the Southern Republic for the first four months of the fiscal years of 1918, 1919 and 1920 respectively: $12,323,501 and $14,053,282 and $20,798,774. For the United Kingdom the increasing figures run: $364,878 and $988,550 and $1,548,102. To other countries they were $1,798,731 and $2,490,577 and $3,076,578. Wood pulp exports to the United States were for the same periods consecutively $11,145,654 and $7,136,018 and $20,839,881; to the United Kingdom, $7,089 and $992,486 and $3,436,193. Pulpwood exports were to the United States, $6,232,254 and $3,260,241 and $4,061,376. To other countries we sent no pulpwood.

Newsprint Increase.

A further analysis of newsprint figures shows that for the four months under consideration exports have increased to the United States, the Argentine, South Africa and New Zealand, while decreasing to the United Kingdom and Australia. These decreases matter little in the aggregate as the United States takes 91 per cent. of the whole exported newsprint. For these four months the United States took 4,426,763 cwt., valued at $19,721,910, as compared with $3,749,315 cwt., valued at $13,218,611 for the same period in 1919. The totals of newsprint received by the other countries for the last four months were respectively: the United Kingdom, $197,835; Australia, $592,383; Argentine, $393,547; New Zealand, $313,278; and South Africa, $285,122. The total exports for these four months of paper pulpwood and pulp were respectively: United Kingdom, $4,984,295; United States, $45,900,031; and other countries, $5,671,097, a grand total of $56,555,423, as compared with little more than thirty million dollars for the same period in 1918 and 1919.

Belgian Paper Industry Recovering

(By Special Correspondence)

The remarkable recovery of the paper industry in Belgium is set forth in the following tables and comments. It is particularly interesting to note how widely these products are sold in the world's markets.

The pulp and paper imports and exports of Belgium for the six months ending June, 30, 1920, as compared with the corresponding months of the previous year are given in the following tables, in kilograms, (1000 kg.=2,204 lbs, approximately 1 long ton.)

Wood Pulp (Free)

Origin (imports)	Imports		Exports	
Destination (Exp.)	1919	1920	1919	1920
Germany	301,052	126,328	.....	2 0,386
Canada	.....	347,621	.....	.....
Spain	.....	.....	.....	50,537
United States.	10,400	263,297	.....	.....
France	170	.....	.....	6,721,427
Great Britain.	3,519	.....	.....	.....
Hamburg	.....	518,610	.....	.....
Norway	5,304,609	30,728,955	.....	.....
Holland	4,010,847	614,173	.....	415,734
Sweden	4,945,510	22,329,230	.....	.....
Other Countries	.....	1,396,702	.....	.....
Total	14,576,107	56,324,919	.....	7,388,084
Total for year	54,979,061	.....	1,437,313	.....

Wall Paper (Dutiable)

Germany	27,280	188,890	.....	.....
Argentine	.....	.....	.....	10,306
Chile	.....	.....	.....	19,430
Spain	.....	.....	9	21,227
United States	19	975	.....	7,139
France	249,631	378,096	534	691,830
Great Britain	625,785	534,519	.....	13,923
Mexico	.....	.....	.....	9,000
Holland	3,193	79,951	.....	52,155
Peru	.....	.....	.....	3,918
Switzerland	17,426	647	.....	74,446
Turkey	.....	.....	.....	11,240
Other countries	49,313	376	139	119,165
Total	972,647	1,183,454	682	1,033,837
Total for year	1,889,217	.....	533,009	.....

Board (Dutiable)

Germany	.....	438,978	.....	.....
France	24,266	71,601	13,000	20,931
Great Britain.	362,370	385,987	.....	116,005
Hamburg	.....	31,760	.....	.....
Norway	25,516	95,463	.....	.....
Holland	1,441,383	917,434	.....	19,541
Sweden	106,648	247,292	.....	.....
Turkey	.....	.....	.....	3,850
Other Countries	36,240	441,804	.....	7,882
Total	1,996,403	2,630,319	13,000	198,209
Total for year	4,514,823	.....	52,075	.....

News Paper (Dutiable)

Germany	19,364	31,400	.....	.....
Great Britain.	983,091	.....	.....	.....
Holland	2,581,268	2,365,115	.....	150
Other Countries	499,578	324,927	15,134	109,667
Total	4,083,301	2,721,442	15,134	109,817
Total for year	8,155,775	.....	99,801	.....

Non Denominated Papers (Dutiable)

Origin (Imports)	Imports		Exports	
Destination (Exp.)	1919	1920	1919	1920
Belgian Congo	.....	.....	.....	33,672
Germany	68,743	3,384,633	11 695	113,528
Argentine	.....	.....	.....	34,686
Australia	.....	.....	.....	26,042
Brazil	.....	.....	.....	3 948
Canada	.....	20,311	.....	67,126
Chile	.....	.....	.....	1,190
China	.....	.....	.....	524
Cuba	.....	.....	.....	21,120
Denmark	.....	2,688	.....	25,799
Egypt	.....	.....	.....	80,982
Spain	1,215	.....	178	15,792
Straits	.....	.....	.....	2,876
United States.	14,449	319,556	.....	121,579
France	360,094	1,056,805	45,225	3,792,913
Great Britain.	935,561	2,012,905	277,906	2,089,332
Greece	.....	.....	.....	140,677
Hamburg	.....	4,777	.....	.....
British India.	.....	.....	.....	70,964
Dutch India.	.....	.....	.....	14,902
Ireland	.....	.....	.....	118,078
Japan	.....	1,534	.....	87,793
Norway	302,875	469,079	47	72,470
Holland	1,215,112	1,583,648	16,396	697,178
Russia	.....	.....	.....	359
Sweden	273, 08	944,440	.....	33,459
Switzerland	1,545	51,029	17,536	98,275
Tunis	.....	.....	.....	12,324
Turkey	.....	.....	.....	47,947
South Africa.	.....	.....	156	1,177
Urugay	.....	.....	.....	2,567
Other Countries	6,660	123,024	44,123	158,386
Total	3,179,292	9,974,453	413,202	7,989,666
Total for year	10,707,017	.....	3,471,557	.....

RECAPITULATION

Articles	Imports		Exports	
	Six first months of the years 1919 and 1920			
	1919	1920	1919	1920
Wood Pulp	14,576,107	56,324,329	.....	7,388,084
Tot. of the whole year	54,979,061	.....	1,437,313	.....
Wall Paper	972,647	1,183,454	682	1,033,837
Board	1,996,403	2,630,329	13,000	198,209
News Paper	4,083,301	2,721,442	15,134	109,817
Non denominated Papers	3,179,292	9,974,453	413,202	7,989,666
Printed matter. – Books, sheet, wire-St.	414,351	457,115	9,093	190,909
Bound books	112,166	168,047	24,232	348,718
Newspapers, periodicals, etc.	1,403,531	1,010,479	10,102	124,139
non denominated.	217,092	817,698	12,731	115,237
Total	12,378,783	18,963,007	498,176	10,110,532
Tot. of the whole year	29,962,871	.....	4,573,749	.....

From a Belgian point of view, the most interesting figures in the above records are those of the paper exports. The enormous increase, as compared not only with the corresponding months of the previous year, but especially with the first four months in which period they attained a total of 5,556,661 kg. shows evidently that the restoration of the Belgian Paper Industry has entered its final state of completion. This is shown moreover by the fact that the sudden development of the export trade correspond exactly with a slackening in the home market.

The "wave of reduction" that was disastrous to several of our industries has not been without an effect the paper trade. Home consumers are still refraining from buying and as there seems to be some stock, some mills have already reduced their output.

Strikes, more of a political than of a material character, in some of the leading mills, have lead to a complete capitulation of the employees and helped in this manner indirectly, to strenghten the position of the Paper Industry in general, bth twards the trade and the employees.

Prices have gone somewhat back, but have a tendency of going upwards again. Quotations are at present as follows per 100 kg. on mill :

Board, straw	140	165 fr.
News	360	370 "
Sulphite writing	420	470 "
Sulphite Bond	540	600 "
No. 1 Manilla	410	450 "
Butchers Imitation Parchment	415	450 "
Grease proof	500	650 "
Brown Wrapping, strong	300	350 "
Brown Wrapping, ordinary	200	250 "

The pulp market is holding firm. The only sulphite and sulphate pulp mill in Belgian using in its own paper mill its whole output. All other paper mills depend entirely on foreign supplies, which these last months were rather more than up to the demands. Prices went abck, owing for a great deal to the more favorable rate of exchange. An advance is in sight and it is feared that for the next months supplies may be behind as it is reported that Great Britain and France, have purchased important quantities in Sweden.

Prices f.o.b. Antwerp are at present, per 100 kg. :

Mechanical	155	200 fr.
Sulphite bleached	410	440 "
Sulphite unbleached	235	250 "
Sulphite easy bleaching	255	295 "
Sulphate easy bleaching	225	235 "
Kraft	198	215 "

After all, notwithstanding difficult periods, all paper mills have been enjoying till now a golden time. As I stated in my previous report all made big profits At the last stockholders' meeting of the Anciens Etablissements Louis De Noeyer, held this month, the dividend for the past fiscal year was fixed at 80fr. whereas the usual amount was 40-45 fr. and for one exceptonal year 52 fr.

Paper mill stocks have been driven up to unusually high rates and it will be worth putting them on record in a following article.

INDUSTRIAL CO-OPERATION.

The following is an extract from an address of Mr. George W. Sisson, Jr., delivered before the American Paper and Pulp Association during the recent convention.

"It is natural during a period of readjustment that great industrial problems should arise, or that long standing difficulties should be emphasized. A careful study of industrial conditions in America and a somewhat exhaustive inquiry into the efforts made and the attitude taken by the more thoughtful, farseeing and enterprising manufacturers to meet the demands of the hour, reverse any maladjustments of the past and prepare the developments of the future, gives warrant for the hope that these disturbing problems will be solved by a process of orderly evolution, having as its basis a genuine spirit of co-operation and good will predicted on clear recognition of mutual responsibility as between employer and employee and by them jointly to the public. Capital and labor will reach the sure ground of adjustment whenever, through sanity or suffering they arrive at a willingness to be fair. Fairness is absolutely necessary to the full development of industry. It is as essential as steam. It asks nothing of generosity, nothing of mercy; it is simply the child of justice, and before it no labor difficulties can long endure.

A situation conducive to dissatisfaction lies in the present high prices of commodities caused by underproduction and the lowered purchasing power of the dollar. We must prod our production. The outstanding fact of the situation is that the workers of the United States and those who direct them can and must produce an ample supply of the things that contribute to the comfort, security and refinement of our life. All of us are producers except the few who evade the common duty; and with every man working to reasonable capacity by way of doing his share of the nation's work, no general or prolonged shortage can exist."

THE USE OF SULPHUR AND SAND IN SEWER PIPE JOINTS.

In constructing a main line thirty-six inch sewer for the conveyance of acid waste, for a pulp mill in Quebec, the question arose as to what material should be used in pouring the joints. Cement was out of the question on account of the deteriorating effect acid would have upon it. A number of mills were corresponded with upon the subject but no very satisfactory method was recommended.

Ultimately the use of sulphur and sand was suggested by the Engineering Department. Lead wool was considered but rejected upon the ground that the cost was high. On the other hand, sand was available on the ground from excavations and sulphur could be purchased at the dockside in Three Rivers .

The method used was as follows :—

"An ordinary iron boiling cauldron over an open wood fire was used for heating the sulphur and sand. The proportions used were one to one. The whole was heated until the sulphur melted and a semi-liquid mass formed. Three pipes were placed vertically in the trench and by means of a galvanized conductor pipe bent at one end to fit into the flange of the pipe, the mixture was poured from a ladle on the top of the trench directly into the joint. The joints of each section of the three pipes in the trench were then poured in the ordinary manner with the use of a runner."

"The inside of the joints were pointed with wet clay. The joints cast and became solidified in about one hour after pouring. The length of time for solidification of course depended upon the coldness of the weather.

The joints so far have been all that could be desired, having neither blow-holes nor cracks. The solidified sulphur and sand is extremely hard and the only impression made on it with a large knife was to scrape fine particles away. In appearance it it almost metallic.—C. K.

ENORMOUS ECONOMIC LOSS DUE TO STRIKES.

A total of 6,516,764 working days—the equivalent of more than 20,000 working years, or one year for more than 20,000 men—were lost directly by strikes in the first five months of 1920, according to the New York World.

The known loss in wages and output is placed at $104,443,370.

Losses entailed by idleness of the coastwise longshoremen, the harbor boatmen of New York and the switchmen on strike at the New York terminals have been estimated at an additional $53,160,000, bringing the gross known loss to a minimum of $157,603,370.

In reality, however, the losses have greatly exceeded this huge sum.

Losses due to the enforced idleness of 250,000 in the steel district surrounding Pittsburgh as a result of transportation troubles, and the penalties, estimated at $30,000,000, imposed by the "outlaw" switchmen in Chicago, are not included in the conclusions stated in the foregoing paragraphs.

As a result of its survey of industrial conditions throughout the United States, just completed, The World finds that the feeling of the public is one of disapproval of all strikes and that "the open shop plan appears to be growing steadily."

The workman is beginning to realize that all strike losses are eventually coming out of his own pocket.

Imperial Forestry Resolutions

Mr. Clyde Leavitt, chief forester for the commission of Conservation has kindly contributed the following summary of the very important resolutions passed at the Imperial Forestry Conference in England in July. They were thus reported in the London Times:

The British Empire Forestry Conference, which has held several sittings in London during the last fortnight and concluded its official deliberations yesterday, adopted the following resolutions, which the delegates are to bring to the notice of their respective Governments :—

Forestry Policy.

In view of the great importance to the Empire as a whole, as well as to each of its component parts, of producing a sustained yield of all classes of timber, and of encouraging the most economical utilization of timber and other forest products, and of maintaining and improving climatic conditions in the interests of agriculture and water supply, each of the Governments of the Empire should lay down a definite forest policy to be administrated by a properly constituted and adequate forest service. (Mover:—Mr. H. R. Mackay, Australia seconder, Mr. E. Battiscombe, East African Protectorate.)

Survey of Resources.

The foundation of a stable forest policy for the Empire and for its component parts must be the collection, co-ordination, and dissemination of facts as to the existing state of the forests and the current and prospective demands on them. To this end it is of first importance that a systematic survey be undertaken in each part of the Empire which will not only serve as the basis of forest policy in that part, but also provide a means for reviewing the forestry position of the Empire as a whole. (Mr. A. J. Gibson, India; and Mr. E. H. Finlayson, Canada.)

Constitution and Status.

In order to attain continuity in the development of forest resources, it is desirable that certain elements of stability be secured in the constitution of the forest policy. This may be done by the following measures:—

1.—The definition, where this has not been done already, of forest policy in a Forestry Act or Ordinance.

2.—The reservation, for the purpose of economic management and development, of forest land under conditions which prevent the alienation of any which is primarily suitable for forest except for reasons consistent with the maintainance of the forest policy as a whole.

3.—The assurance to the Forest Authority of funds sufficient to carry out the accepted policy for a series of years.

4.—The grant to members of the Forestry Service of the status of Civil servants, with due provision for pension.

5.—The appointment as the chief officers of the Forestry Service of persons having a high standard of training in forestry, their selection and promotion being by merit alone.

6.—The establishment in each of the larger parts of the Empire and for the Colonies not possessing responsible government, collectively, of an officer, or officers, having special duties of advising as to forest policy and surveying its execution. (Mr. C. E. Lane Poole, Australia, and Mr. C. S. Rogers, Trinidad.)

Organizations of Forest Industries.

It is extremely desirable that the Forest Authority should be in close touch and consultation with organizations representing the interests concerned in the extraction and utilization of timber and other forest products. (Mr. M. A. Grainger, British Columbia, and Mr. W. D. Ellis, Colonial Office.)

Publicity.

It is the duty of the Forest Authority in every part of the Empire to adopt and encourage methods of education and publicity in order that the people may be fully informed of the aims and purposes of forest policy and may thus be induced to cooperate towards its successful fulfilment. (Mr. C. E. Legat, South Africa, and Sir Hugh Shaw-Stewart, Consultative Committee, Scotland.)

Distribution of Forest Plants.

The Conference have had brought to their attention the advantages which have accrued in several parts of the Empire from the wide distribution of forest plants, and desire to bring the method of encouraging tree-planting by distribution of plants either from Government or private nurseries gratuitously or at cost price, to the earnest attention of their Government. (The Hon. E. Lucas, Australia, and Mr. A. J. Gibson, India.)

Terminology and Trade Nomenclature.

The following questions should be referred to the proposed Forestry Bureau immediately on its formation :—(I.) Standardization of forest terminology, (II.) correct identification of timbers, and standardization of their trade names (Professor R. S. Troup, India, and Mr. P. H. Clutterbuck, India.)

Research.

Scheme of research work approved by the Conference is recommended to their Governments for early consideration and approval by them. This takes the form of the report from a committee appointed "to prepare a draft scheme for the organization of that research work which is essential to the progress of forestry, including both the production and utilization of forest produce, the committee to pay particular regard to the importance of avoiding overlapping and of cooperation with existing institutions." The report deals with the organization and sub-division of research, with the relation of the different parts of research to one another and to education and practice, and with the subjects of research both generally and in relation to the needs of the different parts of the Empire.—(Professor R. S. Troup, India, and Mr. H M. Thompson, Nigeria.)

Education

It should be a primary duty of forest authorities throughout the Empire to establish systematic schemes of forestry education. It has been found, for climatic and other reasons, that it would not be possible for each part of the Emire to establish a complete scheme of forestry education of its own, and therefore it is essential that those parts of the Empire which are willing and able to establish complete systems should, as far as possible, frame such schemes with a view to combining for meeting the needs of those parts which can only themselves make a partial provision for their requirements. Part of this subject has been dealt with by a Committee, whose report, which refers mainly to the higher training of forest officers, is approved by the Conference. The main principles embodied in this report are as follows:—

1.—That one Institution for training forest officers be established in the United Kingdom.

2.—That students be selected from gradutes having taken honours in pure or natural science at any recognized University.

3.—That it be an integral part of the work of the Institution to arrange supplementary courses at suitable centres for students requiring special qualifications and also special courses for forest officers from any part of the Empire, whether at the Institution itself or at centres of training in other parts of the world. The Governments should recognize these courses as part of the ordinary duties of the forest officers, at any time during their service, and the Governments concerned should give special facilities to forest officers in their service to attend such courses.

4.—That a Department of Research into the formation, tending, and protection of forests be associated with the training Institution.

5.—That encouragement should be given to the existing provision made by Universities and colleges for forestry instruction for those who do not desire to take the full course suggested for the forestry service. It appears that this is especially applicable to the United Kingdom. It is also desirable to make adequate provision for woodmen's schools for the training of foresters as distinct from those which are intended for forest officers. (Mr. H. R. Mackay, Australia, and Mr. C. E. Legat, South Africa.)

Forestry Bureau.

The conference approve the suggestions and recommendations for the constitution of an Imperial Forestry Bureau which are contained in the report of a committee, and strongly urge upon their respective Governments that they should contribute to the support of the bureau as therein suggested. They feel that it will be largely upon the work of such a bureau that the proper development of the forest resources of the Empire will depend, and they therefore cannot over-emphasize its importance as a part of Empire organization. (Mr. R. L. Robinson, United Kingdom; and Mr. L. Palfreman, Sierra Leone.)

Future Conferences.

The conference is convinced that the holding of conferences of representatives of the Empire on forestry matters is of great service. They desire to thank the Forestry Commission of the United Kingdom for causing the conference to be assembled and for making the necessary arrangements. They recommend that the next conference be held in the year 1923, and that, if the Dominion Government approve, it be convened in Canada. (Sir Claude Hill, India, and Mr. F. D. Acland, United Kingdom.)

SEMI ANNUAL REPORT OF LAURENTIDE.

Following the meeting of the board of directors of the Laurentide Company, Limited, held at the office of C. R. Hosmer, the vice-president, the financial report of the company for the first six months of its operations, was given out. At the board meeting, Mr. Hosmer occupied the chair, in the absence of George Chahoon, Jr., Sir Lomer Gouin, the newly-elected director, took his place at a board meeting for the first time since his election.

The financial statement of the company, covering the first six months of this year's operations, is an excellent one and indicates a large growth in earning power. The new company took over the plants and operations of the old company as of January 1 of this year.

As compared with the earnings of the old company, the first six months are but little behind the full twelve months period reported on a year ago. Total income from operations from January 1 to June 30, amounted to $2,566,673, compared with $2,955,979 in the previous full year, and $2,593,835 in the 1918 year. After the usual charges, net profits before deducting dividends amounted to 1,499,539 for the six months, compared with $1,823,657, in the 1919 year and $1,704,655 in the 1918 year.

As the capital stock of the new company is just three times the amount of that of the old company, earnings percentages are interesting. The new company has a paid-up capital or $28,800,000, which stands as a first charge against earnings, there being no bond issues or preferred stock. On this basis, the company earned in the six months 5.20 per cent on the outstanding capital, or at the rate of nearly 11 per cent for the full year. On the old basis of capitalization, $9,600,000, earnings in the half year were at the rate of 15.61 per cent compared with 18.99 per cent for the full year 1919, and 17.75 per cent for the 1918 year.

In other words, in the half year just ended the new company earned equivalent to nearly 32 per cent on the capitalization of the old company.

After providing for dividends for the six months of $864,000, surplus remaining was $635,539.

Profit and loss account follows:

	6 ms. 1920	Yr. 1919.	Yr. 1918.
Op. income	$2,566,673	$2,955,979	$2,593,835
Inter., etc	304,447	236,926	227,296
War T. res.	280,000	240,000	240,000
Pens. Fd.		150,000	150,000
Deprec. & depletion	482,687	505,396	271,884
Net profit	$1,499,539	$1,823,657	$1,704,655
Dividends	864,000	1,392,000	960,000
Surplus	$ 635,539	$ 431,657	$ 744,655

The balance sheet of the company is probably the most interesting portion of the statement, however, inasmuch as it indicates a sharp growth in assets for the new company as against those indicated in the last report of the old company. For instance, property account is given, as at June 30 last, at $21,599,846 net, as compared with but $8,335,635 in the report of the old company a year ago.

The various items included in the balance sheet, however, while comparable, are somewhat misleading in table form, as they do not altogether check up, item for item, especially on the liabilities side of the account. Total assets, which now amount to $35,087,015, or about double the $17,612,520 reported last year, indicate how great the growth in general valuation has been.

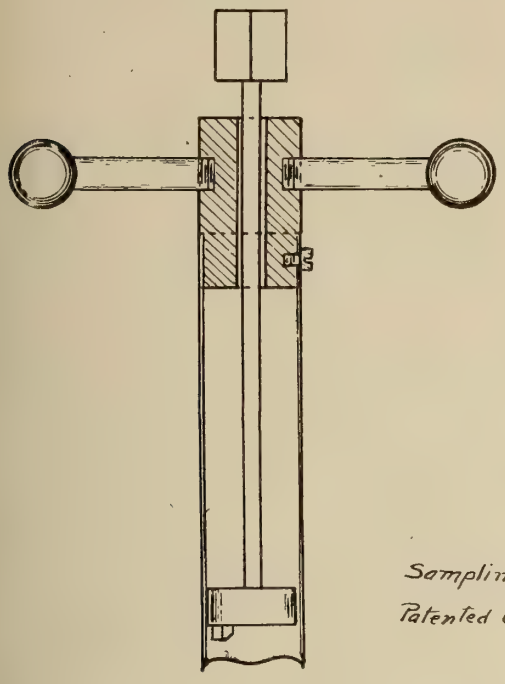
The statement of working capital is probably more revalent than anything else of the financial strength of the company at the present time, and the great progress that much have been made during the past six months, despite the fact that the company had not then entered the period when the really high newsprint prices prevail.

Current assets amount to $13,431,229, as compared with $7,264,463 reported by the old company a year ago, while current liabilities now total $5,377,761 compared with $1,882,416. This indicates net working capital of $8,053,468 as compared with $5,382,046, this being an increase of no less than $2,671,422 over the 1919 showing.

PULP SAMPLING TOOL.

We have recently been informed by Mr. M. L. Griffin of a sampling tool for cutting discs, which obviates the central punch and swinging arm which made disc sampling difficult.

Upon receipt of the blue print, and further inquiry we find that this tool was devised by a Canadian about twelve years ago and is now manufactured in Canada



under license, as it is patented both in the United States and Canada.

We are indebted to the inventor for the cuts accompanying this article and the following description:

Cut of the tool in section shows the scalloped cutting edge, chiselled inside. This is necessary to prevent binding. The discs cut are 1 3-8 inch in diameter, from tool as now on market. Nothing is gained by larger size. The plunger used to push out the simple is provided on one side with a stud that tends to turn the sample into an inclined position for expulsion. The sample is obtained by circular motion with the tool vertical to the surface being cut. While if necessary, the bales, rolls, or laps, can be cut in any position, they are most readily cut when in a position for the operator to press down vertically while grasping the handles, and with both arms straight, or nearly so.

The print shows comparative sizes of samples by disc and strip methods.

Ten laps were sampled. The strips were cut with a broad chisel, across the lap. This took forty-five minutes. The discs were cut through the center of the lap, thus getting samples out of twelve places in the unfolded sheet, a row of four holes across the sheet at three places in the machine direction.

The strip samples weighed over 7000 grams requiring practically all the space in an oven 24'' x 36'' and 24'' deep when spread out to dry. The disc samples took eight minutes to cut, weighed a little over 600 grams and were conveniently dried in the 6'' x 12'' wire tray shown behind the sample. This tray is two inches deep and if thirty laps were sampled from a car, there would be room to dry samples from four cars at a time in the oven referred to above without congesting.

This tool has been used for all kinds of pulp and forms of package.

The method of sampling for each case can soon be worked out, and will depend on the varying circumstances, whether receiving or shipping, long storage or recent.

Many parallel and check tests can be made in a short time. In special cases every bale in a car can be sampled while it is being unloaded.

Convenience and rapidity in use make it possible to take samples from a much greater number of packages than other methods in same time, without producing unwieldy bulk of sample or congesting the oven.



Photograph showing comparative bulk of strip and disc samples (weighing 7000 and 600 grams, respectively) and tray used to dry the discs.

NEW BLEACH PLANT FOR LINCOLN MILLS.

The Lincoln paper mills company have now their new bleaching plant in operation, and are turning out ten tons of bleached sulphite per day. The pulp is used in the manufacture of bleached glazed paper, made in the Lybster paper mills, where they are making over sixty tons of this grade of paper per week on the 112-inch machine. The company have also installed an electric drive on the screen of the paper machine in the Lincoln mills, and are operating the machine by steam and electricity until the electric drive for the whole machine is completed.

BRITISH TRADE NOTELETS.

There is a falling off in the orders for newsprint at the present time in England.

Owing to a strike of printers Manchester and Liverpool were left without papers — daily and weekly. The loss was a serious one for some of the paper mills.

"Palestine Weekly'", published in Jerusalem, is booming papyrus grass, which grows luxuriantly in that country, as a suitable raw material for paper. A mill has recently been built in East Africa to make papyrus pulp.

Mr. G. F. Steele, General Manager of the Canadian Export Paper Co., is being interviewed by the reporters here and he has put some erroneous ideas out of the heads of Englishmen about pulp and paper matters.

Night schools are now in progress in London for boys or students who want to study papermaking. At the end of the course examinations are held and prizes awarded.

THE PRINT PAPER SITUATION.

For some time Jason Rogers has been working on a proposition to relieve the small consumers of newsprint who are more or less dependent on the spot market. These publishers have been hard hit by the flight of prices in the last year. With a little waste sulphite liquor adhesive to hold the associated publishers together, Mr. Rogers' proposition ought to succeed. It looks like the one way to get cheaper paper for them. This is what Mr. Rogers says in a full page advertisement in the "Editor and Publisher" last week :

To Newspaper Publishers :

Manufacturers have given notice of a reduction in supply to customers for 1921 exceeding 200,000 tons.

Foreign print paper is quoted at from 9 to 10 cents alongside dock, New York, C. I. F.

Domestic and Canadian spot paper is quoted from 10 to 12½ cents F. O. B. mill.

There is every reason to believe that the manufacturers are going to try to make 8 cents a pound the minimum price for 1921.

There is no shortage of stumpage.

There is and will be an artificial shortage of mechanical equipment to make paper.

Present prices are absolutely unjustified.

I am going forward with new mill construction plans as providing the only way out.

I have now on hand and am assured ten year contracts for upwards of 200 tons a day.

Publishers who realize the seriousness of the hour will do well to send along their contracts and thus secure independence a few months hence.

I am working entirely independent of associations or corporations for the well being of the newspaper industry.

I will protect all signers from exposure to any possible reprisal by keeping identities absolutely confidential.

JASON ROGERS,
Publisher, "New York Globe."
New York, Sept. 15, 1920.

TRACTORS FOR GREAT NORTHERN.

Caterpillar style tractors will be used by the Great Northern Paper Company this winter in its northern Maine woods operations. Orders have been placed for 39 of these machines, several of which are already on the way from Bangor to the north woods. The company experimented with tractors last winter in the woods operations and found them to be useful and economical, deep snow being no impediment to their progress. The 39 machines, it is claimed, will do the work of 800 horses, and make a tremendous saving in the matter of supplies which are necessary for horses when used.

WORSHIPPED IN PAPER MILL.

In the course of his witty review of the town of the Imperial Press Conference delegates, Mr. N. Levi, of Pretoria, S. A., said : "We worshipped in the powerhouses of paper mills, lofty enough to be cathedrals. We looked the pigmies we are beside the powerful piles of wood that had swum their hundred of miles through enchanting river scenery. We lunched off gorgeous salmon, performed social rites at many an afternoon tea, laid down the law, and listened at dozens of dainty dinners, to statistics of what you have to offer."

PUTTING TIGHT BELT ON PULLEYS WITH A ROPE.

One way of putting a tight belt on its pulleys is by use of a rope. The method generally followed is to put the belt on the drive pulley first and then on the driven pulley as far as it will go. Then a loop of rope is passed over the rim of the pulley and around the belt, the free ends being passed through the loop. This really constitutes a slipknot around the belt and pulley.

The power is then turned on and the rope holds the belt to the pulley until it slips into place. As the belt leaves the pulley the rope is pulled out of the hand and as the increasing distance opens the slipknot the rope falls to the floor.

If the belt is heavy or the rope rough, it is advisable to wear a glove, and care should be exercised in turning on the power. Do not wrap the rope on the hand.

It is better, of course, not to have a belt so tight that it has to be forced on the pulleys, but sometimes this is unavoidable, as all men who have had anything to do with the use of belting know, and in this event the above method will be found unusually satisfactory and a great time saver also.—The Amphibian.

THREE TEAMS TIED IN ST. MAURICE LEAGUE.

Grand'Mere.—By defeating Three Rivers in the play-off of a tie baseball game at Exposition Park, Three Rivers, Sunday afternoon, the St. Maurice Paper Company team is now tied with Three Rivers and the Laurentide Club in the St. Maurice Valley League.

The game was Three Rivers' chance to clinch the pennant, and each one of the three clubs has now won nine and lost nine games. It is probable that the triple tie for the league leadership will be played off during the week by arranging post-season contests. The score was 3 to 2.

SUPPLIES FROM FINLAND.

The United States can look to Finland for relief in the paper shortage, according to Hugo Riska, an importer of that country, who says that Finland exported almost twice as much paper and wood pulp last year as she did any preceding year in her history, an dthat the supply is far from diminishing. Mr. Riska is stopping at the Hotel Pennsylvania, New York City. He expects to stay in America some time studying business.

NEWSPAPERS COST LESS THAN NEWSPAPER.

Stanley Clague, managing director of the Audit Bureau of Circulation, which concluded a two-day session in Toronto Sept. 18, dealing with matters affecting the Canadian situation, made some comment on newspaper problems in an interview. The Audit Bureau is a co-operative association of advertisers, advertising agencies and publishers.

Mr. Clague said the newspaper publishing business was the worst example of merchandising in the whole where the finished product was sold for less real mof licenses, as it was the only business than the cost of the raw material. "With but few exceptions," Mr. Clague said, "the subscribers of the daily newspapers of Canada pay less for them than the publisher pays at the mill for his newsprint."

NEW WAGE SCALE IN ENGLAND.

(From Our London Correspondent).

London, Sept. 10, 1920.

An award giving increased wages in the paper-making industry of the United Kingdom has been issued by the Industrial Court in London. The workers applied to the Employers' Federation of Paper-makers for an increase in the minimum rates of wages and improvements in the working conditions, basing their claim on the increased cost of living, and to some extent upon the argument that the adoption of the 3-shift system had increased the opportunities for production at some expense to the comfort of the worker. The millowners argued that the amount of the advances claimed could not be justified by the increase which had taken place in the cost of living, since the minimum rates were agreed to in July last year. They pointed out that the industry was already feeling the effects of foreign competition and that orders had recently seriously diminished. The unions claimed that the mill week for shift workers should be 126 hours, divided into 3-shifts of 42 hours each and that the working week for day workers should be 44 hours. The Industrial Court now says that this agreement about changing the shifts put forward does not establish a claim. With regard to wages the Court awarded increases in all cases, but not to the extent claimed by the unions and the workers. The award included the following minimum hourly rates for men workers:—

	Since May, 1920		Present Claims		Award of Court	
	s.	d.	s.	d.	s.	d.
Class 1	1	10½	2	4½	2	0
Class 2—shift	1	7½	2	1½	1	9
Day	1	5¾	2	0	1	7¼
Class 3—shift	1	6	2	0	1	7½
Day	1	4¼	1	10½	1	5¾

Increases are also given to boys and youths, women and girls employed in the mills. For the information of Canadian millowners I quote the scales laid down for youth and female labor:—

		Since May, 1920		Present Claims		Awarded by Court	
		s.	d.	s.	d.	s.	d.
Boys and Youths	Age 14		4¾		6		5
	" 15		5¾		7		6
	" 16		7¼		9		7½
	" 17		8¾		11		9
	" 18		11½	1	2	1	0½
	" 19	1	0½	1	5	1	2
	" 20	1	1½	1	8	1	3
Females	" 14		4¼		6		4½
	" 15		5¼		7		5½
	" 16		6¾		9		7
	" 17		7¾		11		8½
	" 18		9½	1	2		10½
	" 19		9½	1	2		10½
	" 20		9½	1	2		10½

The rates for paper mills in Scotland, the West of England and Ireland are one penny (two cents) less than the rates quoted above for adult men workers per hour. For all time workers between Saturday and midnight Sunday double time rate of pay is to be paid.

Workers Displeased.

It is too early yet to gauge the reception of the Industrial Court's decision by the workers. I have had a talk with some of them and they are not well pleased with the decision, but they say they must be content with what has been granted for the present. The millowners contend that they must go very carefully now as every little increase granted is only adding to the cost of production and bearing in mind this fact one has also to consider carefully the growing expansion of foreign business in England today. Foreign agents were busy all over the country and business in the British mills was not as brisk as it was this time last year. It must be stated that from an impartial point of view the workers had not a strong claim made out. Everybody seems to favor the 8-hour shift but why the paper-mill worker wanted a reduction in one of the shifts is inconceivable. Reduced hours meant reduced output and then there would be uneasiness among the workers, because one section would be doing 42 hours in a week while another would be working 44 hours. The cost of female labor in the British mills seems to have advanced considerably and it is quite evident there is no dearth of it.

Threatened Coal Strike.

On the 25th September the coal miners intend to hand in their strike notices if the 14s 2d is not taken off the ton of coal and their other demands acceded to. The position is daily becoming more serious and the great fear is the paper mills will have to stop work as their suplies of coal cannot last for any great period. If this coal strike comes off 2,000,000 industrial workers will be idle and it is a most serious problem at the moment to solve a way of soothing the miners and persuade them to drop their suicidal policy.

President of British Wood Pulp Association Going to Canada.

Mr. A. P. Andrews, who will be accompanied by Mrs. Andrews, is paying a visit to Toronto in the course of a couple of weeks. He sails this week as a delegate to the Imperial Council of Commerce and will represent the London Chamber of Commerce. Pulp and Paper men in Canada will now have an opportunity of talking to the President of the British Wood Pulp Association. Mr. Andrews has a great respect for Canada and no doubt he will interest himself in the Canadian pulp progress. He is a splendid type of the British business man.

Pulp Situation.

There are good stocks of chemical pulps at all the mills and business for the time being is dull. Buyers are also waiting to see if prices will ease down somewhat, but it is greatly to be feared they must prepare for a disappointment. Indeed, there is every chance of pulp prices going up as railroad rates have been increased this month. The market for groundwood is without any new feature. Prices are about as follows:—

	£
Bleached Sulphite	88—89
Easy Bleaching	58—60
Newsprint (strong) quality	55—56
Unbleached soda	51—52
Soda Kraft	40—41
Groundwood moist	17½—
Groundwood (dry)	34—35

Technical Section

REVIEW OF RECENT LITERATURE.

A-2 **Detection of ligneous impurities in cotton and cotton waste.** J. Soc. Chem. Ind.; Paper, **26,** 627-8, (1920). The usual method of testing cotton and cotton waste for nitration purposes for the presence of woody impurities consists in boiling 2 g. of cotton with 100 cc. of 0.2% solution of rosaniline hydrochloride, and then heating the material with repeated changes of water until the wash water is free from dye. The dye solution is sufficiently strong to color the fibers deeply, and the detection of the ligneous matter is thereby rendered more difficult. Attempts were made to devise a test using the specific reactivity of the lignone groups but they were unsuccessful. A test has been devised using a 0.01% solution of Malachite green containing 50 cc. of 40% formaldehyde and 1 g. of $NaHSO_4$ per l. The cotton is dyed in a beaker immersed in a boiling water bath, and then bleach solution is added, which discharges the color of the bath and of the cotton, while the woody matter remains green. The test was applied to purified cotton and to cotton adulterated with cotton husk, leaf and stalk, cotton seed, straw, hemp and jute fibers, etc., and was found quite reliable.—A. P.-C.

A-3 **Papermaking qualities of bagasse.** Bull, de l'Agence Générale des Colonies; Bull. Synd. Fab. Papier et Carton, #9, 135-6, (May 15, 1920). The following results were obtained by J. Maheu and L. Matrod at the Laboratoire Général des Productions Coloniales: Bagasse contains 39% of cellulose and 50% of lignin which is easily eliminated. A yield of 30% of paper pulp was obtained, from which hand-made sheets were prepared. The paper was slightly colored and grainy to the touch, had a satisfactory tensile strength and a somewhat lower tearing resistance. The pulp contains an appreciable amount of cells with low felting power. Before bagasse can be used for papermaking some other satisfactory fuel must be found for the sugar factories.—A. P.-C.

A-3 **Rape-straw.** Paper Maker; Bull. Synd. Fab. Papier et Carton, #9, 137, (May 15, 1920). The composition of rape straw is: Cellulose 30.31%, pentosans 24.10%, lignin 40,06%, ash 5.53%. The pulp obtained by the soda process contains cellulose 55.60%, pentosans 30.50%, lignin 10.10%, ash 3.77%. It is especially suitable for the manufacture of cardboard.—A. P.-C.

A-3 **The dwarf-palm as a papermaking material.** Bull. Synd. Fab. Papier et Carton, #9, 136-7, (May 15, 1920). The parts suitable for the manufacture of pulp are the leaves, roots, and waste products from spinning mills. The treatment presents no special difficulties and is easier than that of esparto, requiring less NaOH. The low yield (28%) is compensated by the low cost of raw material, low consumption of NaOH, and ease of bleaching. The pulp is fine and flexible and has a high felting power. The paper is equal, and at times superior, to esparto paper. The roots give a better quality pulp at a lower cost than the wood.—A. P.-C.

A-3 **Treatment of seaweed.** Eng. patent No. 123,-325, Société Darrase Frères et L. Dupont, France, Chimie et Industrie, **3,** 3A' (March 1920). The seaweed is fermented by means of special bacteria and neutralized with oxides or hydrates of the alkali, alkaline earth, Fe group, or Zn group metals. The residue of cellulose is separated; the liquor is acidified and distilled. It yields formic, acetic and butyric acids. The residue from the distillation may be treated for I and K_2O.—A. P.-C.

A-4 **Micrography of sycamore (platanus orientalis) pulp.** L. Vidal, Ecole Française de Papeterie, Grenoble, France. Papeterie, **42,** 434-9, (May 25, 1920). A detailed description, with diagrams, of the microscopic characteristics of bleached soda sycamore pulp, which revealed, among other things, that it has a higher felting power and is stronger than similar poplar pulp.—A. P.-C.

A-4,H-O. **Notes on bleaching**: determination of the purity of pulp by means of the "**methyl number.**" A. Chambovet. Papeterie, **42,** 440-3, (May 25, 1920). The methyl no. is defined as being the quantity of methyl, expressed in 0.1%, obtained from a substance when the latter is treated with HI. The ease with which pulp can be bleached depends on the amount of lignin it contains. HI acts on it according to the equation: $C_{36}H_{30}O_7(OCH_3)_4 + 4HI = 4CH_3I + C_{36}H_{30}O_7(OH)_4$, 698 g. of lignin yielding 568 g. CH_3I. The detn. is carried out as follows: 40 g. of the material is heated with HI (sp. gr. 1.70) and 8% acetic acid in a flask in an oil-bath, the delivery tube being surrounded by a water jacket at 90°C, and then connected to a condenser. The vapor is led into a flask containing alcoholic $AgNO^3$ solution, the AgI being filtered off and weighed. The purpose of the hot water jacket is to separate the CH^3I from the C^2H^5I formed by the action of HI on lignin. The following results were obtained: fir (abies pectmata) 24.5, birch (betula alba) 25.7, oak (quercus pedunculata) 28.6, ash (fraxinus excelsior) 27.1, linden (tilia parafolia) 25.6, poplar (populus alba) 25.9, pine (pinus sylvestris) 22.5, filter paper (cotton) 0, sulfite pulp, 3.4. It would be advisable to determine the relation between the methyl number and the conditions of cooking and bleaching.—A. P.-C.

A-14 **Measuring the gloss of photographic paper.** Paper, **26,** 782-4, (1920). All light reflected from nonmetallic surfaces is polarized at right angles. This polarization is always only partial, but the nearer the surface approaches complete dullness the smaller the portion of the light which is polarized, while the more glossy the surface is the more complete is the polarization. A determination of the % of polarized light in the total light reflected from the surface of a paper would therefore give a definite measure of the gloss of its surace. Slight differences of gloss cannot be accurately measured when the amount of polarized light is small, but can be measured when it is high. The determination can be made by means of a Martens polarization photometer, by replacing by a single central opening the 2 openings through which light enters in measuring blackness or thickness. The angle of incidence should be 56° and daylight should be used only in conjunction with a depolarizer as it often contains polarized light. Precautions for exact results are given in Ostwald's "Physicalische Farbenlehre."—A. P.-C.

A-14 The perishing of paper in Indian Libraries. J. J. Sudborough and Miss M. M. Mehta. J. Soc. Chem. Ind., **39,** 93R, (1920); Paper, **26,** 589, (1920). Paper read at the Indian Science Congress. A number of books from various Indian libraries were examined, and in many instances after periods varying from a few decades to some centuries the paper had become quite brittle whereas copies of the same works which had been kept in Europe were quite good. It was found that paper from esparto grass was particularly liable to deteriorate, and the same probably applies to wood pulp paper, but this has not been in use for a sufficiently long period to make it possible to express a definite opinion. Some flax papers had also become very weak, and apparently cotton papers were the best. The sizing material also exerts a considerable influence, rosin having a very bad effect. Overbleaching causes the paper to become weak. The deleterious action is sometimes apparently due to bacteria and sometimes is entirely chemical. The papers become acid owing to the formation of organic acids. There is a proposal to provide the more important libraries with refrigerated chambers in which the valuable books can be kept.—A. P.-C.

A-15 A new cellulose-destroying organism. Revue Scientifique; Papeterie, **42,** 409, (May 10, 1920). Hutchinson and Clayton have isolated an aerobic bacteria (Spirochoeta cytophaga) which attacks cellulose. It does not grow in peptone media, but can utilize the N of nitrates, NH_4 salts, amines and amino-acids. Its growth is inhibited by soluble carbohydrates. It transforms cellulose into a mucilage of a pectic character, and produces a pigment analogous to carottine and also a small amount of volatile acids.—A. P.-C.

A-15 Studies in the fermentation of cellulose. G. J. Fowler and J. V. Joshi J. Soc. Chem. Ind., **39,** 93R, (1920); Paper, **26,** 589, (1920). Paper read at the Indian Science Congress. Various cellulosic materials were inoculated with mud from the bottom of a septic tank, and the rate at which they were broken down was observed. The gas given off contains about 85% CH^4, and it can be collected and used for heating and lighting. The principal product is acetic acid, and it was suggested that this might be recovered. Raw cotton and raw ligno-cellulose are attacked but slowly; chem. woodpulp and hemi-celluloses much more rapidly. Banana skins are readily fermented. The optimum temp. is 35°C, and the liquid should not be allowed to become too acid. The presence of salts of Pb, Cu and Zn impedes the fermentation.—A. P.-C.

A-15 The chemistry of cellulose. Cellulophile. Papeterie, **42,** 395-403, (May 10, 1920). A description of the formation, transformation, and degradation of cellulose in the light of our present knowledge of the chemistry of cellulose.—A. P.-C.

A-16 Acid-resisting alloy. French patent No. 493,982, C. Rossi, Italy, May 17, 1919. Chimie et Industrie, **3,** 332, (March 1920). The alloy consists of a ferrosilicon containing 13-15% of Si if it is to be used for Cl, HNO_3, H_2SO_4, or $HC_2H_3O_2$, or oxidising agents; and 20-21% Si for use with HCl. The alloy must be very pure, and after fusion in the electric furnace the less fusible impurities, particularly the carbides, are separated by cooling, its homogeneity is increased by the addition of a little Fe sulfide during fusion.—A. P.-C.

A-16 Simple method for the analysis of bearing metals and similar alloys. G. Oesterheld and P. Honegger. Helvetica Chim. Acta, **2,** 398-416, (July 1st, 1919), Chimie et Industrie, **3,** 319, (March 1920), 1 g. of the alloy is dissolved in 20 cc. of boiling conc. H_2SO_4, the Sn going into solution as $Sn(SO_4)_2$ and the Sb as $Sb_2(SO_4)_3$. The solution is diluted to 100 cc. and 5 cc. conc. HCl added. The Sb is titrated with 0. 1 N $KBrO_3$, using methyl orange as indicator: the end point is marked by the decolorization of the indicator. The $PbSO_4$ is filtered off on a tared Gooch crucible, ignited at about 600°C, and weighed. To the filtrate add 80 cc. or conc. HCl and 9 g. of Zn filings in 3 portions. Heat to redissolve any precipitated Sn, cool, add KI, and titrate with $KBrO_3$ using starch as indicator. The stannous salt is oxidised before the I is displaced, which occurs before the antimonious salt is acted upon by the $KBrO_3$. Cu is determined on a separate portion of the sample by means of KI and $Na_2S_2O_3$. The action of the various compounds present is studied, and a simplified form of electrodes is described.—A. P.-C.

M-0 Fighting fire losses. Paper, **26,** 635, (1920). Two-thirds of the fires suffered in 1919 were preventable. As the cost of prevention is nothing compared to the losses sustained it is the highest form of economy and good business to instal every apparatus that lessens fire danger. It is even more important that the men be thoroughly drilled in the use of the appliances, as otherwise they would be practically useless.—A. P.-C.

M-0 Measuring water used. W. F. Schaphorst. (Copyright 1920) Paper, **26,** 679, (1920). Water meters and steam flow meters are of great importance for locating leaks in various parts of the system. They are practically the only way of keeping tab on the condition of turbines without taking off the casing and inspecting the blading.—A. P.-C.

M-9 The application of Marcus conveyors to chemical industries. W. Venator. Chem. Ztg., **43,** 351, (June 12, 1919), Chimie et Industrie, **3,** 321, (March 1920). This conveyor was invented by Marcus of Cologne, and can be used for transporting a large variety of materials. It is composed of a trough supported on rolls which has a uniformly accelerated forward motion and uniformly retarded return motion, which is obtained directly from the motor or else by means of special gearing. At each stroke the material advances about 160-200 mm. (6-8"). The trough rests on guides or supports, spaced about 3-5 m. apart, the friction being reduced by means of rollers. Some of these conveyors can deliver up to 350 t. of coal per hour.—A. P.-C.

R-6 How to increase production and lower costs by the balance of work. William D. Hemmerly. Paper, **26,** 784-7, (1920). A description of the great advantages to be gained by using the balance of work system which shows at all times the balance between the work on hand and the available capacity of the mill or factory.—A. P.-C.

R-12 How to find costs by proper distribution of overhead expense. F. H. Elwell, Prof. of Economy, Univ. of Wisconsin. Paper, **26,** 779-81, 792, (1920). A discussion of the importance of a proper distribution of overhead expenses in arriving at the true cost, and a description of one system of distributing which will give proper results.—A. P.-C.

R-13 Convention of the Cost Association. Paper, **26,** 777-8, 794, (1920). An account of the Convention held in New York, May 1920.—A. P.-C.

PULP AND PAPER NEWS

The Don Valley Paper Company's mill, at Toronto, which was closed for a few days owing to the improvements that are being made, has resumed running but will be hampered in production for another week until the work is completed.

Mr. H. B. Donovan, Sales Manager of the Canada Paper Company, Limited, has been laid up at his home in Oakville for a couple of weeks. His many friends in the paper trade will hope for him a speedy recovery.

Mr. J. A. Bothwell, General Manager of the Brompton Pulp and Paper Company at East Angus, Que., has sailed for home on the S.S Lapland, and is expected to land at New York, along with his wife and daughter, on Saturday. Mr. Bothwell has been away for several weeks, and while in Europe visited the pulp and paper mills in Norway and Sweden.

Mr. Donald MacLean, late Toronto manager for the E. B. Eddy Co., Ltd., was in Montreal this week on business.

Mr. W. L. Bird, General Manager of the recently organized Fort William Paper Co., Limited, was in Toronto this week on a visit to the head office in the Bank of Hamilton Building. Speaking of the progress being made on the new plant at Fort William, Mr. Bird said that not only his own enterprise but the pulp and paper industry generally was being hampered in its development in the north and west by the shortage of labor. While it is known that there are quite a number of men out of work in Ontario, particularly in the automobile trade, so far it has seemed impossible to secure a movement of unemployed to the big pulp and paper centres and for this reason building operations are being held up. It is likely that an aggressive campaign will be launched shortly with a view to transferring the unemployed element to the districts where they are needed.

Mr. J. G. Gibson, secretary of the Spanish River Pulp and Paper Mills Company, Limited, has returned from a visit to the Espanola mill of the company.

The Border Cities Sun, a new morning newspaper, has arisen at Windsor. The paper is issued by W. F. Herman who is also owner of the Border Cities Star.

The announcement was made in Toronto this week that John M. Imrie who for some years has managed the affairs of the Canadian Daily Newspaper Association had purchased for himself and several associates the Hamilton Daily Times, the Hamilton Semi-Weekly Times, the Times job printing plant and the business of the Canada Ready Print Co. The new owners have already taken possession and the business is being carried on under Mr. Imrie's name pending the incorporation of a company. The Hamilton Daily Times is one of the oldest newspapers in Canada, having been established in 1837 as a weekly newspaper.

A dinner was tendered at the Arts and Letters Club this week to Mr. Peter Donovan, who is leaving the editorial staff of Saturday Night to take a position on the London Daily Express, the gathering being presided over by Mr. Augustus Bridle of the Canadian Courier. Mr. Donovan leaves shortly to take up his new duties in the British metropolis.

Mr. J. Vernon McKenzie has been appointed to succeed Mr. T. B. Costin as editor of MacLean's Magazine in Toronto, Mr. Costin having received the appointment of managing editor of the Ladies' Home Journal. Mr. McKenzie has been for the past year Canadian Trade Commissioner at Glasgow, Scotland. He served in the R.A.F. during the war and was wounded in a crash just before the armistice. He has worked on the Montreal Star, Ottawa Journal and several Toronto papers.

The organization of the Fort William Paper Co., Limited, has been completed, with the following serving as the board of directors: John G. Sutherland, Dayton, Ohio; Lieut.-Col. T. Gibson, Toronto; W. L. Bird, Fort William; W. N. Hurlburt, Dayton, Ohio, and J. G. Gibson, Toronto. The President is Mr. Sutherland and the vice-president is Lieut. Col. Gibson, with W. L. Bird as general manager and treasurer. J. G. Gibson will act as secretary and assistant manager. The head office of the company will be in the Bank of Hamilton Building, Toronto. Construction work on the new mill is now progressing. The first unit will be a groundwood mill with a capacity of 120 tons of ground wood per day.

The investigation being conducted by the Ontario Government into the methods of granting and selling pulpwood and timber limits in Ontario's vast timber lands is revealing some very loose transactions on the part of the old administration, particularly the old Crown Lands Department. At the probe in Toronto this week Albert Grigg, ex-M.P.P. and Deputy Minister charged in his evidence that Hon. G. Howard Ferguson, ex-Minister of Crown Lands, was responsible for the granting without competition of pulp cutting rights for 30,000 cords in Heale Township and adjacent extensions. The Port Arthur Pulp and Paper Company were the favored ones. That Mr. Ferguson also acted contrary to the statutes in opening certain areas for cutting pulpwood after same had been withdrawn from prospecting was also intimated by the Commissioners. Further evidence was submitted relative to letters missing from the official files. Part of the examination of Mr. Grigg was held up owing to inability to locate a letter from Samuel Marks to Mr. Ferguson bearing on abuses reported to the department by him.

In furtherance of the object of securing large pulp and paper mills for Kenora, Peter Heenan, M.P.P., and George A. Toole, Mayor of that town, waited on the Ontario Government this week and urged the necessity of ratifying the agreement between the town of Kenora and E. W. Backus of Minneapolis and others, thereby protecting the interests of the town by adding the pulpwood and timber resources of the English River watershed, with those of

the Lake of the Woods and granting the White Dog Rapids power to the company named in the agreement. The deputation are averse to the English River limit being put up for tender, but want the Government to support the agreement ratified between E. W. Backus and the town of Kenora, which was voted upon in August and assented to by the ratepayers.

The current issue of the Canada Gazette contains notice of the incorporation of the Lake St. John Pulp and Paper Company, Limited, with head office at Montreal, and with an authorized capital of $4,000,000, of which notice was given last week. The company is authorized to carry on in all its branches a general lumber, timber and pulpwood business. The incorporators are J. O. Carss, F. W. McKinnon, F. W. Fee, J. L. MacKenzie and Charles Patton, all of Ottawa.

Mr. Clarence P. Robinson, formerly connected with the Mill Supplies Dept. of Parsons & Whittemore, Inc., New York, has associated himself with Daniel M. Hicks, Inc., 200 Fifth Avenue, and has assumed the management of the department embracing pulps, chemicals, casein, clay, colors, wires, felts, etc. Mr. Robinson was for over 12 years connected with the Cherry River Paper Co., at their sales offices in Philadelphia, as well as at their mills in Richwood, W. Va.

The Jeffrey Manufacturing Co. has opened a new office at 1108 Marine Trust Building, Buffalo, N.Y., which will be in charge of Mr. H. W. Scott, a man of long experience in sales and engineering work.

Mr. O. A. Porritt, who has for some time been mill manager and director of the Canada Box Board Company is resigning from his administrative connection with the company, but continues as a member of the Board of Directors.

The National Association of Purchasing Agents is to hold its annual convention at the Congress Hotel, Chicago, October 11-13. Among the subjects on the program are: Buying Through Specifications, Stabilizing the Dollar, and Safeguarding the Purchase of Chemicals. Delegates wil visit the packing houses of Chicago and the Great Lakes Naval Training Station.

Work is going ahead in good shape on the new time office building and also on the club house of the Brown Corporation at La Tuque, P.Q.

The pulp wood is reported coming up from the river in good shape, and with the help of the continuous barking drum is going to the pile very clean.

HOLLOWAY TO MANAGE HAMMERMILL WOODLANDS.

It was recently announced that the Hammermill Paper Company of Erie, Pa., had purchased pulpwood lands in Quebec. This area consists of the railway subsidy lands which the Matane Lumber and Development Company obtained from the Canada & Gulf Terminal Railway Company and consists of approximately 133,000 acres. The sale also included the mills, river, works, etc. It is reported that the price was approximately $2,000,000. Mr. E. S. Holloway who has been with the railway company from the beginning, except while recently overseas, has been retained by the Hammermill Paper Co., as manager of their pulpwood operations. It is understand that the Hammermill Company will operate on a large scale this coming winter.

BOOK REVIEW.

A MANUAL OF THE TIMBERS OF THE WORLD, THEIR CHARACTERISTICS AND USES. By Alexander L. Howard. London: Macmillan & Co. 30s net.

The object of this work, as stated in the preface, is "to meet a distinct want for a clearly-arranged handbook which shall contain information concerning all the timbers encountered in commerce, including those which have only of recent years appeared in the European market. The aim has been to treat the subject from its commercial, technical, and industrial aspects."

The main portion of the book consists of a catalogue of timbers, beginning with *Abey*, a wood much resembling mahogany, that comes from San Domingo, and ending with *Zizyphus Jujuba*, a wood not unlike the black walnut, which grows in India. Between these extremes are descriptive notes of some 450 timbers, illustrated in many instances with excellent photographs. The notes give careful descriptions of the woods, their colours, and markings, and indicates the various uses to which they are specially adapted. To carry out this work as effectively as it is here done requires an immense amount of experience. Mr. Howard has been connected with the timber industry for over forty years, and in most instances he speaks from personal knowledge of the merits and characteristic qualities of the materials described; in other cases he quotes from high authorities whose names he gives.

It will be seen at once that a work of this kind will prove of the utmost value to all whose business it is to study the uses of different timbers. As the book is arranged alphabetically reference is rendered very easy. If one might make a trifling suggestion it would be that in future editions the names of the trees should be printed at the top of the pages on which they are described, as is usually done in the case of dictionaries.

In addition to the actual facts set forth in the catalogue, Mr. Howard discusses incidentally many points of great interest. He mentions, for instance, the tendency to demand Austrian oak in British specifications, and we are glad to find in him a stalwart champion of the English tree. A useful section is devoted to the artificial seasoning of timber, where he states the interesting fact that he had had experience of some very large timber dryers in Finland used to fulfil certain conditions, one of which was "to turn out the dry timber without discoloration, so that it could be sold in England and elsewhere as "Guaranteed NOT Kiln-dried.' "

We note with pleasure that particulars are given of the properties of several Indian timbers, such as Alexandrian Laurel (*Calophyllum Inophyllum*), which hitherto have been little known in this country. Any one who visited the Empire Timber Exhibition, recently held at Holland Park Skating Rink under the auspices of the Department of Overseas Trade, must have been greatly struck by the exhibits of these woods which were prepared by Mr. Howard for the Government of India. Attention was drawn to these in the *Journal* of July 16th (p. 567), and we can only repeat the hope there expressed that these timbers will become more and more widely known among our furniture makers.—From the Journal of the Royal Society of Arts.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, September 18.—Speaking generally, paper trade conditions remain unchanged, with the mills all extremely busy and deliveries unimproved. Aside from a rearranged schedule of resale prices for kraft paper, issued by the Canadian Paper Trade Association, there have been no changes in pulp and paper prices as they have existed during the past week or two. The mills report that they have orders enough ahead to keep the machines running until well on to the end of the year, and jobbers say that the volume of business they can do is only limited to the shipments they can get in from the mills. There is still a great shortage of raw material and paper makers are not only compelled to pay long prices for their pulp, but in many instances are unable to get anything like the amount required to meet their needs.

Box Board.

Although, as stated last week, the box board industry is going through a somewhat quiet period owing to the closing down of some of the factories using cardboard and other boxes, such as the shoe manufacturers, it is stated that this is only temporary, and the mills say the effect is barely perceptible and they are still considerably behind with their orders. Prices for the various lines of board remain firm and unchanged and the trade is looking for a bigger output soon as the result of the program of improvements and expansion being carried out by the Canada Box Board Company. The ground wood plant of the company at Frankfort is expected to be in operation some time in October and changes are well advanced at the Frankfort, Montreal and Campbellford plants, which are expected to be completed shortly, when the tonnage will be considerably increased.

Wrapping Papers.

There has been no let-up in the big demand and supply shortage in wrapping papers. A visit by a Toronto jobber to the mills this week revealed the fact that it is not easier to pick up shipments of paper at the mills now than it has been all summer. This jobber has been in the habit of going direct to the mills in his effort to keep up his stock and meet the wants of his customers, but he admits that even this plan does not always meet with success and that it is with the utmost difficulty that he can pry a carload or two out of the mills on the occasion of his periodical trips. There have been no changes in the price list during the past week.

Coated Papers.

Mills doing business in the coating line report that they are experiencing great difficulty in getting adequate supplies of body stock which is only another indication that paper is scarce. However, the mills are not looking for business as they are booked up till about the end of this year, although the paper shortage means that they can only operate one shift, whereas their manufacturing demands would more than justify continuous operation could they get the body stock. No. 1 coated is selling at 20c from the mill to the consumer and No. 2 is quoted at 19c. The mills say that they are well supplied with everything in the way of ingredients, fuel, etc., and that the only thing they need is more paper to run through the coating machines.

Manilas

Mills manufacturing manila paper report a big demand for the product. They are really getting more business than they can attend to and the tonnage is being seriously affected by the difficulty in securing adequate supplies of pulp. The last tag manila made at one of the mills was sold at 12½c, but it is predicted that from 14c to 15c a pound will be the ruling figure for stock now being turned out. One mill was in receipt of an equiry from a dealer this week who wanted two carloads of tag at a price to be fixed by the mill anywhere in reason. What he was chiefly concerned about was the matter of delivery. Nothing could be guaranteed along this line and so the deal was off. It was impossible for the mill to make any promise as to the date of delivery by reason of the fact that they had no guarantee that the raw material for the making of the paper would be forthcoming.

Tissues and Toilets

While the prices of tissues and toilets remain unchanged the mills say that the increased freight rates, which represent about two per cent in excess of the present selling prices, may result in a further increase in the prices of these two lines of paper, although as yet the two per cent has been absorbed without revising the price lists. Manufacturers report a well-sustained volume of business but they are unable to get pulp supplies in adequate quantities, particularly bleached sulphite.

Book Paper and Bonds

Although reports from the mills indicate that the production of book papers is increasing somewhat, jobbers say that deliveries are not coming through any more freely. Some of the mills are at the present moment booking orders for January and even February delivery and orders booked months ago are only now being filled. Representatives of American mills in Toronto this week reported business as extraordinarily brisk on the other side of the line, one salesman stating that he was selling enough paper in one day to keep his mill going for a day and a half, which means that more orders are being taken than production can very well take care of. Another representative of a bond paper mill stated that his mill could keep running for over two hundred days on back orders without a single new order being booked. These statements are fairly well borne out by the difficulty being met with in getting in certain lines of paper imported into this country from across the line.

Kraft Papers

The Canadian Paper Trade Association has sent out a circular advising the trade of a revision in the resale prices on kraft which apply to Ontario, with the exception of Port Arthur and Fort William, and to Quebec. The prices are as follows: Car load lots of 20 tons delivered in one lot and invoiced as one lot



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NEW YORK MARKETS.

New York, Sept. 18.—(Special Correspondence)—The paper market continues to be attended by a strong undertone and yet the freer movement of supplies from mills to consuming centers acts to eliminate a good deal of the keenness of demand for the reason that larger amounts of most kinds of paper are becoming immediately available to users. Probably the feature of the situation at the moment is the increased inquiry from consuming quarters concerning future shipments of paper. Printers, publishers, department stores and other large buyers evidently are not waiting until they are actually in want of fresh supplies before placing orders, presumably having found that this policy does not pay them under prevailing circumstances, and are looking to cover requirements as far ahead as they can obtain promises of deliveries. Papermakers in consequence are being given ample orders to keep them engaged, aside from the tremendous effort necessary to fill present commitments, and as far as actually available supplies from mills go, there is scarcely any more paper to be had now than there was several months ago or before the customary mid-summer slack period set in.

The book paper market is very firm. Prices show no indication of easiness, on the contrary the tendency is distinctly upward and mills in frequent cases refuse to issue any quotations at all, being sold as far into the future as they care to be. Jobbers are securing 24 cents and higher for No. 1 coated book, while about the lowest price named by mills to the distributing trade on this grade of paper is 21.50 cents. Machine finished book is quoted in the vicinity of 18 cents a pound and there is practically no mill which will stipulate definite dates for delivery excepting in cases where regular contract customers need small tonnages to fill in supplies. Everything would seem to point to a continuance of strong conditions in the book paper branch of the market for a long time to come. Magazines are issuing larger editions than ever before and there is no question that they are being offered advertising warranting the printing of still larger issues if they had the necessary paper to run on.

The newsprint market is steadily tightening up as the fall draws near. Daily newspapers are consuming increased amounts of paper and many of them have resumed announcing each day the number of columns of advertising omitted. One of the leading New York morning papers is leaving out an average of between thirty and forty columns of advertisements in every issue, and one morning this week omitted no less than sixty columns. This situation goes to show that the mid-summer slackness in the newspaper field has been removed, and it is but logical to expect as the season progresses and pre-holiday advertising campaigns get under way, publishers will be called on to use more and more print paper. Spot lots of newsprint are selling at from 11 cents upward at mills for standard rolls, and there have been sales of small lots by jobbers reported at higher than 14 cents. Sheet news to the transient trade is bringing around 13.50 cents per pound and on contract 7.50 cents at mills.

Fine papers are in a firm quotable position. Manufacturers are repeatedly finding it necessary to advance prices on many lines of bond and ledger papers, and quotations are so irregular and on such a broad range that it is indeed difficult to arrive at anything definite in the way of market values. About the cheapest bond paper obtainable costs 20 cents a pound and very little of this grade or of any line ranging up to 30 cents is to be had. Buyers naturally are concentrating their purchases on the lower-priced lines, with the result that mills are sold up far ahead on such grades.

Coarse papers rule quotably steady although demand is not as pointed as it was recently. Jobbers are getting larger supplies from mills as a result of better transportation conditions and are therefore keeping consumers better provided with stock. Boards are firm in price and are moving in consistent fashion. No change has developed in quotations, plain chip board being priced at around $115 a ton and filled news board at $125 and higher.

GROUND WOOD.—From all indications, the softening of quotations on mechanical wood pulp during the past several weeks has been due primarily to the offering of certain lots of Scandinavian ground wood by importers at concessions from the prices ruling. Efforts to learn whether domestic producers have lowered prices are unavailing and it appears that mills and dealers in the States, as well as in Canada, are maintaining quotations excepting in infrequent cases where they have desired to move specific tonnages of pulp. Quotations down to as low as $125 per ton are mentioned in some corners of the trade, yet buyers tell of trying to locate pulp at this basis and of failing to do so. As far as can be ascertained, domestic manufacturers continue to name in the vicinity of $140 for

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prime spruce ground wood for prompt delivery, and even higher prices are being secured. There are no visible signs of available supplies being any heavier and the trade generally looks for the market to tighten up during the fall when consumption mounts and when grinders find themselves without their usual surplus stocks to draw on.

CHEMICAL PULP.—There is little change of note in the chemical pulp market. If anything, the tone is a bit softer, this being due to the larger quantities of sulphite and kraft pulp coming in from Scandinavia. Thus far, however, the increased foreign supplies have effected scant alterations in prices, and pulp men lay emphasis on the fact that it is but a customary condition at this period of the year for imports to increase for the reason that manufacturers in Swenden endeavor to ship out as much pulp as possible before the Baltic closes for the winter. Conservative trade factors nevertheless say that should importations keep up at the present rate it is possible domestic pulp values may be affected, and consumers apparently are adopting the same view and are mostly buying only as the need for supplies presents itself.

Imports of pulp at the port of New York this week included 1,820 bales of chemical and 1,000 bales of mechanical from Christiania, and 14,317 bales of mechanical from Canada.

RAGS.—The papermaking rag market evinces little change and no particular feature. Demand is still mainly for whites and both new and old white rags are bringing prices far above a parity with those prevailing on other grades. Interests other than papermakers are reported buying up sizable quantities of new white shirt cuttings and paying close to 30 cents a pound, whereas the average paper mill refuses to go beyond 25 cents and appears to be getting at least some of these rags. Old No. 1 repacked whites are selling at from 15 cents upward, with choice packing commanding 18 cents, while repacked thirds and blues are freely available to mills at 4.50 cents at shipping points. Roofing rags are holding steady at a quotable basis of around 2.25 cents for No. 1 packing, and although there is a fair demand, feltmakers are not buying in a way to cause prices to rise.

PAPER STOCK.—The strength of prices on waste paper and the continued demand for this commodity seems to bear out the maintenance of wood pulp values and the contention of pulp men that supplies are limited. Mills are absorbing fairly large tonnages of old paper of practically all kinds and are paying record-breaking figures—in some cases beyond what they are obtaining relative grades of rag stock for. Mixed paper, for example, is fetching higher prices than roofing rags, a situation which veterans of the trade say they never have seen before. Flat folded news is the one big item in current trading and consumers find it necessary to pay around 2.75 cents a pound at shipping points to get reliable packing of this grade. Shavings are strong and are generally quoted at 9 cents or more for No. 1 hard whites and at about 8.25 to 8.50 cents for No. 1 soft white shavings. Old books and magazines are bringing 3.25 cents at shipping points, old kraft paper 6.50 cents and ledger stock close to 5 cents per pound.

OLD ROPE AND BAGGING.—The old bagging market is in a sluggish condition, consuming demand being at a low ebb and buyers obtaining supplies at virtually any figures they care to bid. No. 1 scrap bagging is freely available at 2.50 cents a pound, No. 1 gunny at 2.75 cents and roofing bagging at 1.50 cents. Old manila rope is quotably steady at 6.25 to 6.50 cents at shipping points and is moving in fairly consistent fashion.

MAY CUT B. C. PULPWOOD FEES IN HALF.

Following an inspection of the pulp and paper plants on the Coast, Mr. Pattullo, Minister of Lands for British Columbia spoke of the amended legislation appertaining to timber limits suitable for pulp-making. In order to encourage the establishment of more plants, permission may be granted for the cutting in half of the license fees where the department considers the limits better suited for pulp and paper making than for lumbering. The minister stated that this change was resulting in greatly increased interest among manufacturers, with the immediate prospect of the establishment of one or more plants in the near future.

Prince George is in the limelight at present as the prospective centre of pulp-making on a large scale. The immense stands of spruce and balsam near that city have been investigated this summer and negotiations with the timber-holders carried on.

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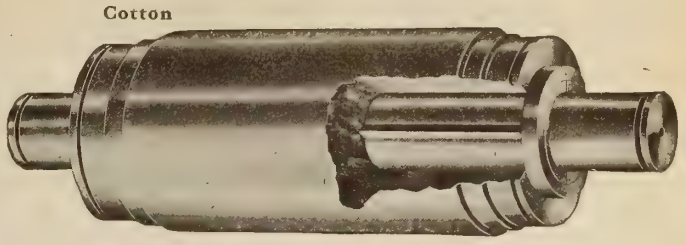
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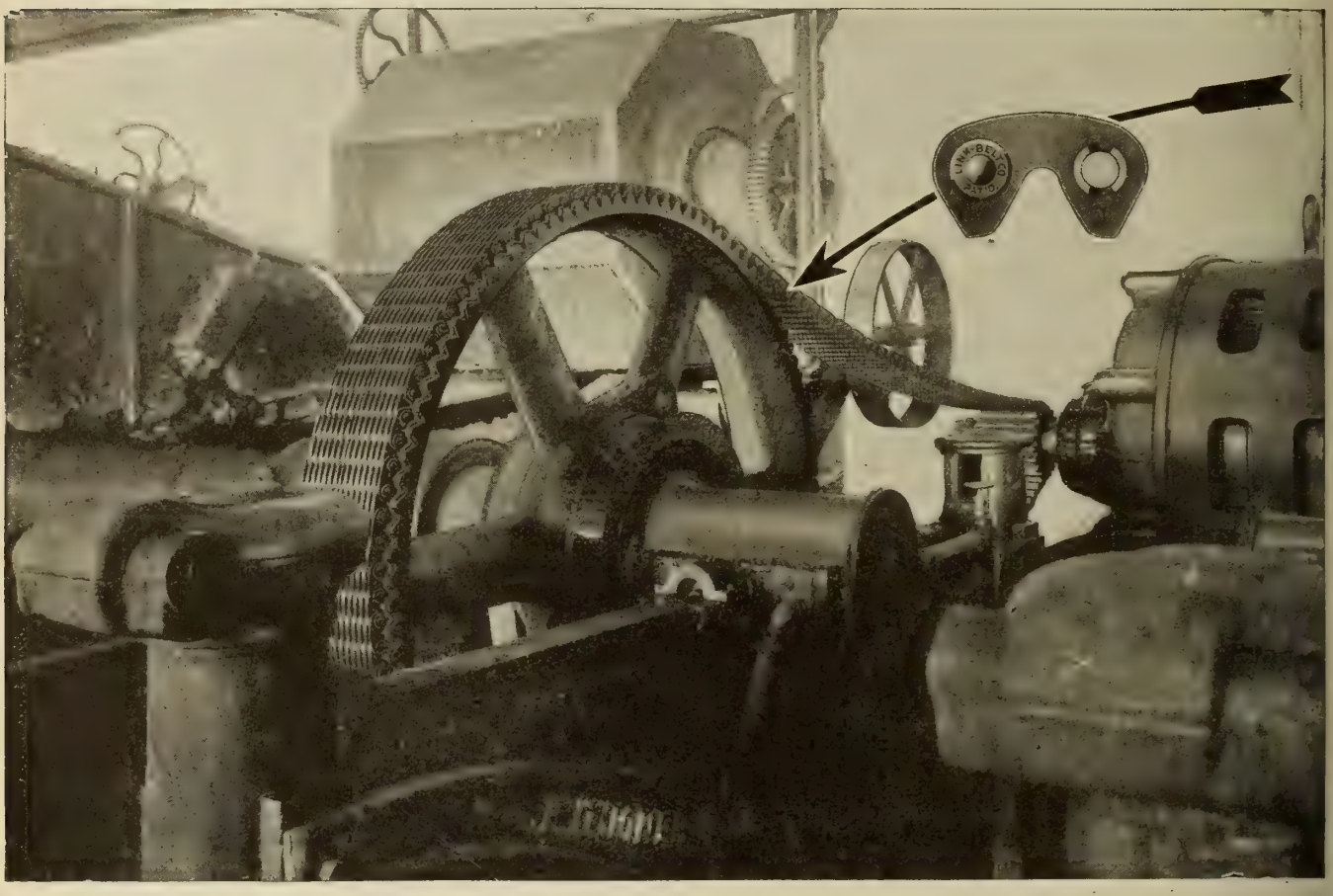
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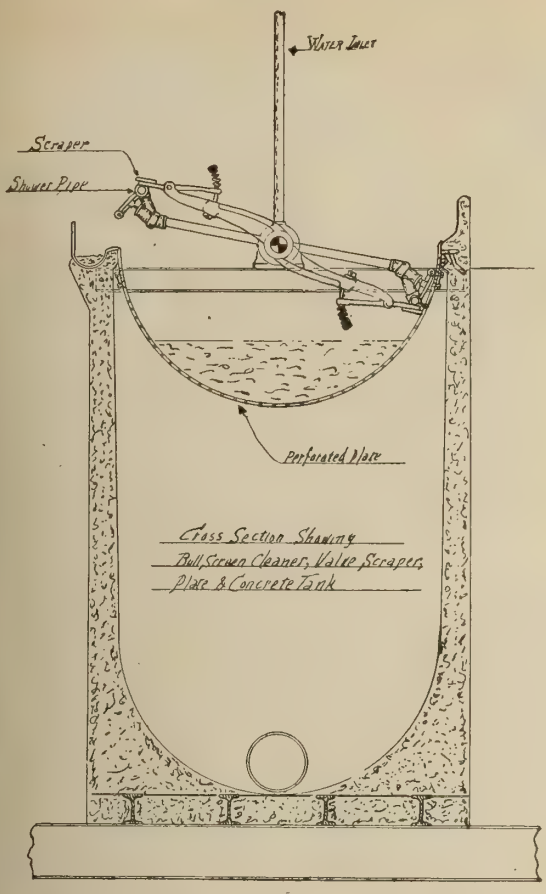
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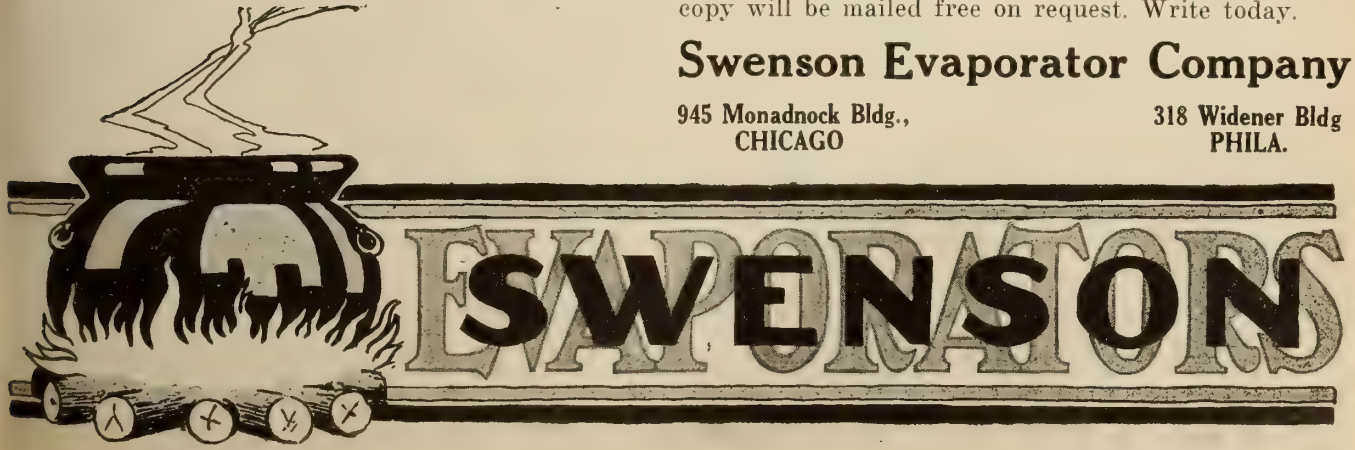
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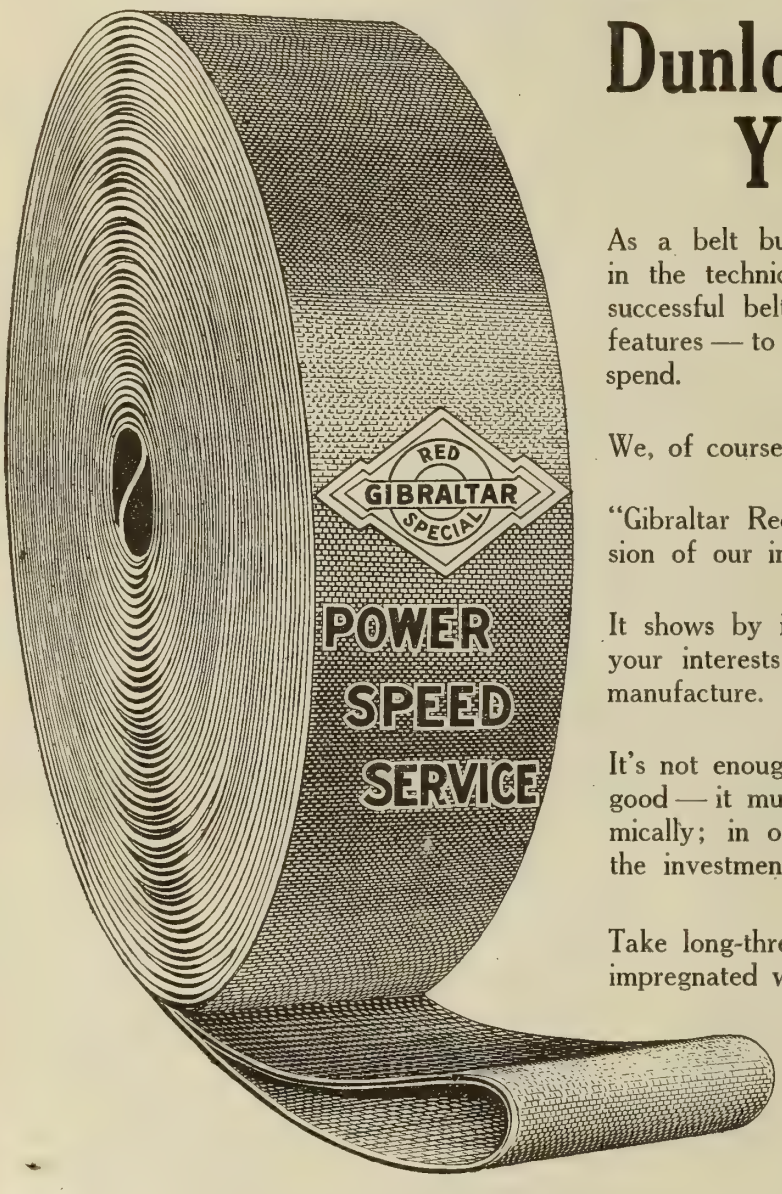
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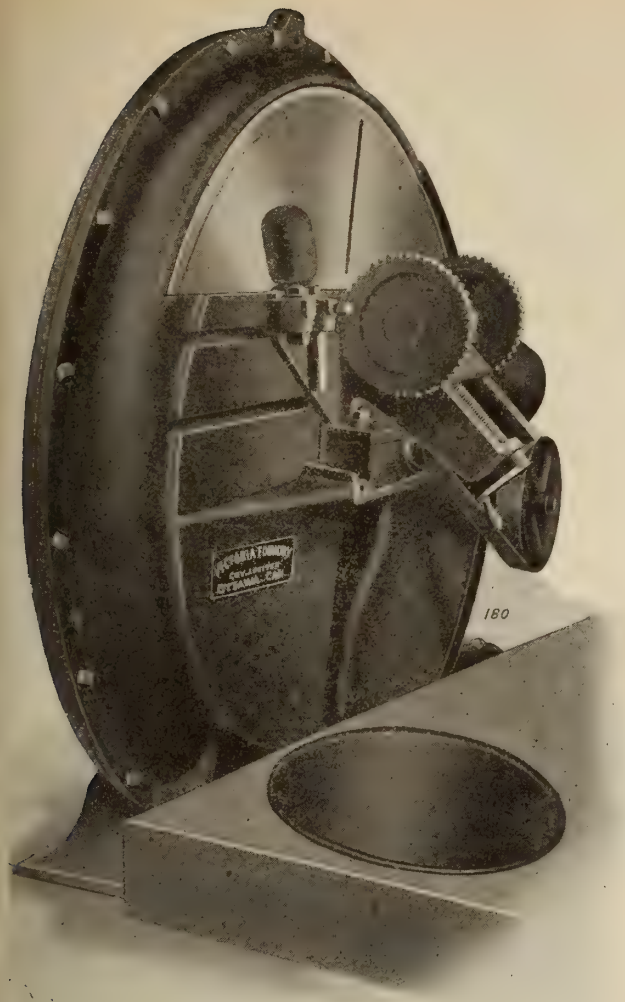
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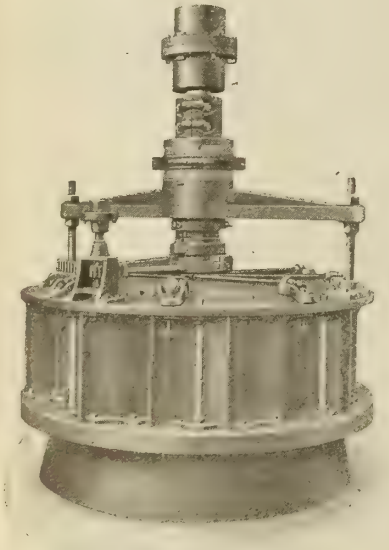
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No matter where you live, or what your business, you are constantly dependent on pumps for the water you drink, for the protection of your home from fire, or the production of the things you use, wear, and eat. And quite likely it is a Fairbanks-Morse pump, for Fairbanks-Morse pumps have long been recognized as standards—dependable pumps, constantly giving maximum service under the most exacting conditions.

The Canadian Fairbanks-Morse engineers know the pumping problems of Canada and, with all the resources and reputation of this national institution behind them, have developed pumps that meet every requirement and meet it with a product that is worthy of being branded "Fairbanks-Morse 100% quality."

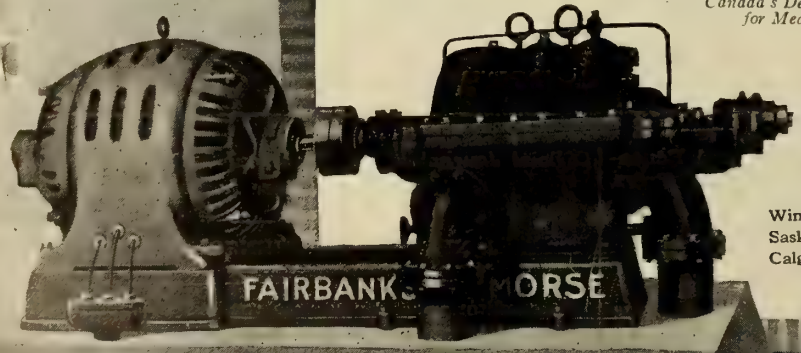
Make this mark your guarantee of satisfaction and our catalogue your buying guide.

The Canadian Fairbanks-Morse Co., Limited

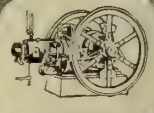
Canada's Departmental House for Mechanical Goods

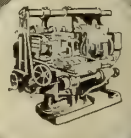
Halifax, St. John, Quebec, Montreal, Ottawa, Toronto, Hamilton, St. Catharines, Windsor, Winnipeg, Saskatoon, Regina, Calgary, Vancouver, Victoria.

15




VALVES AND STEAM GOODS


OIL ENGINES

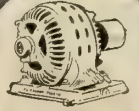

MACHINE TOOLS


PULP AND PAPER MACHINERY


TRANSMISSION


AUTOMOTIVE EQUIPMENT


PUMPS


DYNAMOS AND SUPPLIES


SCALES


MACHINE SHOP SUPPLIES


CONTRACTORS' EQUIPMENT


RAILWAYS SUPPLIES

-:- EDITORIAL -:-

TASCHEREAU'S GOOD BEGINNING.

The Premier of Quebec has announced a campaign against three of the principal factors in the problem of public health — tuberculosis, infant mortality, and blood poisoning. This is a most laudable undertaking and should have the support of everyone in the province. It should even spread to other provinces and become a strong movement of Dominion-wide extent. Mr. Taschereau has shown a clear appreciation of other public problems, such as forest policy and doubtless has in mind the various and, in some cases, insidious, factors in the health problem.

To emphasize, if we may, a couple of contributory causes in connection with the objects of the Premier's campaign. First and foremost is the matter of liquor. Strong drink has absolutely no place in modern civilization, except in rare cases for medical use, and even wine and beer may be a serious menace to both health and morals. Intemperance is an important contributory factor in the damage done by tuberculosis and is a prolific cause of infant mortality. The family of intemperate parents is almost sure to be undernourished and neglected. The alcoholic is an easy mark for tubercle baccilli. The plea of "gentlemen" that they know how to use liquor gives them a special privilege is utterly false. One civilian has no more right to carry a dangerous weapon than another. The man who thinks so is a social menace, and not entitled to the privileges of citizenship or even of civilization. He is a hypocrite. The same and worse applies to the person who condones commercialized vice or contributes to the social evil in any way. And that is where our condemnation of beer and wine comes in. They do contribute to this most damnable thing. The Premier knows it; everyone who reads, listens, looks, and thinks, knows it. The purveyor of booze and iniquity cannot escape being despised by his fellows, even by those he serves. Vice, alcohol and indifference are the Central Powers to be fought in this campaign. God alone knows how many babies never live, how many die in infancy, how many are blind, insane or infirm, because of vice which thrives principally because of the greed of blood-suckers, the callousness or cupidity of politicians, and the indifference of the public. Most certainly the problem is one of education. But education of the people to their responsibility pre-supposes earnestness, courage, and determination on the part of the government. Some public officials unfortunately command no confidence whatever.

We have used some strong language — almost our whole vocabulary — and we mean every word of it. We are ready to support such a campaign to the last ounce of our energy and the last drop of ink, but we want to know that Premier Taschereau means to **make war** on this whole combination of enemies of public health and welfare.

NOT AFRAID OF THE COAL STRIKE.

The pulp and paper mills of Sweden, while to some extent using black diamonds, have largely discontinued the use of this expensive luxury imported mostly from the mines of Britain and are using hard wood. Mr. J. A. Bothwell who is just back from that country says that Swedish pulp mills and railways have but little to fear from the threatened coal miners' strike in England. He estimates that there must have been nearly two million cords of hard wood stacked along the railways that he travelled on.

One of the important possibilities which may prove a fortunate outcome from the necessity for reverting to wood fuel is the effect on the future forest. The most valuable tree in Sweden, as in Canada, is the spruce, which is the basis of the great pulp and paper and lumber industries. The forests of Canada are seriously suffering because hard woods are increasing at the expense of the soft woods which are at the same time being dwarfed because of the dense shade of maple, birch, etc. Foresters in Canada consider the problem of removing the hard woods and utilizing them to be one of the most difficult features of Canadian forestry. Apparently the Swedes have had the solution of the problem forced upon them. From what is said by Mr. Bothwell on another page it appears that Swedish mills are able to bring these hard woods economically to their plants. It would be interesting to know the method of transporting them, and whether a preliminary drying is employed in order to increase the floating quality of the wood. Whatever regret there may be in having to use wood fuel the resulting effect on the forest will one day be appreciated. It practically means a reversion to clear stands of coniferous wood. If such a result could be accomplished in Canada it would be putting millions of dollars into the pockets of future Canadians and would be one of the greatest factors in stabilizing the cost of production of wood pulp and lumber.

Despatches that have come over from time to time during the war gave the impression that the Scan-

dinavian mills were consuming their stocks of pulpwood. Mr. Bothwell's report, however, seems to indicate that while they were overcoming the coal shortage they were at the same time practicing a fundamental principle of scientific forestry. The speed of railway trains is practically the same as in Canada and with the cost of fuel on anythng like an equivalent basis as compared with coal, the use of wood has the additional advantage of practically eliminating the ash handling problem, indeed the wood ashes are actually a source of income. We don't want to see Canada so completely shut off from coal supplies as would make us absolutely dependent on wood fuel, yet the difficulties which have thus been met successfully by Sweden might be studied with profit by Canadian foresters and lumbermen because of its important bearing on the conservation of our soft wood forests.

DOES CHANGING A MACHINE INFRINGE A PATENT?

Among the advertising pages of the Pulp and Paper Magazine, beginning last week, there is a discussion of a matter that is of more than limited interest to the parties directly involved in the dispute. The magazine regrets that it is sometimes necessary to air such a matter on our pages, because of the spirit of friendliness that is characteristic among those interested in the industry. When the copy was received we were inclined not to publish such an advertisement. However, on studying the whole matter it seemed to bring up a point that is of considerable interest to all pulp and paper mills. It is a question of how far a concern is permitted to make changes in machinery without infringing on anybody's patents. Both the concerns involved are good friends of The Pulp and Paper Magazine and we are good friends of theirs, and have hopes of seeing the dispute arranged in an amicable manner.

A FINE CALENDAR.

One of the best agencies that has been devised for promoting interest in the Safety-First Movement has proved to be the "Safety Calendar". This idea was begun some years ago in the United States and last year it was felt that the Safety Movement in Canada warranted the institution of a Canadian calendar. The attempt last year was largely an experiment but proved so entirely successful that it is being repeated this year on a somewhat larger scale. We have been favored with advanced proofs of the cartoons that will appear on the monthly pages and they are certainly well executed drawings of excellent ideas. The cartoon has been found one of the best ways of presenting an idea and the combination in the 1921 calendar promises very successful results.

The Safety Movement is not confined simply to the mill but must be supported and encouraged by carrying the Safety Idea into the home. This is very effectively done by distributing calendars so that each employee may have one to take home. Even if he can read little or no English the picture tells a story which is understood by every member of the household. This continual suggestion and warning with regard to danger points is most helpful in developing a safety thinking community. In spite of increases in cost of production there is very little change in the cost of these calendars and every pulp and paper mill in Canada should lend its hearty support to the cause of Safety First both as a patriotic and a personal proposition by ordering at least as many calendars as there are homes represented in the plant. They may be had at the office of the Ontario Pulp and Paper Makers Safety Association, 129 Spadina Avenue, Toronto, at $.30 for two hundred or less and $.25 each for more than two hundred. Orders should be sent in promptly as the number of orders received early will be a great assistance to the Association in gauging its work.

COBWEBS.

It appears that prices are declining in lines where the combination of decreased buying together with either a past record of excess profits or an accumulation of stocks for speculative holding has made liquidation of goods on hand advisable or necessary. In lines where steady or special demand prevents accumulation of goods, or where increase in labor charges offsets and decrease in cost of raw material, we fail to see any likelihood of a drop. Some manufacturers may be philanthropic enough to try it, but there are not enough of them to make much of a crowd. Gradual reductions, however, are to be expected and hoped for.

One of the most complete community buildings we have heard of is that at Rothschild, Wis., the home of the Marathon Paper Mills, Co., and described in "The Marathon Runner".

Speaking of the Marathon Company, they have started a long service prize system, whereby an employee gets an additional one percent. of his current year's salary or wages for each year of service until the prize money reaches ten per cent.

We have a "hunch" that if demands for advertising fell to a point where publishers could not afford to buy all the newsprint offered at present prices, prices would come down a peg, but we do not expect paper mills to cut prices in order that cheaper paper to their customers will merely mean higher profit to some one else.

If Adam had not eaten the apple, who would have invented work?

What the Pulp and Paper Industry is Doing in Educational Work*

Mr. President, and Friends of Safety:

I greatly appreciate the honor of being invited to speak to such a gathering as this on a subject which has been of great personal interest to me for many years, although I should be at home at work on the text books which are to be used in educating pulp and paper makers rather than here talking about it. The need of some opportunity for young men to learn more about the business of paper making was impressed upon me about sixteen years ago when the frequent answer to my numerous questions asked of our Scotch machine tender was "Well now, Sliver, if I told you all I know, you would know as much as I do."

Since that time a great deal has been learned about paper making, many improvements have been made in machinery and processes and many new inventions have made the work easier and more efficient. These machines and processes have been described more or less clearly in patent office records and occasionally a process or machine is the subject of an address at some meeting or a contribution to a trade periodical. Information on the equipment of the industry is therefore fragmentary and scattered and, although several very good books have been written, a comprehensive discussion and explanation of the fundamentals underlying the construction of machines and operation of processes is practically non-existant in convenient form in English. A movement instituted jointly by the technical men of the industry in Canada and the United States and financed by the manufacturers is now in progress which should go a long way toward the remedy of this condition.

University Training.

In February 1913 the first course in Pulp and Paper Making on this continent was conceived by Dr. R. H. McKee and offered by the University of Maine. This was given by Prof. A. G. Durgin, now with the Spanish River Pulp & Paper Mills, on the Manufacture of Pulp. In the fall of that year the speaker joined the staff, courses were organized in Paper Making and the University shortly had built up a department giving instruction in ten pulp and paper courses, four of which involved practical work in the laboratories which were equipped with pulp and paper making and testing apparatus.

The University of Michigan some time later began post-graduate work in pulp and paper. The University of Wisconsin is, of course, close by the Forest Products Laboratories, but we are not aware that undergraduate instruction has been given in pulp and paper subjects. The same situation is true with regard to McGill University and the Forest Products Laboratories of Canada, at Montreal. Several colleges include a few lectures on these subjects in the course in Industrial Chemistry. This fall the College of Forestry of New York State is offering for the first time, a consecutive course in Pulp and Paper Manufacture. This is based naturally on wood as raw material. Both the University of Maine and the New York State College of Forestry have attempted short courses especially for the man in the mill. They have not been entirely successful.

It will thus be seen, however, that the man who has the time, means and ambition to prepare himself for the technical or engineering departments of the pulp and paper mill has fair opportunities for University training. The lack of schools devoted strictly to pulp and paper making is partly corrected by such means as prevail in Canada, where the Technical Section of the Pulp & Paper Association is co-operating with the universities so that students in Chemistry, Engineering and Forestry are given opportunities to engage in the summer months in practical work with pulp and paper companies.

Vocational Education.

The more difficult and the more interesting phase of the situation, however, relates to providing educational opportunities for the man in the mill or the young man in the schools who has a leaning toward this industry as a career. There are several distinct lines along which instruction may be given, some of which have already been followed up to some extent. At least there have been several night schools in operation and there is included in the International Correspondence Schools courses a few pages devoted to this enormous industry. Besides the night school and correspondence instruction there is the opportunity for part time instruction as advocated by the Federal Board for Vocational Education and there is also the lecture series. It seems that all of these methods can and should be made use of according to local conditions. The problem is largely a local one, and cannot be satisfactorily solved without the earnest attention and a good deal of energy from the men on the spot who have the knowledge of the industry.

As far as I am aware and certainly as far as Canada is concerned, the first distinct attempt to provide for the instruction of employees of the industry was the night school organized at Thorold, Ontario, by the co-operation of the local school authorities and the pulp and paper companies in Thorold, Merritton and St. Catharines. Classes were organized in Chemistry, Electricity and Mechanical Drawing. There was a very good attendance and great interest was shown by the students. Progress was encouraged by the offering of prizes and the proficiency of the student together with his application to study was made the basis, in some cases at least, for promotion. The following year was one when there was a great deal of sickness and attendance necessarily was affected. The interest, however, was still good, the principal difficulty being that those who had qualified in the elementary work were not offered a chance to continue with more advanced studies.

A similar school was organized at Hawkesbury, Ont., by the Technical Department of the Riordon Company. Here, again, the elementary subjects were taught and attendanee and progress were reported as very satisfactory. At Sault Ste. Marie, Ontario, classes were carried on by the Y.M.C.A. with the

*Address by J. N. Stephenson at the annual convention of the National Safety Council, Milwaukee, Wis., Sapt. 30, 1920.

co-operation of the Spanish River Pulp & Paper Mills and the Algoma Steel Corporation. Here, too, the principal subjects were Arithmetic and Elementary Science. At the Spanish River Mills at Espanola classes were held for teaching English to the foreign population. This, I understand was directly in connection with the company's prominent activity in the cause of Safety First, it being realized that an essential factor in the success of the movement is the ability of the employee to understand the common language of the mill.

At Iroquois Falls, Ontario, which is the location of the Abitibi Power & Paper Co., and at Grand Mere, Que., where the Laurentide Co., is situated, courses have been given consisting of a series of what might be called popular lectures on the principal departments of the pulp and paper mill. This is being extended this year by the Abitibi Company through the preparation of a special series of papers dealing with the fundamental processes. The papers have been appearing from week to week in the Broke Hustler, the paper on mill news and town topics published by the company. It should be mentioned also that the Spanish River News, the weekly paper published by the Spanish River Pulp & Paper Mills has also contained a series on the story of newsprint manufacture. It will be noticed that all of these places are centres of newsprint production although the vicinity of Thorold, that is, the Niagara Peninsula, produces perhaps as great a variety of papers as could be found anywhere in the same area.

A number of mills in the United States have undertaken somewhat similar work. The American Writing Paper Company went so far as to set aside one division of their organization for instruction purposes. This phase of the work of that company has not yet, however, been entirely organized. The Kimberley-Clark Company, has also, through its Technical Department, given instruction in certain phases of the work to groups of employees. The Champion Fibre Company at Canton, N.C., are organizing their educational work for the coming winter and are planning a series of courses to be given by heads of departments in order to acquaint the men in each department, as far as his preliminary education will permit, in the fundamental principles underlying the processes and in the description of the various machines and their functions. There is much to be said in favor of carrying out the work as planned by this company. In the first place the men are listening to men they know and to men who are able to talk in their own language. Each mill will often have a sort of pet name for a very common piece of apparatus or machine part and each mill of course has its own problems. Furthermore the student is able at almost any time to ask further questions of his instructor.

This type of instruction is likely to meet with some hitches because of the inexperience of the leaders in planning class-room work and in presenting their knowledge and their ideas to the student. This, however, is not by any means an insurmountable difficulty and with a little persistence, courage and patience and plenty of enthusiasm on the part of those who conduct these classes, there is bound to be a great deal of progress made both by the teacher and by the class. It is well known to educators that a person learns more about his subject through teaching it than through studying it. I know that from experience.

You will have noted, perhaps, that with rather few exceptions the emphasis in the educational work has been on preliminary instruction, that is, the teaching of mathematics and elementary science. There are two reasons for this. In the first place many of the more ambitious men in the mill are the ones who have not had many educational opportunities and who find themselves handicapped in comparison with their fellows who have been through high school or even only through the eighth grade. The grown men who are now in the industry were not required to attend school to the age which is now fortunately becoming a respectable minimum for going out to work in the world. In the second place there cannot be satisfactory progress made in the study of the machinery and processes used in pulp and paper manufacture unless the student understands quite thoroughly the fundamental principles of mathematics and of science so that he may get a clear conception of the discussion of a process or the description of a machine.

Text Books in Preparation.

The Technical Section of the Canadian Pulp & Paper Association and the Technical Association of the Pulp & Paper Industry, formerly the Technical Section of the American Paper & Pulp Association, have since their organization, which was almost simultaneous, each had a committee on education. Until quite recently these committees have worked independently, though acquainted with each other's activities. After the school at Thorold was under way the Canadian Committee realized the serious handicap to successful vocational education in the Pulp and Paper Industry presented by the lack of a suitable text book on the subject. The matter was thoroughly discussed and when the field had been canvassed it was agreed that the problem was too big an undertaking for the Canadian committee and that inasmuch as the problems were largely common to both Canadian and American mills it was decided to have, if possible, joint action taken. A meeting was subsequently held at which all but one member of the two committees were present and a joint committee to proceed with the preparation of a suitable text book was formed. This committee has been in existence now for just two years. The program which is being followed is to prepare an elementary but comprehensive work which will enable the person interested in the industry to begin at the beginning, meaning in many cases, with arithmetic and on that foundation in mathematics and elementary science which is provided, to progress through the study of the various processes involved in pulp and paper manufacture.

The material for Vol I. which includes this elementary instruction is prepared and a large part of it is in type though not yet printed. This volume will include Elementary Arithmetic, Applied Arithmetic, Elementary Physics, How to Read Drawings, Mechanics and Hydraulics, Elementary Electricity, and Elementary Chemistry. The material is so prepared that it will be appropriate for either class room or correspondence instruction or for reference purpose. The provision for correspondence instruction is important because of the comparative isolation of some mills and because some older men might be embarrassed in a class room. This feature, of course, applies to the whole work.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Sept. 25.—Aside from a five per cent increase in the price of shipping tags, and a half a cent rise in kraft paper, the week has produced no changes in the market prices of papers while pulp products remain about the same with a slight easing-off tendency in pulp, especially groundwood pulp. Generally speaking there has been no falling off in trade, with the possible exception of the boxboard industry in which there is a slightly lessened demand for the product, although the mills have all the business they can conveniently handle. In other lines, especially book and the cheaper grades of bond papers, there is a distinct shortage and jobbers are unable to get sufficient supplies to satisfy their customers. There are some signs, however, that the use of paper is gradually decreasing although not to a degree that is affecting the prosperity of the trade. A number of lines of industry that use cartons for their goods, paper to line the cartons and wrap boots and shoes, and paper to wrap furniture, are going through a quiet period and this naturally affects the demand for some lines of paper. It is estimated, however, that there could quite easily be a reduction of twenty-five per cent in the quantity of paper being used without materially affecting business at the mills. However this may be, paper salesmen are looking forward to the time when salesmanship will once more become a pursuit after business instead of a mere routine job where the salesman has to act as mediator between the mill and the customer with considerable wear and tear on his nervous system. The chief duties of the paper seller these days are to book orders over the telephone and by correspondence and then proceed to nurse his customers along over the trying period of delays and broken promises occasioned by the big pressure of business at the mills. Salesmen generally are scanning the horizon for some sign of the coming era when they will be on the road again with their little sample cases.

PULPWOOD—Although a large amount of wood is being offered prices still remain high. Peeled spruce is quoted at from $18.00 to $20.00 per cord, depending on the freight and unpeeled is ruling at from $12.50 to $14.00 and poplar at $13.00 to $14.00 per cord, all f. o. b. cars. Contractors say that there will not be much change in the general situation until the early winter and then it will depend upon the car situation and the general commercial conditions prevailing in the country. The car situation has been improving somewhat and will probably continue to improve with the result that there will be a more rapid movement of pulpwood. As conditions are at present, however, many of the mills hesitate to come into the northern part of Ontario for wood owing to the fact that it has to be paid for when it is stacked up at the points of shipment and when there are no cars to take it out it means the tieing up of their investment for a considerable period. It is pointed out that if the wood could be loaded into the cars as it is produced it would make a difference of $1.25 per cord, apart from shrinkage. Conditions have no where reached that point, however, nor are they likely to reach it until the balance of trade in cars between Canada and the United States becomes more equalized. Contractors say that a distinct improvement has been noted in this respect and ascribe the greater number of cars for the wood as being due to a lessened demand for cars following a period of depression in some lines of manufacture such as automobiles.

PULP—There is no change in the general situation as regards pulp and the mills are still experiencing the greatest difficulty in getting supplies. Groundwood pulp, although still very scarce, is a little easier in price and is selling at from $130 to $150 a ton, while unbleached is quoted at $190 to $200 and bleached at $215 to $200 a ton. Kraft pulp is still quoted at $150 a ton and there is a good demand for it.

BOOK AND WRITING PAPERS—There has been a falling off in miscellaneous orders for book and writing papers although there are enough big contracts to keep the mills going for months ahead. Jobbers complain that they are unable to get anywhere near enough book paper to meet the demands of the trade, while it is a fact that one Toronto manufacturing stationer is faced with the closing up of one of his departments unless he can get freer shipments of a cheap grade of bond paper of which he uses large quantities in his business.

ANOTHER RISE IN KRAFT—Dealers were advised by the mills this week of another jump in kraft paper the advance representing half a cent over the old price of 12½c. The new quotation is 13c a pound and there is a greater demand for the product than can be met, with any degree of promptitude, the mills still being a considerable distance behind with their orders.

RAG AND PAPER STOCK—New cotton cuttings were stronger this week with several increases in price noted. No. 1 white short cuttings advanced 2c a pound and other grades showed fractional advances. Old rags also showed a stronger tendency and higher prices are looked for shortly. The large importations of European mixed papers during the past week or so has steadied local prices as the mills are able to buy this stock laid down at the plant a fraction under current quotations. There are reports, however, that this grade will commence an upward march very shortly. Soft white shavings again advanced 25c per cwt. and dealers are very cautious about commitments for future delivery. White blanks also registered an advance which brought No. 1 manila cuttings up a fraction also. Books continue weak with only a nominal demand from consumers.

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$23.00—$24.00
No. 1 unbleached cotton cuttings	$17.50—$18.00
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$13.50—$14.00
City thirds and blues (repacked), No. 15	$4.00—$4.25

Flocks and satinettes	$2.00—$2.25
Tailor rags	$2.00—$2.10
Gunny bagging	$2.00—$2.25
Manila rope	$5.75—$6.00
No. 1 white envelope cuttings	$8.00—$8.50
No. 1 soft white shavings	$7.50—$7.75
White blanks	$6.00—$6.25
Heavy ledger stock	$3.75—$4.00
No. 1 magazine	$3.50—$3.60
No. 1 book stock	$2.75—$2.90
No. 1 manila cuttings	$5.50—$5.75
No. 1 print manila	$2.50—$2.65
Folded news	$2.35—$2.50
Over issue, news	$2.50—$2.75
Kraft	$5.50—$6.00
No. 1 clean and mixed papers	$2.10—$2.20

NEW YORK MARKETS.

New York, September 25.—Demand from spot buyers for some grades of paper has developed an easier tune, yet the market as a whole shows little effect of this and continues in very nearly as strong a condition as recently. Manufacturers are occasioned scarcely any worry over the let up in buying in some quarters because most of them are so well foresold that a matter of this sort in the transient trade does not concern them to any appreciable extent. Whether or not paper prices will follow the downtrend in various commodities is a question. Most indications are that they will not, at any rate not for the next few months. Unless general business conditions become so forlorn that consumers of paper are obliged to cancel orders for paper in wholesale fashion, it would appear that paper mills are due to keep busily engaged for at least the balance of this year for the simple reason that most of them have the great bulk of their output sold up until that time. Undoubtedly the cutting of prices on automobiles, cotton and woolen goods and other commodities is the main reason behind the slackening of demand for some kinds of paper. Consumers of all varieties of products are inclined to hold off in buying for the moment in view of the price slashing in certain quarters, and it is but logical that users of paper are pursuing the common course.

Reports concerning the newsprint market are somewhat at odds. There are those traders who describe the spot demand for print paper as a good deal quieter, with prices evincing a downward trend at a current basis of 11 cents or slightly less for newsprint in standard rolls. There are many, on the other hand, who say they have much difficulty in obtaining fresh supplies of newsprint and that they are obliged to pay just as high prices as formerly. Taking all the reports at hand, it would appear that available supplies of newsprint in the open market are a bit improved in point of volume. Small buyers seem to be getting paper with less trouble and occasionally there are offerings indicating that stocks in at least some quarters are larger. Evidently this situation has been wrought solely by increased receipts of print paper from European sources. It is known that comparatively sizable tonnages of newsprint have come into the American market recently from Sweden, Norway and Finland, as well as Germany, and the probabilities are a portion of these shipments are seeking buyers, which accounts for the reports regarding price concessions emanating from some quarters. Taking the figures compiled and issued by the News Print Service Bureau as a criterion, domestic supplies do not seem any larger. These statistics show that in August 44 domestic paper mills produced 181,344 tons of newsprint, of which 178,840 tons were shipped, leaving only about one per cent of production for stock. These figures become doubly impressive when it is considered that during August newsprint mills in the United States were running at 100.2 per cent of their daily average production during the production peak of 1919, in spite of which they were under the necessity of shipping practically their entire output for the month in order to fulfil contracts and keep customers supplied.

The contract basis for newsprint is firmly maintained at a range of 6.50 to 8 cents per pound. The average price for contract news at present is a fraction over 7 cents. Manufacturers say in nearly every instance they could readily secure additional orders were they willing to enter into further commitments, and this situation seems to be reflected by the omission of many columns of advertising by leading newspapers from nearly every issue.

Demand for the higher grades of bond paper is distinctly quieter. Mills making such paper are said to be switching to other grades, more often to cheaper lines of fine papers, which continue to move in consistently good volume. Prices on bonds, linens and ledgers hold firm and the increasing cost of production is creative of an upward tendency in quotations.

Coarse papers are not in as heavy demand as recently. Large buyers are reducing the tonnage of their orders, and small consumers are buying less frequently. There is a steady tone to prices, however, and no change of any moment has come about. Boards are in a quieter market position, due to a narrower demand from the paper box trade, and while mill quotations are maintained, there have been reports of transactions at slight recessions in prices.

GROUND WOOD.—The market for mechanical wood pulp evinces a softer undertone than has been noted in some time. Demand has eased off to an extent and indications are that improved weather conditions have permitted grinders in some localities to increase their production, thus making for larger available supplies. Another factor is that quite a few shipments of ground wood have been received from Scandinavia, and although these have not been of sufficient tonnage to affect the domestic market of themselves, such supplies have enabled certain consumers to keep out of the domestic market for a time. Prices range around $130 per ton for spruce pulp of prime quality at grinding plants, and there have been reports of sales in out of the way cases down to as low as $120.

CHEMICAL PULP.—Prices on chemical wood pulps are in a more or less stationary position at present. If anything, the tendency is downward, and instances have come to light where some lots of pulp, kraft in particular, have been sold at price concessions. Importations from Europe are the main controlling factor in the market. Manufacturers and dealers alike say that on this factor rests the future trend of values. Should pulp shipments from Scandinavia continue at the rate of the past few weeks, the probabilities are these foreign supplies will overload the market and act to depress prices. If, on the other hand, recent receipts of Scandinavian pulp represent nothing more than the shipments usually sent to this country from Scandinavia prior to the closing of the Baltic for the winter, and are not maintained, pulp values are likely



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to be upheld on about prevailing levels because it is generally conceded that domestic manufacturers are not able to produce enough pulp to satisfy the requirements of papermakers at the present rate of consumption. No alteration in prices of any consequence has developed, quotations remaining at about previous ranges.

RAGS.—Prices on papermaking rags are firm but there is no especial activity in the market. Mills are buying reservedly, generally confining orders to rags directly needed, and with the exception of some grades of new cuttings, available supplies seem ample to fill the demand. At the same time, paper manufacturers are purchasing in sufficiently broad scope to sustain values, and in the case of certain grades, prices are decidedly on the uptrend. New white shirt cuttings are very firm and are frequently quoted at 28 and 29 cents a pound although supplies are to be had a cent or two under these figures. It seems that consumers other than paper mills are absorbing these rags, with the result that papermakers are obliged to meet the prices asked to compete with other buyers. Fancy shirt cuttings are selling at around 14.50 cents, new unbleached muslins at 19 cents, new washables at 12 to 12.50 cents and new white lawns at 21.50 cents. Old whites are in fairly steady demand and are moving at a price basis of about 15 cents for No. 1 repacked whites, but other old grades are proportionately lower in price with repacked thirds and blues selling at 4.50 cents at shipping points and roofing rags at 2.50 cents.

PAPER STOCK.—Waste papers find a generally good sale among consumers and there is little change in price to report. Both high and low qualities are moving, and dealers lay much emphasis on the increasing difficulty experienced in securing normal amounts through collection sources. One of the strongest items at the moment is white blank news cuttings, which are commanding as high as 7.50 cents a pound at shipping points. White shavings are firmly held at about 9 cents for No. 1 hard and 8.25 cents for No. 1 soft white shavings, while colored shavings are selling freely at 5 cents a pound. Folded newspapers continue to bring 2.70 to 2.75 cents f.o.b. New York and No. 1 mixed paper between 2.10 and 2.20 cents.

OLD BAGGING AND ROPE.—There is practically no life to the old bagging market and supplies of this commodity can be bought at very near any price consumers choose to offer. No. 1 scrap bagging is available to mills at 2.50 cents and less at shipping points and No. 1 gunny at 2.75 to 3 cents. Old rope is moving in fair volume and at steady quotations of between 6 and 6.50 cents per pound for No. 1 manila rope.

THE PATRIOTISM OF PEACE.

In greeting the Conference of Canadian Clubs recently, Sir Arthur Currie, principal of McGill University, expressed the Canadian viewpoint on many present-day problems. His knowledge of Canadians was gleaned where no disguises were worn, on the field of battle, and he showed in this address, as he has shown in others, a rare understanding of the Dominion.

Few public men have summed up the vital duty of the hour more pointedly than Sir Arthur Currie did in saying:

> "The Good Book teaches us that the laborer is worthy of his hire, but it also teaches that by the sweat of our brow do we eat bread."

The greatest evils of our time will be overcome only when the whole people learn to respect both these eternal truths. It will not suffice to concentrate on the first and neglect the second, nor yet to reverse the process and think only of getting out the labor. When the time comes that a fair balance is held between the two in shop and factory, office and farm, and when the justice of it is apparent to all, the demon Unrest will have perished.

Canada's greatest soldier has been in touch with patriotism. He knows it better than most who delight to speak the word. He has seen great proof given of the sentiment. He has been privileged to use the forces of sacrifice.

Once again, Sir Arthur Currie invokes the gold-pure Canadian spirit that he knew in the war. He urges his countrymen to remember how great a trust was given into their hands. He seeks to have a clearer expression than has come yet of the peace-time patriotism on which the stability and safety of Canada depends. To one so familiar with the war-time patriotism, the contrast between sacrifice and selfishness is vivid indeed.

Sir Arthur Currie's messages to the troops in the field have taken place with the soul-moving military papers of history. And now in another field of endeavor, facing again high responsibilities and baffling problems, he retains both the right and the ability once more to move his fellow-Canadians into action.

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VOL. XVIII. GARDENVALE, P. Que., Oct. 7th, 1920 No. 41

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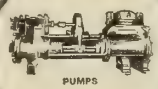
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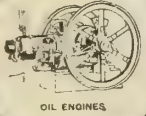

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-:- EDITORIAL -:-

NEWSPAPERS AND FORESTRY.

A very few years ago an editorial in a daily paper on the forestry situation was very unusual. Today such comment is rather to be expected. There are probably two reasons for the increasing frequency with which our daily papers are calling attention to the forestry situation and the necessity for conserving this important natural resource. The first reason is the instinct for self-preservation. Newspaper publishers are coming more and more to realize that their existence rests primarily on the supply of pulpwood from which newsprint is manufactured. They realize that unless proper measures are instituted at once there is every likelihood, in fact, there is practical certainty, that a comparatively few years will see the disappearance of the most prolific source of the raw material which is essential to the publication of a newspaper. The ever increasing cost of pulpwood in the ascending cost of paper and this is not with- and the ever decreasing convenient supply is reflected out its effect on the reading pages of our papers. Far-sighted publishers have looked into the matter and have come to realize that in a few years the question will not be one simply of price but will also involve the more important problem of finding a source of supply. Newspapers of this continent and even those in other countries are convinced that Canada is the natural producer of newsprint. So long as exaggeraed estimates of the time when the present forest would be depleted did not fall within the probable life-time of publishers alive today, little heed was given to the prophets among the foresters who had the keener vision and little fear was felt regarding the ability to keep on increasing the size and number of papers. But since more careful estimates of the probable life of our pulpwood forests have been made and particularly since the end of many pulpwood areas in the United States is actually within sight and newsprint prices are steadily increasing due to scarcity and cost of material the publishers are taking a keen interest in forestry matters.

It is probable also that newspapers are realizing more and more their obligation as agents of instruction with regard to the conservation of our natural resources. While the matter of pulp and paper is the phase of forestry that most intimately affects the publisher, the amount of timber consumed in the manufacture of paper is small in comparison with the quantity required for building operations. The burden of extra cost due to the scarcity of pulpwood is, however, sufficiently great to impress upon the newspaperman the need for conservation and the campaign, started with whatever motive and kept going for whatever realization of personal interest, has the beneficial effect of stimulating an all-round desire on the part of the public to maintain the productiveness of the forest as an actual source of wealth, to say nothing of the forest as an absolute necessity in the production of commodities that are inseparably linked with modern civilization. The dependence of people today on the products of the forest is being more clearly impressed with the growing necessity and increasing prices for such materials. Public opinion should be stirred by such comment as has been appearing recently and an ideal is constantly kept before legislators which must have the effect of bringing about a knowledge of conditions that will be the basis for intelligent and constructive legislation and regulations.

The people of Canada and the United States have for so many years been fed up with the idea that the forests of this continent were inexhaustible that it is going to take a considerable time to unlearn a great deal and to start the public off on the right track. The movement is one that will require constant pushing with probably an occasional 'pull' but it is an effort that must be made and unless the present beginning is constantly and continually followed up there will certainly be difficulty before some of us are under the sod.

As mentioned before, a number of newspapers have undertaken this enormous task of educating the public. In time of disaster such as the all too frequent forest fires that have devastated large areas in both countries, it has been natural and easy for an editor to pen a rousing editorial, but to keep pegging away on a definite program is a more difficult matter. Such papers as the Detroit News, which published a series of articles early in the summer on the more important forestry topics as particularly applying to the State of Michigan, is a most commendable example. The Literary Digest for September 25th contains reference to articles in nine papers that are mentioned by name and refers to still others which have but recently given attention to this subject. These were all American papers and we are constantly seeing editorials and special articles in our

Canadian papers on this subject. The Canadian editorial campaign, we should like to believe, is, in part at least, due to the efforts of the Canadian Pulp and Paper Association and to such forest enthusiasts as Barnjum, Black, Leavitt, Wilson, Howe, Piche, and others. It is not only a good cause but a necessary cause and when the public is made to reliaze that its own comfort, convenience and cash are largely involved there will be more definite action taken with regard to the conservation and scientific administration of our forest resources.

The New York Times and some others seem to place the weight of the burden on the Government and there is a tendency for some to belabor the central authority for not having taken action sooner. It must be remembered that no Government dares go very far in advance of its support from the public and the apathy of Congress, parliaments and legislatures is principally due to the lack of sufficient urge from behind. There is also to be considered the factor of the greed and selfishness of those who own or hope to control forest areas from which they may make a handsome profit. It is for the Government to protect the public both present and future against improper exploitation by such individuals. A difficult feature of the problem is that these very people are so frequently leaders in industry, commerce and public life. They often do an immense amount of good through their ability to organize and direct industry but they need education as to their obligations to the public quite as much as the public needs to be educated to the seriousness of the situation regarding our forest and other natural resources.

The newspapers have tackled a real live problem. We hope they will hold on.

THE TECHNICAL SECTION IN ENGLAND.

Sometime ago announcement was made of the organization of a Technical Section of the British Papermakers Association. The program for the October meeting, which is given this week in our British Trade News, is similar in many ways to the meetings of our own Technical Section which have proved of such interest and value to the members and to the industry. We expect to see the Technical Section on the other side grow and prosper as has the Canadian organization. The British Section has a number of enthusiastic technical men who have interested themselves in this organization, and it is largely on the maintenance of their enthusiasm that the success of the Section depends. It is interesting to observe the cordial relations among the technical men in England, Canada and the United States. Both the Canadian and American organizations are pleased to number among their members several Englishmen. If the rules of the British Section permit it, we are sure the future will see on their lists the names of American and Canadian pulp and paper men. This international membership is a fine thing and should bring benefits to all concerned.

TWO GOOD FRIENDS GONE.

The editor was saddened this week by the news that two good friends had gone. Hon. Winthrop Murray Crane of Dalton, Mass., died last Saturday. Newspaper notices, for the most part, simply mentioned that Mr. Crane was former U.S. Senator. Mr. Crane was much more than that. He was whole-hearted American citizen as his ancestors had been for generations. He was a public servant, not only in discharge of duties of public trust as a State and Federal official, but in his private life as a director of many enterprises, and as a lifelong paper maker in a family that has been paper makers for at least one hundred and eighteen years. We are inclined to think that Mr. Crane's service to the public was even greater in the example of his fine character, which has been a great influence among the people of Massachusetts and even throughout the country. In a simple and unostentatious way Mr. Crane was a public benefactor, his particular hobby being to assist young people to get a start. The editor would thus acknowledge his personal obligation and gratitude for Mr. Crane's assistance during college years.

Our other good friend was Mr. A. G. Campion who died suddenly in Montreal a few days ago. The editor frequently dropped in at Mr. Campion's office for a friendly chat, and always found him enthusiastic over the prospects of the paper trade and a confirmed optimist. Mr. Campion's knowledge of the paper industry was very extensive, his observation was keen and his comment conservative. He was of frequent assistance to the Pulp & Paper Magazine, and his loss will be deeply felt.

COBWEBS.

From the enormous over-subscription of the recent offering of securities of the Anglo-Newfoundland Development Company in London it is quite evident that English capital is aware of the great possibilities in the pulp and paper industry on this side of the Atlantic. We venture to say that if properly presented, practically all of the new capital required for the extensions at presenet contemplated in Canada could be obtained in the world's financial centre. It is a long while since so many sound propositions were being started or extended, and it is small wonder that British capital should be attracted. There is an additional advantage in the need of the British market for Canadian paper. To paraphrase a well known quotation—"Where thy money comes from, there will thy product tend to go."

Curtailing Bleach Consumption by Addition of Sulphur to Digester Liquor*

By GEORGE K. SPENCE, Chemist, New York and Pennsylvania Company.

There has been considerable discussion from time to time regarding the benefits to be derived from adding sulphur or sodium sulphide to digester liquor, and acting for your committee, the writer has handled one phase of this question by running a series of experimental cooks. These experiments were run over an extended period of time and under the varying conditions met with during the ordinary cooking of stock, so that they are representative of actual cooking conditions.

It is hardly possible to compare individual cooks without microscopical observations of the fibres in the finished sheets, and moisture tests of the chips used in each cook, as the mixture of woods used in the different digesters varies to some extent, and the moisture in the chips varies. As a general rule the average mixture of woods over an extended period of time is practically the same, and as the average moisture in the chips was 23.2 per cent during the experimental runs with sulphur and 22.8 per cent during the experimental runs without sulphur, the general average results are comparable.

The small experimental digester was packed with chips each time in the same manner as the large digesters, and the amount of chips used in each case was practically the same.

Before making this comparison it was necessary to make some standard sheets of both brown stock and white stock in order to grade the sheets of pulp made from the stock during the experimental runs.

The brown stock standards were made by selecting an extremely well-cooked, light-colored sample and marking sheet made from it No. 1, then selecting a shivy, dark-colored cook and marking a sheet made from it No. 10, after which samples were selected between these two extremes and sheets made from the graded from No. 1 to No. 10. These standard sheets were used in grading all sheets made from brown stock during the experimental cooks, as expressed in column 12 of tabulations given below.

The white stock standard sheets were made by treating an average hardwood brown stock with varying amounts of bleach. On one sample bleach was used at the rate of 17 pounds of 35 per cent powder per 100 pounds of stock, and sheet made from same selected as a 100 per cent bleached color. On another sample of the same stock, bleach was used at the rate of 8.5 pounds of 35 per cent powder per 100 pounds of stock and sheet made from same selected as a 50 per cent bleached color. In this same maner a complete set of standard sheets was made by varying the amounts of bleach on samples of the same brown stock and sheets made from them given their relative values in per cent bleached color. The same bleaching temperature was used in each case. These standard sheets were used in comparing sheets made from stock during

* Read before the Technical Association of the Pulp and Paper Industry at the Fall meeting in Saratoga Springs, N. Y., Sept. 1, 1920.

EXPERIMENTAL SODA MILL COOKS.
Without Use of Sulphur.

Cook Number.	Gallons of Liquor Used.	Bé. Strength of Liquor.	Causticity of Liquor.	Per Cent Salt in Liquor.	Average Steam Pressure, Lbs.	Hours Shut in.	Hours at Full Pressure.	How Digester Discharged	Hours in Wash Pan.	Temp. of Stock When Bleach Was Added.	Color of Brown Stock.	Pounds of 35% Bleach per 100 lbs. of Stock.	Temp. at End of Bleaching.	Color With Iodized Starch.	Color of White Stock.
1	45	11	94.8%	.99	108	3	4½	O. K.	2 hrs. 35 min.	78° F.	No. 6	15.7	128° F.	Light Blue	100%
2	43	11½	94.8%	.99	109	3	4½	O. K.	2 hrs. 40 min	75° F.	No. 4	11.3	128° F.	Light Blue	88%
3	43	11¾	92.5%	.99	110	3	4½	O. K.	2 hrs. 40 min.	80° F.	No. 6	12.6	113° F.	Light Blue	84%
4	44	11¾	94.6%	.99	110	3	4½	O. K.	2 hrs. 35 min.	74° F.	No. 6	12.6	118° F.	Light Blue	82%
5	43	12	92.1%	.99	112	3	4½	O. K.	4 hrs. 40 min.	78° F.	No. 7	15.7	113° F.	No Color	86%
6	43	12	91.9%	.99	112	3	4½	O. K.	4 hrs. 0 min.	85° F.	No. 6	12.6	123° F.	No Color	82%
7	43	12	92.4%	.99	112	3	4½	O. K.	4 hrs. 0 min.	84° F.	No. 5	9.5	125° F.	Light Blue	65%
8	42	11¾	94.1%	.99	117	2	4½	O. K.	3 hrs. 40 min.	78° F.	No. 5	10.7	133° F.	No Color	80%
9	42	11¾	93.0%	.99	116	0	4½	O. K.	4 hrs. 30 min.	82° F.	No. 8	13.7	134° F.	No Color	70%
10	43	11½	95.7%	.99	116	0	4½	O. K.	3 hrs. 20 min.	78° F.	No. 6	10.7	127° F.	No Color	65%
11	44	11¼	95.3%	.99	116	0	4½	O. K.	4 hrs. 25 min.	78° F.	No. 7	11.3	124° F.	Light Blue	70%
12	45	11	96.6%	.99	116	0	4½	O. K.	4 hrs. 55 min.	80° F.	No. 8	13.7	126° F	No Color	65%
13	45	11	96.8%	.99	116	0	4½	O. K.	4 hrs. 0 min.	78° F.	No. 7	11.3	128° F.	No Color	70%
14	44	11¼	92.1%	.99	117	0	4½	O. K.	5 hrs. 35 min.	79° F.	No. 10	14.2	121° F.	No Color	60%
15	44	11¼	92.5%	.99	117	0	4½	O. K.	6 hrs. 35 min.	83° F.	No. 10	15.7	121° F.	No Color	72%
16	44	11¼	94.5%	.99	118	0	4½	O. K.	5 hrs. 10 min.	83° F.	No. 8	12.6	118° F	No Color	60%
17	43	11½	92.3%	.99	119	0	4½	O. K.	4 hrs. 55 min.	84° F.	No. 7	10.7	118° F.	No Color	62%
18	43	11½	93.8%	.99	118	0	4½	O. K.	5 hrs. 25 min.	80° F.	No. 8	14.2	131° F.	No Color	78%
19	45	11	94.5%	.99	117	0	4½	O. K.	5 hrs. 50 min.	83° F.	No. 8	13.7	126° F.	No Color	68%
20	45	11	92.8%	.99	116	0	4½	O. K.	4 hrs. 20 min.	80° F.	No. 6	11.3	137° F.	No Color	72%
21	45	11	95.5%	.99	116	0	4½	O. K.	4 hrs. 35 min.	81° F.	No. 5	11.3	128° F.	No Color	85%
22	43	11½	93.6%	.99	116	0	4½	O. K.	4 hrs. 5 min.	80° F.	No. 4	9.5	118° F.	No Color	72%
23	42	11¾	93.6%	.99	118	0	4½	O. K.	4 hrs. 50 min.	83° F.	No. 7	11.3	125° F.	No Color	70%
24	42	11¾	95.6%	.99	114	2	4½	O. K.	5 hrs. 0 min.	80° F.	No. 9	13.7	122° F.	No Color	60%
25	44	11¾	95.6%	.99	110	2	4½	O. K.	5 hrs. 35 min.	84° F.	No. 9	14.2	120° F.	No Color	62%
26	44	11¼	95.6%	.99	109	2	4½	O. K.	3 hrs. 30 min.	83° F.	No. 6	10.7	115° F.	No Color	68%
27	42	12	92.8%	.99	107	2	4½	O. K.	5 hrs. 30 min.	83° F.	No. 8	12.4	115° F.	No Color	58%
28	43	11½	94.8%	.76	110	2	4½	O. K.	3 hrs. 20 min.	83° F.	No. 7	10.7	115° F.	No Color	62%
29	44	11¼	94.8%	.76	110	2	4½	O. K.	3 hrs. 30 min.	85° F.	No. 7	11.3	118° F.	Light Blue	68%
30	43	11½	94.8%	.76	109	2	4½	O. K.	3 hrs. 25 min.	84° F.	No. 7	11.3	122° F.	No Color	70%
31	42	11¾	94.8%	.76	109	2	4½	O. K.	3 hrs. 20 min.	86° F.	No. 7	14.2	120° F.	No Color	85%
32	42	11¾	94.8%	.76	109	2	4½	O. K.	3 hrs. 35 min.	83° F.	No. 5	9.3	116° F.	No Color	72%
33	42	11¾	94.8%	.76	109	2	4½	O. K.	3 hrs. 40 min.	86° F.	No. 6	10.7	120° F.	No Color	70%
34	44	11¼	94.8%	.76	110	2	4½	O. K.	3 hrs. 45 min.	83° F.	No. 7	11.3	132° F.	No Color	70%
35	44	11¼	94.8%	.76	110	2	4½	O. K.	3 hrs. 40 min.	82° F.	No. 7	11.3	136° F.	No Color	70%
Average	43.4	11½	94.2%	.94%	113	1.34	4½	O. K.	4 hrs. 12 min.	81¼° F.	No. 6.83	12.2	123.4%	No Color	72.3%

experimental cooks and each given its relative value, as expressed in the last column of tabulations given below.

Table No. 1 gives results obtained during thirty-five experimental cooks in which no sulphur or sodium sulphide was used.

Table No. 2 gives results obtained during thirty-five experimental cooks in which sulphur was used at the rate of 1.1 pound per 100 pounds of stock cooked.

The summaries of the above tables can be compared as follows :

Average	Without Use of Sulphur	When Using Sulphur
Gallons of liquor used.....	43.4 gallons	42.75 gallons
Be. strength of liquor at 60° F.	11½° Be.	11½° Be.
Causticity of liquor.....	94.2%	94.14% plus .9% sulphidity
Per cent salt in liquor.....	.94%	1.05%
Steam pressure	113 Pounds	110 pounds
Hours shut in.....	1 hr. 20 mins.	1 hr. 14 min.
Hours at full pressure.....	4½ hrs.	4½ hours
How digester discharged.....	O. K.	O. K.
Hours in wash pan.....	4 hrs. 12 mins.	3 hrs. 54 min.
Temperature of stock when bleach was added.....	81.25° F.	84.9° F.
Color of brown stock.....	No. 6.83	No. 6
Pounds of 35% bleaching powder per 100 pounds of stock.	12.2 pounds	11.74 pounds
Temperature at completion of bleaching	123.4°F.	126° F.
Color of white stock.....	72.03%	74.7%

The cooks in which sulphur was used had a slight advantage of .84 per cent in total causticity and sulphidity and about 18 minutes less time in the wash pans. This advantage was offset by the digesters in which no sulphur was used, being cooked at an average of 3 5-8 higher steam pressure, and .65 gallons more liquor used per digester.

The average color of the brown stock samples was No. 6.83 from cooks in which no sulphur was used and No. 6 from cooks in which sulphur was used, being almost equivalent to comparing a No. 7 with a No. 6 standard.

The samples of white stock from cooks in which no sulphur was used had an average bleached color of 72.03 per cent with a consumption of 12.2 pounds of 35 per cent bleach per 100 pounds of stock. Average stock bleached with 12.2 pounds of 35 per cent bleach per 100 pounds of stock will produce a 71.8 per cent bleached color, while the experimental run produced a .23 per cent better color.

The samples of white stock from cooks in which sulphur was used had an average bleached color of 74.7 per cent with a consumption of 11.74 pounds of 35 per cent bleach per 100 pounds of stock. Average stock bleached with 11.74 pounds of 35 per cent powder per 100 pounds of stock will produce a 69.06 per cent bleached color. Making the same allowance as above this amount of bleach should have produced a 69.29 per cent color if no sulphur had been used and since by use of sulphur we secured a 74.7 per cent bleached color, this would mean a difference of 5.41 per cent.

This saving of 5.41 per cent of 17 pounds or .92 pounds of bleach per 100 pounds of stock can be attributed to the use of sulphur in the digester liquor, since all of the other conditions were practically balanced.

Since it required the use of 1.1 pounds of sulphur per 100 pounds of stock to save .92 pounds of 35 per cent bleaching powder there would be very little advantage in its use under normal conditions if this were the only virtue to be considered.

However, it is claimed that an increased yield and increased strength is produced by its use in digester liquor, which will furnish material for future experiments in order to determine the extent of this increase.

WINTHROP MURRAY CRANE IS DEAD.

W. Murray Crane, former U. S. Senator and well known paper maker, died suddenly at his home in Dalton, Mass., last Saturday, after a serious illness of several weeks. The Crane family has made paper in Massachusetts since 1802.

EXPERIMENTAL SODA MILL COOKS.
Using 1.1 Lbs. of Sulphur per 100 Lbs. of Stock.

Cook Number.	Gallons of Liquor Used.	Bé Strength of Liquor.	Causticity of Liquor. Sulphidity.	Per Cent Salt in Liquor.	Average Steam Pressure, Lbs.	Hours Shut in.	Hours at Full Pressure.	How Digester Discharged	Hours in Wash Pan.	Temperature of Stock When Bleach was Added.	Color of Brown Stock.	Pounds of 35% Bleach per 100 lbs. of Stock.	Temperature at End of Bleaching.	Color With Iodized Starch.	Color of White Stock.
1	43	11¼	93.4%+.9%	1.	110	0	4½	O. K.	7 hrs. 10 min	82° F.	No. 7	13.1	116° F.	No Color	75%
2	44	11¼	94.7%+.9%	1.	110	0	4½	O. K.	7 hrs. 40 min.	86° F.	No. 8	15.7	131° F.	Light Blue	72%
3	39	11½	95.0%+.9%	1.	110	0	4½	O. K.	3 hrs. 25 min.	85° F.	No. 6	12.2	116° F.	Light Blue	80%
4	43	11¼	93.1%+.9%	1.12	108	3	4½	O. K.	3 hrs. 45 min.	82° F.	No. 6	12.2	128° F.	No Color	80%
5	42	11¾	94.0%+.9%	1.12	109	3	4½	O. K.	3 hrs. 55 min.	86° F.	No. 6	12.2	139° F.	No Color	80%
6	43	11½	93.2%+.9%	1.12	108	3	4½	O. K.	3 hrs. 45 min.	86° F.	No. 6	14.0	133° F.	No Color	82%
7	43	11½	95.3%+.9%	1.12	107	3	4½	O. K.	3 hrs. 15 min.	90° F.	No. 6	12.2	133° F.	No Color	75%
8	42	11¾	93.7%+.9%	1.12	109	3	4½	O. K.	3 hrs. 10 min.	83° F.	No. 6	12.2	130° F.	No Color	75%
9	43	11½	94.5%+.9%	1.12	109	3	4½	O. K.	4 hrs. 35 min.	82° F.	No. 6	13.1	126° F.	No Color	82%
10	43	11½	94.7%+.9%	1.12	108	3	4½	O. K.	5 hrs. 10 min.	85° F.	No. 7	14.0	130° F.	No Color	80%
11	42	11¾	94.5%+.9%	1.12	109	3	4½	O. K.	7 hrs. 0 min.	84° F.	No. 8	12.2	130° F.	No Color	62%
12	42	11¾	93,6%+.9%	1.12	107	3	4½	O. K.	3 hrs. 45 min	88° F.	No. 6	12.2	130° F.	No Color	80%
13	41	12	93,3%+.9%	1.12	110	0	4½	O. K.	3 hrs. 25 min.	85° F.	No. 5	9.1	135° F.	No Color	70%
14	42	11¾	93,4%+.9%	1.12	108	0	4½	O. K.	3 hrs. 25 min.	85° F.	No. 5	9.1	133° F.	No Color	70%
15	41	12	93.5%+.9%	1.12	108	0	4½	O. K.	4 hrs. 45 min.	85° F.	No. 7	12.2	132° F.	No Color	65%
16	41	12	93,5%+.9%	1.12	110	3¼	4½	O. K.	3 hrs. 0 min.	86° F.	No. 6	12.2	122° F.	No Color	72%
17	41	12	93 2%+.9%	1.12	107	3¼	4½	O. K.	2 hrs. 55 min.	80° F.	No. 6	9.1	124° F.	Light Blue	60%
18	41	12	93 5%+.9%	1.12	108	3¼	4½	O. K.	2 hrs. 55 min.	86° F.	No. 6	10.3	124° F.	Light Blue	68%
19	43	11½	93.5%+.9%	1.12	107	3¼	4½	O. K.	3 hrs. 20 min.	84° F.	No. 7	12.2	122° F.	No Color	62%
20	43	11½	94.5%+.9%	1.12	113	3¼	4½	O. K.	4 hrs. 0 min.	85° F.	No. 7	14.0	133° F.	No Color	72%
21	44	11¼	94.5%+.9%	.97	112	0	4½	O. K.	2 hrs. 50 min.	82° F.	No. 5	9.5	122° F.	No Color	78%
22	45	11	94.4%+.9%	.97	112	0	4½	O. K.	2 hrs. 40 min.	85° F.	No. 6	11.6	118° F.	No Color	70%
23	42	11¾	94.4%+.9%	.97	112	0	4½	O. K.	4 hrs. 35 min.	83° F.	No. 6	10.1	120° F.	Light Blue	65%
24	43	11½	93.4%+.9%	.97	112	0	4½	O. K.	3 hrs. 20 min.	86° F.	No. 6	10.1	116° F.	No Color	65%
25	43	11½	93.7%+.9%	.97	114	0	4½	O. K.	2 min. 40 sec.	91° F.	No. 5	9.5	126° F.	No Color	75%
26	43	11½	94.6%+.9%	1.	113	0	4½	O. K.	3 hrs. 35 min.	84° F.	No. 5	10.1	135° F	No Color	80%
27	43	11½	94.6%+.9%	1.	113	0	4½	O. K.	2 hrs. 35 min.	87° F.	No. 5	12.5	134° F	No Color	88%
28	43	11½	94.5%+.9%	1.	114	0	4½	O. K.	3 hrs. 5 min.	85° F.	No. 5	9.5	125° F.	Light Blue	76%
29	41	12	93.7%+.9%	1.	113	0	4½	O. K.	3 hrs. 5 min.	82° F.	No. 6	12.9	123° F.	No Color	80%
30	42	11¾	94.0%+.9%	1.	113	0	4½	O. K.	3 hrs. 25 min.	84° F.	No. 6	13.1	121° F.	No Color	82%
31	44	11¼	95.1%+.9%	1.	114	0	4½	O. K.	4 hrs. 15 min.	83° F.	No. 5	9.5	122° F.	No Color	75%
32	47	10½	95.2%+.9%	1.	111	0	4½	O. K.	4 hrs. 05 min.	84° F.	No. 6	8.9	120° F.	No Color	68%
33	46	10¾	95.0%+.9%	1.	111	0	4½	O. K.	4 hrs. 20 min.	88° F.	No. 7	12.9	116° F.	Light Blue	70%
34	44	11¼	94.8%+.9%	1.	112	0	4½	O. K.	4 hrs. 30 min.	84° F.	No. 6	14.1	125° F.	No Color	90%
35	44	11¼	94.8%+.9%	1.	111	0	4½	O. K.	3 hrs. 40 min.	86° F.	No. 4	13.1	124° F.	No Color	92%
Average	42.75	11½	94.14%+.9%	1.05	110	1.14	4½	O. K.	3 hrs. 54 min.	84.90° F.	No. 6	11.74 lbs.	126° F.		74.7%

NOTE.—Tables reproduced by photo-engraving from the Paper Trade Journal.

The Allen Automatic Cooking Control for Chemical Pulp*

By C. H. ALLEN, Glens Falls, N. Y.

Sulphite pulp should be cooked automatically for three principal reasons, as follows: (1) Production will be increased; (2) Quality will be improved; (3) The steam load on the boiler house will be more uniform.

In short, the automatic control which I will describe does for each charge of chips what a good cook tries to do, but can never do, because, in the first place, the apparatus he is using places a practical limit on his control, and secondly, he cannot be everywhere at once and think of everything at the same time.

The automatic cooking control system consists essentially of a power driven steam valve electrically connected to a steam flow meter on the digester steam line, an automatic relief valve, and relief strainers that do not plug. It also includes the automatic separation of relief gas and liquor.

The steam apparatus can be set to maintain any constant or varying steam flow curve. Temperatures within the digester are proportional to the rate of steam input. The control apparatus therefore can be set to give any desired temperature curve.

Cooking automatically does not necessarily mean that all charges of chips will be steamed on the same steam curve. In practice, where the strength of the acid and quality of chips are reasonably constant the same steam flow curve should be used on all digester charges; but in cases here the strength of acid and quality of chips vary widely from cook to cook better results may be obtained by varying the form of the steam curve to suit changing conditions.

These changes in the steam flow curve are very readily and quickly made. The steam curve element of the control system is a small thin plate of copper having an insulated hole; it is slipped over the chart spindle of the steam flow meter clock. The periphery of this piece of copper at any point represents the rate of steam it is desired to carry at that particular instant. The steam curve and paper chart of the instrument are rotated by the meter clock. It is no more trouble to change the steam curve than it is to change the paper chart of the instrument, in fact, the time required is a matter of only a few seconds.

Once the cook is started it needs no further attention until blowing time, and further, when a cook is started it is known beforehand when it is going to blow, within a few minutes. The reason for this is that it takes a certain and very definite quantity of steam to cook a cord of chips. Steam is metered into the digester at a predetermined rate and therefore it it known beforehand when the digester will blow. The cooking time may be shortened by steaming at predetermined higher rates and lengthened by steaming at predetermined lower rates. It has been proven that other conditions such as will occur from day to day do not affect the cooking time except to an almost negligible degree. When the digesters of any one mill are steamed automatically the proper spacing out of the blowing time follows as a natural and inevitable result. If, as sometimes happens after blowing a digester a small amount of repairs are found necessary to the blow valve or piping, which delays the time of starting to cook the next charge of chips the cooking operation can nevertheless be finished on schedule time by adjusting the control apparatus to maintain a higher steaming rate.

The automatic relief valve can be set to maintain any pressure it is desired to carry within the digester. The relief valve stem is operated by a diaphragm which carries digester pressure on one side and is counteracted by a spring on the other. The diaphragm and spring are made large so that the resistance due to the sticking of the valve stem in its packing is practically negligible in comparison with the forces which tend to actuate the valve. When cooking by hand a good cook tries to open his relief valve by very small amounts at each adjustment and just enough to hold the digester pressure against his steam valve opening. If he happens to open too wide the strainer plugs. It is then necessary to shut off steam, blow back the strainers and start over again. The automatic valve cracks open by exceedingly small increments. It is always open to the correct amount and instantly responds to changes in pressure too small for a cook to detect even if he happened to be trying to do so.

The strainers used in connection with the control apparatus are of two different designs, one being adapted for use under the cover and the other in the digester neck. The cover strainer, so called, is somewhat similar in appearance to other strainers in general use. It consists of a bronze internal framework and an outside covering of thin perforated lead. The neck strainer, so-called, is made of perforated hard drawn lead. It is cylindrical in form and wide open at both ends. The outside diameter of this strainer is approximately one and one-half inches less than the internal diameter of the digester neck. In short the strainer is a perforated lead bushing fitting loosely in the digester neck. In operation the relief gas and liquor flow from within the strainer outwardly to the space between the bronze sleeve in the digester neck and the strainer, from thence through the digester neck and through a pipe of suitable size to the automatic relief valve. This is a stationary strainer, i.e., it is not removed when the digester is being refilled.

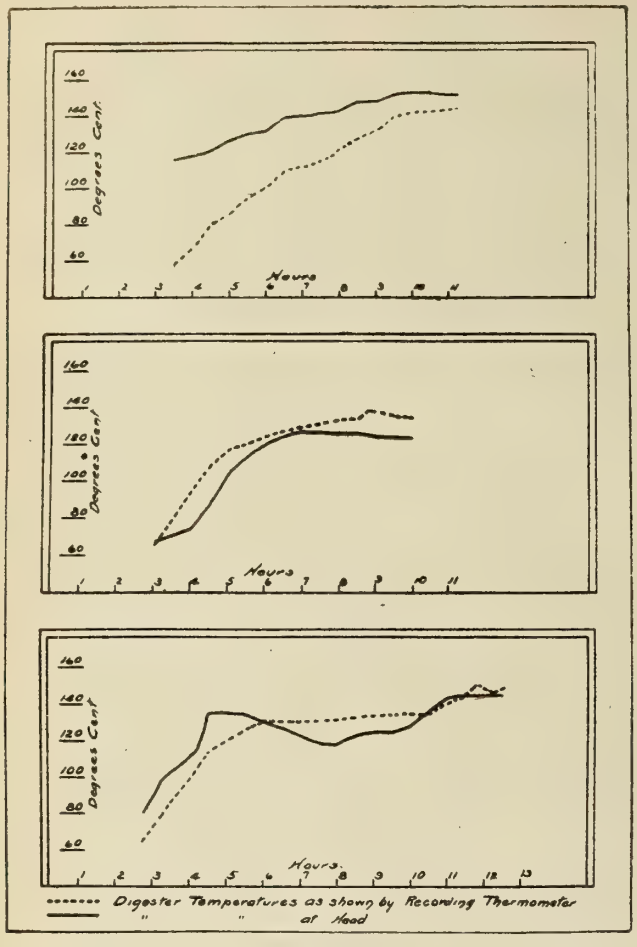
In the cooking of sulphite pulp many mill superintendents seek to have their cooks follow predetermined temperature curves. This practice represents an effort in the right direction and results in a somewhat greater uniformity of quality than is the case where steaming is left entirely in the hands of the attendant. Temperature recorders give only a rough indication of the steaming rate. It is easily possible to produce a very smooth temperature curve and a very erratic steam flow curve at the same time.

Temperature recorders are sluggish and slow to respond to the throttle valve. They do not indicate the rate of steam input at any instant. Changes in the quantity of steam pouring into the digester can

* Read before the Technical Association of the Pulp and Paper Industry at the Fall Meeting in Saratoga Springs, N.Y., September 1, 1920.

be detected by means of the temperature recorder only after the lapse of considerable time.

Moreover, the temperatures at any two points within the digester are seldom the same. This fact is illustrated by the three sets of temperature records shown below. These are records of actual cooks. The dotted line in each case is the temperature in the side of the digester. The solid line is the temperature in the head.



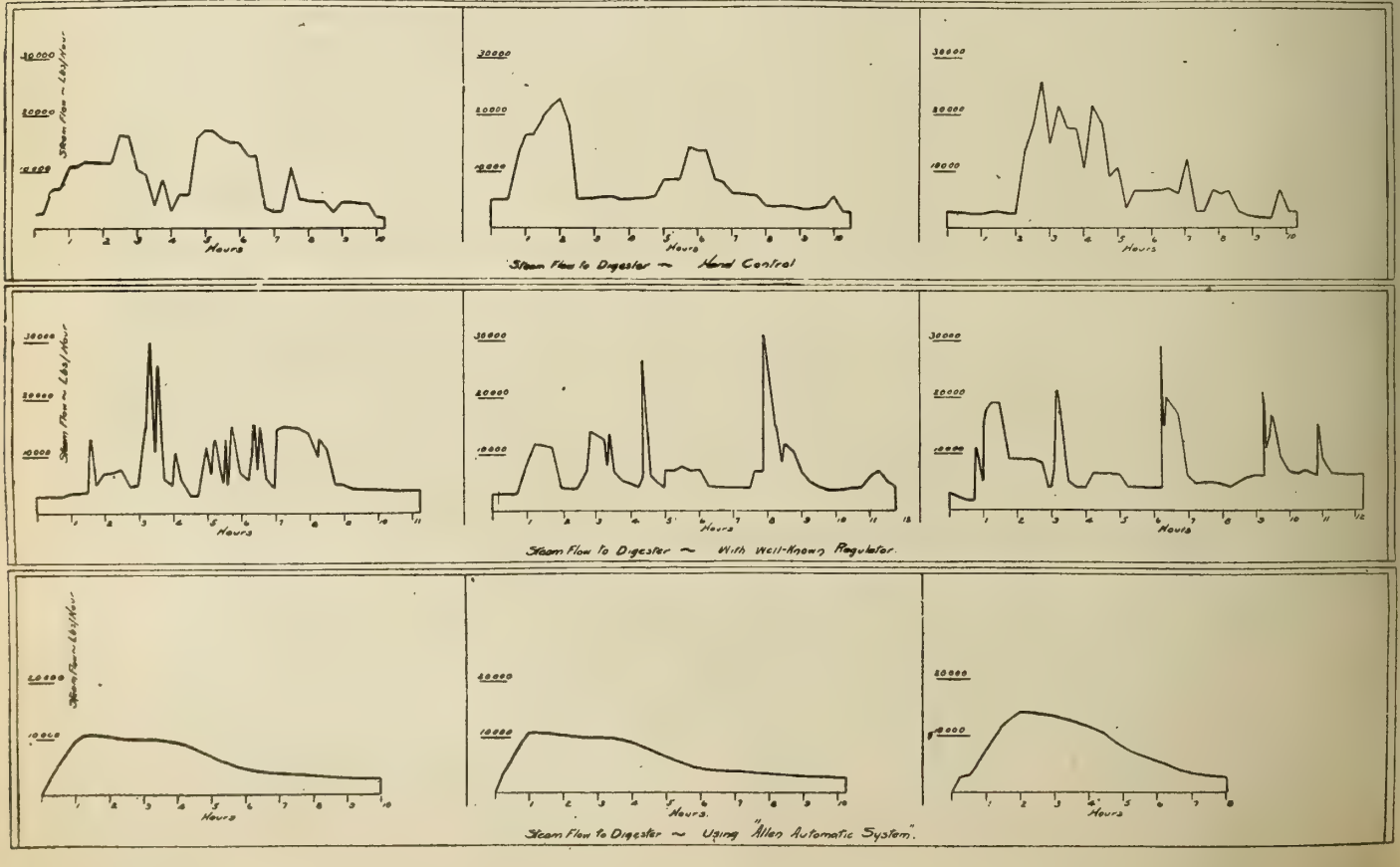
Violent changes in the steam rate of short duration cause scarcely a ripple in the temperature curve; however, spasmodic and violent changes in the rate of steaming do cause non-uniformity of product. Spasmodic and violent changes in the rate of steaming also affect the economy of steam plant operation disastrously.

A sulphite cook whose experience in cooking sulphite extends back over a period of seventeen years once said to me, "I never steam two digesters alike, and no two cooks steam digesters alike." This man spoke the truth, as the evidence of the temperature records indicates.

The first three curves are the steam flow meter records of three cooks steamed by hand. The next three curves are the actual steam flow meter records of three cooks steamed with a well known regulator, these are even worse than the records from hand control though, to be fair, it should be said that this regulator produces a very smooth pressure curve. However, the degree of smoothness of the pressure curve is no indication of quality, or the cooking time.

The last three curves are actual steam flow records taken from the same digester when steamed automatically. The first two curves were produced with the apparatus set for a ten and one-half hour cook, the last curve with the apparatus set for an eight and one-fourth hour cook. The quality of sulphite produced by these automatically maintained steaming rates was excellent.

In general, it may be stated that the form of the steam curve determines quality, and the average rate of steaming determines the length of the cook.



ANOTHER RIORDON PARTY.

The Editor has the blues. A party of eighty pulp and paper men are up at Temiskaming, Ontario, visiting the new Kipawa plant of the Riordon Company, and the editor has to stay at home. It was not for lack of invitation, however.

Guests of the Riordon Sales Company from Canada, the United States, and even from England gathered at the Ritz Carlton Hotel, in Montreal, on Monday morning, and after getting fairly well acquainted with each other, sat down to luncheon. In the absence of Mr. Carl Riordon, Managing Director, who had to be at the mill, and Mr. T. J. Stevenson, who is now on his way home from England, Mr. Geo. E. Challes acted as master of ceremonies. With a brief and hearty welcome, and instructions for each man in the room to get acquainted with his neighbor, things began to move. Mr. P. T. Dodge, President of the International Paper Co., proposed a toast to the King, the Dominion, and the United States. Of the eighty odd guests who had hoped to be present only three were prevented from attending. At the close of the luncheon Mr. Challes introduced Mr. Frank Moore of Watertown, N.Y., who now has Canadian interests through his association with the Manouan Pulp & Paper Company. Mr. Moore, in a brief and witty speech, proposed a toast to the Riordon Company, and this was responded to by Mr. Challes, who mentioned with pride that five of the officers of the company had an average service record of more than thirty-two years. He and the company were heartily cheered. Mr. A. D. Huff, who was in charge of transportation arrangements for the party, then announced that the motors were ready to take the guests to the Place Viger Station where a special train of six cars stood waiting to take the guests to the mill. It was not explained why, but Mr. Beck was labelled "A-1." The train left promptly at 1.30, and that was the last the Editor saw of the happy people who were sure of a fine trip to the excellent plant at the foot of Lake Temiskaming. More will be heard next week of the trip.

OUT OF EXPERIENCE.

The other evening I was speaking before a group of 300 factory boys—sixteen to eighteen years of age—who were attending a Y. M. C. A. night school. I was trying to drive home what it would mean to any one of them to lose an arm or an eye through an accident, what it would mean if the father of every boy in the audience should be killed, when I noticed one of the smallest boys crying. I stopped and asked what the trouble was.

Between sobs I got this answer: "Three weeks ago my dad was working on a scaffold in the.....Plant when all of a sudden it gave way and he fell to the ground. Then they brought him home dead."

I asked the little fellow, barely sixteen years old: "And so you had to go to work because your father was killed?"

Again a sob and "Yes" was the answer.

It suddenly occurred to me to ask: "How many other boys here have to go to work because their fathers have been killed or seriously injured through an accident?"

Exactly ninety-nine boys raised their hands, not including the little fellow up in front who was now sobbing louder than ever.

I have been traveling back and forth across the country for years preaching safety and talking about the far reaching effects of accidents, but never had I pictured the loss of education to children, the suffering to mothers, the loss to society, as I did in the flash of ninety-nine boys' hands behind a hundred pairs of misty eyes.—From the Marathon Runner.

Who dares say it is not his business to look out, for the other fellow? Where would **you** be if **your** dad had been killed, or had not been killed, because somebody was careless?

DRESSING LETS BELTS RUN SLACK.

In almost every factory and machine shop a certain amount of power is wasted in transmission through driving belts, the percentage of loss depending upon the attention to the matter.

Slipping, the trouble most frequently encountered, is common to all classes of belting, and generally speaking the remedy applied is to cut and tighten or "take up" the belt, so that it will run free from slackness, with a better grip on the pulleys; but probably more belts are broken and prematurely destroyed in this way than by actual use, not to speak of the additional load thrown on the engine and the consequent waste of power.

To overcome slipping, many engineers incline to the principle of using belts wider than is actually necessary. This permits a heavier load to be carried, but when the practice is generally adopted all over a machine shop, 50 or more belts, the cost is considerable.

There is, however, a growing tendency to run belts slack, as not only is friction thus reduced and the life of the belt increased, but less power is wasted, and the strain on the prime mover is considerably reduced. Immediately the tension is reduced, the friction is proportionately lessened.

Further increase of the arc of contact around the pulley (after the belt has been sufficiently slackened to have no initial tension) will not lessen the friction, but the load-carrying capacity of the belt is increased. As an example, in many engineering shops it has been found that cuts 50 per cent heavier can be taken on lathes where the arc of contact has been increased from 180 degrees (with a tight belt), to as high as 220 degrees (with a slack belt), and in one instance with a corn-crushing machine the increase in output was over 50 per cent.

To permit driving belts to run slack, a proper belt dressing should be employed. Many belt dressings rely almost entirely on their capacity to "stick," due to inclusion of rosin or tar in their composition, but others take the form of a non-sticky preservative, or belt food, free from acid or alkali action, which is absorbed into the belt, rendering it pliable and highly effective and at the same time protecting it from the effects of moisture, dryness or chemical fumes. Such a preparation, properly applied, tends to give belts a velvety cling through the setting up of a vacuum suction without fear of slip, even under the heaviest loads.—The Amphibian.

What T.A.P.P.I. did at Saratoga

CONCLUSION OF COMMITTEE REPORTS.

Progress Report Regarding the Text Books.

Mr. Chairman and Members of the T. A. P. P. I.

Instead of merely stating what has happened since I last reported to you on the preparation of the text books it seemed appropriate at this time to make what might be called An Accomplishment Report. It is almost exactly two years since the Joint Committee was organized and somewhat less than that since the honor and labor of the editorship were urged upon me by the enthusiastic chairman of the Joint Committee. It was obvious from the first that we were undertaking an enormous task—and it isn't shrinking any.

You will pardon a bit of family history. Just before this matter engulfed me, I had planned a series of articles for the Pulp & Paper Magazine that covered almost exactly the ground we are now on and even most of the same chapter headings are found in the outline of the book. We had gone so far as to pick the authors for those articles, endeavouring to get the best men available. When I undertook the new duties the preliminary work was swung into line for the book practically as laid out for the magazine so we got a pretty good start.

The next thing was to keep it going and on the right track. The committee determined on the scope of the work, enlisted the assistance in a consulting and editorial way of men of international influence in the development and preparation of text books suitable for either the class room or home study.

The committee estimated, nearly two years ago, that $30,000 would be required for the work. That has been entirely contributed by the industry—$10,000 by the Canadian Pulp & Paper Association and $20,295.27 by paper mills and others interested in the industry in the United States, a most successful co-operative effort.

The authors were selected, some only after much persuasion, others gladly and even gratuitously. The industry will rise some day and bless them all.

The committee thought best to furnish to the man who has had to leave school at early age, the opportunity to get the equivalent of the fundamentals of Mathematics and Science, so that he might comprehend and appreciate the principles and calculations involved in the machinery and processes for making pulp and paper—this material constitutes the first volume and includes Arithmetic, Mathematical Applications, How to Read Drawings, Elementary Physics, Mechanics and Hydraulics, Electricity and Chemistry.

An agreement was reached last December with the McGraw-Hill Book Company for the publication of the text book and in January the manuscript for the first three sections was in their hands. At intervals since then other parts have been sent to New York, so that all of Volume 1 has now been despatched except for the chemistry and good progress is being made with that. The author's draft has been checked by the editor and is being re-written where necessary to make it perfectly clear to a mind not trained to think logically. This procedure has been followed in all cases and the editor has frequently consulted with engineers in special lines. Our principal aim is to have it right.

From the publishers' standpoint and for logical development it has been necessary to concentrate our efforts on Volume 1. The publishers agreed to go ahead with the work as we gave them the manuscript for complete sections as units. They maintain that press work cannot be started until they have all the manuscript and can do it all in one job. They will print 1000 sets of sections for binding in volume form and 1000 in pamphlet form for class room use.

The quality of paper has been approved by the committee, but it may be another matter to deliver the goods. However, the industry will doubtless clothe its own child.

Authors of other sections may wonder why someone doesn't either wake up the editor or write his obituary. Perhaps they are enlightened by what has just been said. It may be that the editor feels a bit that way about some of the authors, but we all, editor and committee realize that the authors are frequently working under great difficulty and stress. One man suffered rheumatic fever for months, but kept pegging away at his work. Much manuscript has been prepared, ably and conscientiously. Some of it has not yet been read by the editor, but the pile is growing steadily smaller.

When the editor has gone through the authors' manuscript, he sends it in succession to several friends who know that particular phase of work and are easily imposed upon and asks them to make suggestions and add information. Sometimes they do. For instance two men who read the biggest manuscript in the book made the same suggestion—that four or five experts sit down at a table and read the whole work together. An ideal way, but can we do it? Perhaps we can with some parts. Probably others can be handled by correspondence. What do you think about it?

Of Volume 2 we have the manuscript for Logging Operations, two on Properties of Wood, the section on Soda Pulp. Treatment of Pulp, Bleaching of Pulp and the Analysis of Pulp and Paper Making Materials.

For Volume 3, we have manuscript for Treatment of Rag and other Fibres (except old papers), Beating, Coloring, Engine Sizing, The Paper Machine; practically all of its volume.

For Volume 4, we have Tub Sizing, Finishing Operations, Paper, Coating, part of the section on Pumps, and a contribution on Paper Mill Lubrication.

The committee feels that a lot of work has been accomplished, and it hasn't all been plain sailing. Much remains to be done and will be done as rapidly as accuracy permits. If we had not fixed on the highest possible as the only thing permissable, you would have some books in your hands now. You want to know when you will have the books. We can't tell you. The printer can't be sure of his paper, his coal or his labor. The editor, unfortunately cannot give all his time to this work. But progress is being made and you will be satisfied with the books when you get them. Just read this over when you get home and see what has been done in 19 months since the associations approved the plan and voted the money.

Respectfully submitted,

J. N. STEPHENSON,

Editor.

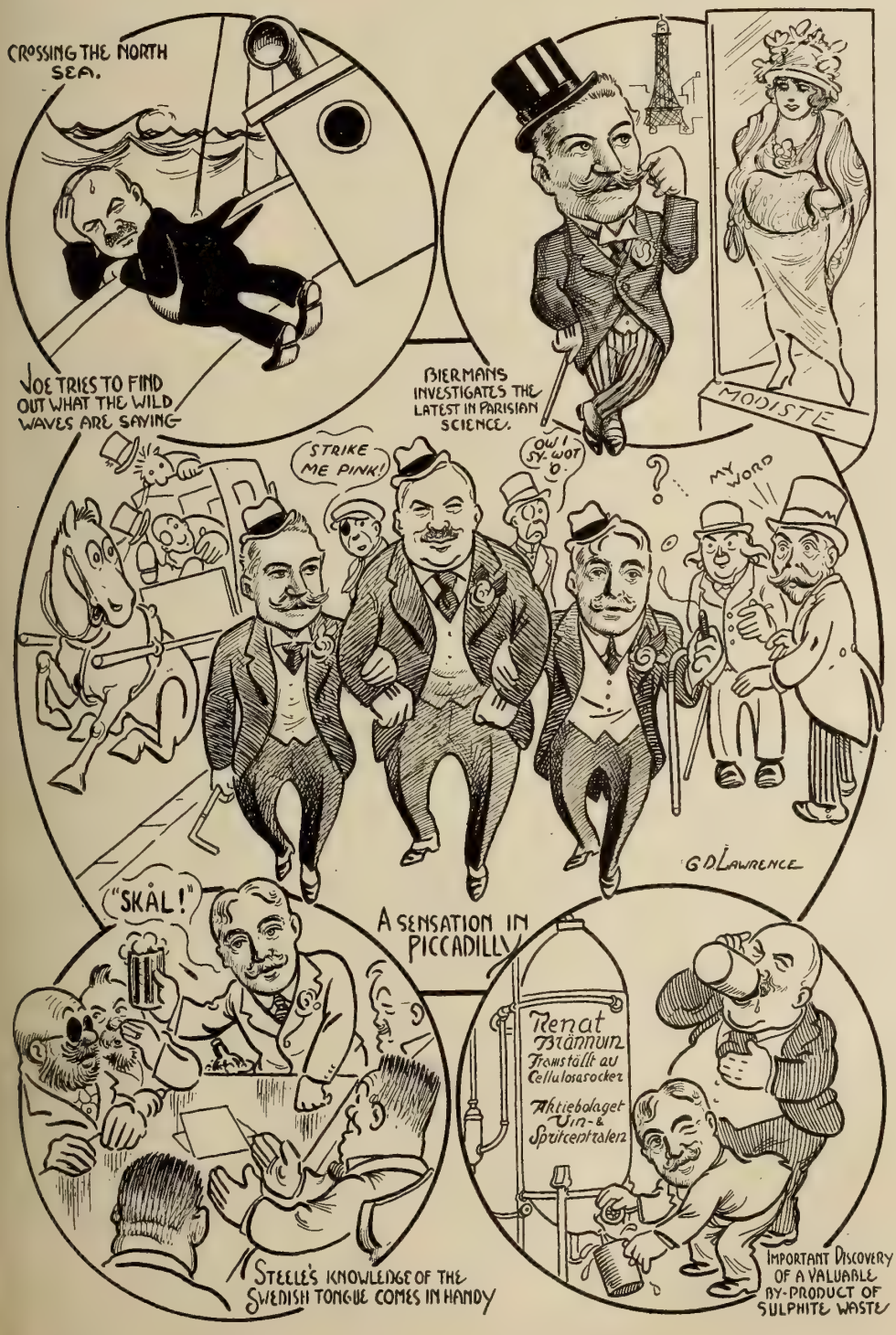
The most valuable "system" is a good nervous system.—Forbes Magazine.

The Prodigal Sons Entertained

The safe return from Europe of Messrs. H. Biermans, J. A. Bothwell, and Geo. F. Steele was commemorated by the Executive of the Canadian Pulp & Paper Association with a dinner at the Ritz Carlton Hotel in Montreal last Thursday night. About thirty-five guests enjoyed the occasion, which was presided over by Mr. George Chahoon Jr., president of the Canadian Pulp & Paper Association. The fact that Mr. Chahoon was in the chair was sufficient to insure the success of the gathering. The guests each replied when the opportunity was given them by Mr. Chahoon to express themselves with regard to conditions and experiences on the other side.

Mr. Bothwell was particularly impressed with the forestry methods in Scandinavia and dwelt at some length on the advanced practice of those countries. A suggestion made in the course of his remarks was that the Association send a representative to study all the phases of this important subject and report thereon, the idea being to awaken in the minds of the public as well as among industries dependent upon the forest a greater interest in forestry and the conservation of this natural resource. Mr. Bothwell mentioned particularly the fine feeling that exists in Scandinavia for Canadians. This was repeatedly shown in the great cordiality with which the visitors were received and the hospitality accorded them. It was the same in Sweden, Norway and Finland and their willingness to co-operate with a Canadian representative and give him every assistance in studying their conditions and methods was strongly presented to the gathering. The Executive the next day considered the matter and a report is expected in time for our next issue.

One of the hits of the dinner was the cartoon which was enclosed with the menu. Through the courtesy of the Association and the Montreal Gazette, we are privileged to reproduce it.



IS YOUR LIFE INSURED ?

The following extract from the remarks by Sir Edmund Walker before the Life Underwriters is of general interest :

"Economy properly understood is a fine art, and is as rare as most of the fine arts. Of the various co-operative efforts of man to aid industry, and, therefore, to avoid waste, the honestly managed life insurance company is the finest example. It helps to mitigate the greatest trouble, death; it teaches people to apprehend and provide for other dangers; it multiplies their savings by its investments; it renders its beneficial provisions possible by spreading the cost of the individual disaster over the many who co-operate. It even improves the general health of a man by its study of his life medically and by the wise conditions it imposes.

BRITISH EMPIRE TIMBER EXHIBIT

The Empire Timber Exhibition which was held in July, at the Holland Park Skating Rink was arranged by the Department of Overseas Trade with the object of bringing into general use the numerous timbers of the Empire. There are altogether over 600 different varieties on view. These have come from British Guiana, British Honduras, British North Borneo, Canada, Ceylon, the East African Protectorates, Fiji, Gold Coast, India, Newfoundland, New South Wales, New Zealand, Nigeria, South Africa, Tasmania, Trinidad and Western Australia as well as from the British Isles.

Mr. Kellaway, Comptroller-General of the Department of Overseas Trade, presided at a luncheon on the opening day. He said it was the first occasion had been brought together in one building. The colon which timber grown in various parts of the Empire lection proved that it was unnecessary in order to obtain the timber required for any civilised work to go outside the Empire. The only drawbacks were lack of transport and accessibility, and these could be got over when once it was realized what resources the Empire possessed.

Lord Selborn spoke of the need of inquiry into the forestry resources of the Empire, and also emphasized the necessity of reforestation.

In the afternoon Col. Courthope, M.P., chairman of the advisory committee of the exhibition, in asking Prince Arthur of Connaught to open the exhibition, said that many of the timbers shown were so little known that they had no names except the local vernacular or in botanical Latin.

Prince Arthur of Connaught, in opening the exhibition, said that the world's consumption of timber was enormous, and every one of the Dominions required a far-sighted policy of forest conservation.

The Canadian Exhibit

The exhibit of Canadian timber is eminently practical. It appeals to the building trade rather than to cabinetmakers. It is an education in Canadian forestry to examine the various samples of wood shown. Mr. W. B. Stokes, of the Forest Products Laboratories of Canada, McGill University, was in charge of the exhibit, and the whole design of it and of the ingenious methods of showing the quantity and quality of the forest products are his work. In conversation with a representative of the Canadian Gazette Mr. Stokes said that the first thing to be noticed in the Canadian exhibit was that every bit of timber on the stand was Canadian, even the pillars, cornices and railings.. All was in natural wood, unpainted and unpolished. The exhibit included commercial timber four boards of each, rough and smooth, clear and merchantable. In contrast with the dark woods shown on neighbouring stands by tropical countries Canadian woods were chiefly light colored. The Canadian woods were largely put to structural uses and were therefore of interest to the building industry. "The centre of the display," continued Mr. Stokes, "is occupied by a pulpwood exhibit which illustrates the three processes of manufacture of pulp—ground wood, sulphite and kraft. You will notice, too, that graphical statistics of the timber cut in Canada in 1918 are shown by pieces of the actual species cut to scale. Thus the smallest product is oak, of which 2½ million feet were cut, and the largest is spruce, of which 1,142 million feet were cut in 1918. There are 22 different kinds of woods tabulated, and the amount cut of each, comparatively and actually, can be seen at a glance. There is also a set of hand specimens of 69 species of Canadian woods beautifully framed in cherry wood. The samples of panels of bird's-eye and fiddle-back maple are worth looking at.

"The three large squares of flooring in the centre of the stand are of birch, beech and maple. The doors in the back-ground are of Douglas fir made in Vancouver. We have also some wire-wound water-pipes of Douglas fir which are used in irrigation works. Another exhibit of interest is a model of a roof truss made of Douglas fir to illustrate the use of this wood, which is stronger for its weight and stiffer than other structural timbers. Everything shown has either been made in the Forest Products Laboratories or outside to our design. In the catalogue you will see that Canadian products are most carefully listed, and Canada seems to be the only country that has supplied, in the case of all woods exhibited, statistics as to strength, hardness, &c."

Private Canadian Exhibits

Several firms had exhibits of Canadian timber products. Among them was an attractive display by the Canada Overseas Trading Company (Eldon Street, E.C.) at stand 22. Mr. Clarke, president of the company, explained that everything on the stand was Canadian. Among the exhibits were cedar shingles for roofing, which, when coated with a waterproofing would last for forty years and more; ready-made doors of various designs, made of yellow and white pine, some unmoulded, some moulded in the solid wood, and others with loose mouldings; all kinds of mouldings which could be supplied in any design, made of Douglas fir; laths for plastering; door frames, window sashes, bannisters, flooring, fence pickets, railway ties, water pipes wire bound and covered with preservative; and dowels. This stand seemed to form a useful supplement to the Government stand in that one saw the various woods in their manufactured state.

Mr. G. E. W. Crowe, agent for the British Canadian Export Company, Limited (83 Pall Mall) showed some of the Canadian-made kitchen cabinets, dressers and refrigerators which attracted much attention when shown at the Canadian Industries Exhibition. In the making of these labor-saving kitchen appliances all the wood used is Canadian birch, elm and oak.

Other firms showing Canadian timber or products were the Bennett Furnishing Company (47, Glengall Road, S.E.) at stand 52; Drew Clerk & Co. (Diamond Patent Ladder Works, Leyton, E.10) at stand 51; James Latham, Limited (124, Curtain Road, E.C.2), stand 3; and Wm. Mallinson & Son, Limited (130-8, Hackney Road), stand 71.

HOW PAPER IS PARCHMENTIZED.

Vegetable parchment parchmentized as follows :

The unsized paper is immersed in 75 to 84 per cent. sulphuric acid, followed immediately by washing and drying. The sheet is dried under tension. The treatment with sulphuric acid forms a semi-transparent gelatinous layer on the surface, making the paper tough, and resembling real parchment. All traces of the acid must be removed from the paper after treatment. A mechanical method of producing a similar result consists in beating sulphite pulp into a slimy gelatinous mass and forming this exceedingly slow stuff into a sheet.—"Eagle A" Unity.

British Trade News

(From our London Correspondent)

London, September 22, 1920.

As an instance of the interest manifested in new pulp and paper propositions, one has only to look at the success of the Anglo-Newfoundland Development Coy's offer of £800,000 8 per cent guaranteed 15-year second mortgage debentures. Inside of 100 minutes the full amount was covered. By closing time—i.e. within 6½ hours—8,004 applications were received, making the total £4,470,170. Thousands of forms were received by post too late and are being returned. They represent a further total of about £2,500,000. This figure does not include personal applications turned away at the bank, after the list had been closed. There is now a special staff engaged on the preliminary work leading to allotment and this is being pushed forward with all possible speed. The success of this appeal to the public is very encouraging to those seeking capital in England for new pulp mill or paper mill extensions or propositions, so long as something tangible can be shown in the way of security. In this particular case the Anglo-Newfoundland Coy., went about the issue in a methodical and business-like way; then assembled all their forces, showed their security and profits, and backed these up with pictures in the "Mirror" and "Daily Mail". As a result millions of pounds rolled in.

Edward Lloyd's Capital.

Proposals for the reorganization of Edward Lloyd's capital, as foreshadowed at the meeting held in July last, are now before the shareholders, and will be submitted for approval at a meeting to be convened shortly. As the capital stands at present, there are £677,500 5½ per cent preference shares and £600,000 ordinary shares, both of £1 each. The company has employed in its business, in the form of reserves and undivided profits, a sum of over £680,000, the bulk of which, of course, could have been utilized for ordinary dividend had it not been thought advisable to pursue a conservative policy. In order that the ordinary shares may more truly represent the actual capital employed in the business, it is proposed to capitalise £600,000 of the reserves and undivided profits, and to distribute them in the form of new shares, thus giving the ordinary a share-for-share scrip bonus.

A Compliment for Canada.

Colonel Courthope, M.P., who has just retired from the Presidency of the Royal English Arboricultural Society, when addressing the summer conference last week said, he deplored the public ignorance of forestry and wished they could do something like the Canadian Forestry Society, which had aroused extraordinary public interest in forestry.

Technical Conference.

The Technical Section of the British Papermakers' Association will hold a conference in Manchester early in October and an interesting program is being arranged for the occasion. Papers will be read on such subjects as "Technical Education in Papermaking"; "The Testing of Wood Pulps"; "Machine Strainers"; "The Economic Utilization of Heat and Power in Paper Mills"; and "Some Notes on Paper Testing". One whole day will be given to reading and discussing the papers. The papermakers are now following the same lines adopted in Canada; they are becoming alive to the importance of technical discussions on subjects of importance to their own common interest. A new era is certainly opening in the British industry and one hopes the Technical Section will receive all the encouragement and support it well deserves.

Imports of Mill Boards.

Canada occupies a prominent position in supplying millboards to the British market. The trade is an important one and worthy of much study. During August last the imports of millboards into English and Irish ports were as follows, in tons :

Canada, 1,554 Finland, 911; U. S. A., 805; Sweden, 580; Germany, 247½; Norway, 161½; Netherlands, 8½. In leatherboards, Finland, U.S.A., and Scandinavia monopolise the trade with England, but imports are on a small scale.

Strawboard Imports.

In the supplies of strawboards the Netherlands have always topped the list of importations, only a small share falling to Canada, which is regrettable, when one considers the amount of raw material at the Dominion's disposal. For the information of Canadians, the following figures relating to the imports for August last into the British market will be found interesting: Netherlands, 8,218 tons; Finland, 773; Canada, 149; Belgium, 52; Germany, 6½; Sweden, 2.

The supplies from America are small, being under one ton for August last. It will be noticed that Germany is now in the market with boards in small quantities.

Carboard and Pasteboard.

The countries supplying cardboard and pasteboard to English buyers, include Canada, the following figures for August last showing the Dominion's position : Sweden, 942 tons; Canada, 226; U. S. A., 148¾; Finland, 87; Germany, 43; France, 2½.

Small shipments are received also from the Netherlands, Italy and Denmark.

Canada's Outlook.

On this side of the Atlantic it is very remarkable the interest that is manifested in Canadian pulp and paper since the war ended. Even more so is the keen watchfulness of the progress of new extensions in the Dominion. For some months past all eyes have been directed on Canada and the newspapers here are constantly referring to the output of the pulp and paper mills. Canadians would do well to encourage this interest that is being taken in their concerns and not lose sight of the fact that the British market is an extensive one with a demanr for all kinds of paper and boards, as well as pulps. The colonies, also, are not to be overlooked. Never in our history have so many visions being made to Canada to survey the conditions governing pulp and paper as there have been during the past 18 months and never have so many applications been made on this side, as there are at present, to represent English houses in Canada for fine qualities of paper. There is, undoubtedly, a considerable interchange of trade going on and mill owners in the Dominion should not under estimate it, but encourage it no matter how small. Canadian pulps have already got a good hold on the market in England, thanks to the indefatigable efforts of some of the leading agents, and it only requires the paper mill men to take a leaf out of the pulp men's book and try and establish themselves with the success their confreres have achieved good pulp and good newsprint always sell.

Papermakers' New Offices.

The British Papermakers' Association now occupies new offices at 26-27 Farringdon St., London, E.C.

Want of space, and other encumberances compeled the Association to seek a new abode and Mr. Foster, the Secretary, and his staff are now busy "licking" their new premises into shape. The position is more central in the City and right in the heart of printer-down. Canadian visiting London should make a note of the change of address.

Northern Printers' Strike Over.

Fortunately the strike on the Manchester and Liverpool newspapers is now at an end; but the fact must not be overlooked that sellers of newsprint have suffered their quota. Even a large daily paper like the "Manchester Guardian" had to stop publication for three weeks and the suppliers of newsprint to this journal alone have had tons of paper thrown on their hands, by the stoppage. The dispute has certainly caused serious losses to paper agents and papermakers. We are congratulating ourselves that the strike did not spread to London. But we are not out of the wood yet. Strike fever is still rampant in London and in a short time the composing and typographical society's, along with other auxiliaries, will present demands for wages to the London newspapers which may land us in the same position as the Manchester and Liverpool people.

The Pulp Market.

The market for all pulps is quiet. We are at present passing through the dull season and the holiday period, and it will be fully another two or three weeks before any movement can be anticipated. There is also an uncertain and divided feeling prevailing over the crisis raised by the coal miners. Mill owners are preparing to close down if the worst comes, as without coal no pulps are wanted. Stocks today at all mills are ample for present requirements. There is also a desire to hold back from buying in order to see what change will take place in the market when winter buying starts. Sellers are very firm and hold out no hope to buyers—indeed, they are expecting all future business to the end of the year will be on a very firm basis. No interest is being taken in sulphate and the same remark applies to groundwood. Sweden is selling strong sulphite at $10.50 per 100 lbs. c.i.f. American port, to U. S. A. buyers on spot dealings. Norway reports little movement. Japan is selling surplus pulps as a result of their recent big deals in Scandinavia. Taking the market all round there is a hesitancy in buying, inquiries are on a limited scale, spot deals are on a small scale, and quotations are very firm. If the industrial troubles are amicably settled, another few weeks may completely change the market.

Sir Wm. Mather Dead.

Sir William Mather, of the famous engineering firm of Mather and Platt, Manchester, has died. His concern plays a prominent part in constructing papermill machinery and nine years ago, Sir William undertook the sole management of the business. He was a great educationist and was one of the leading figures connected with the Manchester School of Technology.

Mr. A. N. Russell, who for past eight years has been Mechanical Engineer for the Ticonderoga Pulp & Paper Co., of Ticonderoga, N. Y., has been appointed Sales Engineer for the Dominion Engineering Works, Limited, of Montreal. Previous to his mill experience in the U. S. A., Mr. Russell was engaged for a number of years in the designing and building of paper maching machinery with British and American firms of machine builders.

MOULD GROWTHS ON WOOD PULP.

Editor Pulp and Paper Magazine,

Concernin the article of mine on "Mould Growths on Wood Pulp", which was reprinted in the Pulp and Paper Magazine for September 23rd, I would like to make a few observations. It is generally admitted that "rot" has caused large losses in wood pulp and in pulp wood, particularly in recent years, and quite a number of investigations have been made into the subject. It appears to me that to solve this problem of the why and wherefore of decay, it must be attacked in the widest possible manner. For instance —what kind of pulpwood is most likely to be infected with cladosporium fungus? Does not the increasing use of inferior pulp woods such as jack pine, red pine, hemlock, balsam all point to the possible fact that one or more of these woods is responsible for the decay? Possibly one type only.

On the other hand the fungus may infect all the recognized pulp woods with equal facility, and the prevalence or otherwise of fungus may be due to climatic conditions only. I believe there is reason for thinking that both the above ideas have some solid grounding.

As to the climatic idea, the following may be of interest—about 1898-9 considerable "rot" appeared in the wood pulp received at Lloyd's newsprint mills in England and the well known paper chemist R. W. Sindall started an investigation, but had to drop it at that time. In 1900, I took his place at the mills and from then until 1907 little or no rotten wood pulp was noticed, that is for a period of seven years or more. From 1907-1910 both Scandinavian and Nova Scotian wood pulp shipments came in frequently highly contaminated with fungoid growth or which developed rapidly after a while in the stack. It was obviously unlikely that both countries 3,000 miles apart, would have changed their use of some particular species of wood at the same time. It therefore appeared that certain climatic conditions in the Northern Hemisphere during the years 1898-9 and again in 1907-10 had been favorable to the growth of fungus in pulp wood trees. Otherwise, how can the comparative, or total absence of fungus during a space of seven years be explained?

I would suggest that someone carry out the following work—Grind sound wood from all the species of pulp wood trees at present in use, bale the moist (50 per cent) pulps and stack, under favorable conditions for fungoid growth. Do the same with known infected woods. Doubtless if properly carried out, this would yield very valuable results.

If it can be proved that no special kind of pulp wood leads to decay, the ground will be cleared for further investigation. If, on the other hand, proof is obtained that, say, Jack pine and that only is the cause of decay, this would be most valuable information and the remedy in pulp mill operations would be obvious, even if somewhat costly.

Of couse, some of the above suggested work may have been already carried out, but it appears doubtful.

The question whether the decay is due to periodical climatic conditions, either local or world-wide, it seems to me should be definitely settled first, by the getting together of all possible information from Canadian, American and European sources.

F. B.

UNITED STATES NOTES

The Cost Association of the Paper Industry at its fifth annual convention, held last week at the Astor Gallery of the Waldorf-Astoria Hotel, New York, brought together no fewer than 150 cost accounting experts and others identified with this branch of the paper industry. Itproved to be one of the most successful gatherings of its kind ever held. Among the papers read and in the course of the talks given by experts on some of the leading systems, the whole problem of cost accounting was gone over in a most comprehensive and enlightening way, including particularly the relationship of the cost department to the executive, to the mill hand and to the fixing of the selling price. Seth L. Bush, of the Chemical Paper Manufacturing Co., Holyoke, Mass., was elected President of the Association to succeed D. E. Burchell, of the Eastern Manufacturing Co., Bengor, Me. B. E. Hutchinson of the American Writing Paper Company was chosen Vice-President and J. M. Allen continues as Secretary-Treasurer for the ensuing year.

Plans for the erection of a large addition to its plant at Danbury, Conn., are being worked out by officials of the Beaver Brook Paper Mills. The company has booked at the present time orders sufficient to keep its present mill going at full capacity for at least six months. In order to take care of the increasing volume of its business, the Beaver Brook Company proposes to enlarge its plant to about five times the present capacity.

The American Writing Paper Company, last week, entertained as visitors at its office and factories, at Holyoke, Mass., J. and J. M. Beuker, of the firm of Van Gelder Sons, Amsterdam, Holland, who are in America on a six weeks tour to study the paper industry of the United States and Canada. After leaving Holyoke, they went to the mills of the Strathmore Paper Company at Mittineague.

The Dextre Products Company, Inc., of Buffalo, N. Y., has appointed the Washington Paper Company, 55-57 Great Jones street, New York, sole selling agent of its products in the New York territory. Principal among the products of the Dextre people are the "Prepared Dry Gums" which help to increase production and decrease cost in the paper box and book binding industries.

The "Philadelphia Press", one of the oldest papers in Philadelphia has been consolidated with the "Public Ledger." All the real estate and the entire plant equipment of the "Press" was acquired recently through purchase by the Public Ledger Company, Cyrus H. K. Curtis, president. Publication of the "Press" ceased last Saturday. In New York, Frank A. Munsey, owner of the consolidated "Sun" and "New York Herald", reverted to the name "New York Herald" as the title for his morning issue, and continues the name, "The Sun", as the title for his evening paper, heretofore known as the "Evening Sun."

As a result of the determined conservation of paper now being practised, waste paper that used to be tossed into the streets and alleys is now being hoarded and disposed of through the industry. Discovery of the practical utility to which waste paper can be put has gone for toward solving the problem of its disposal in the larger cities. The paper stock concerns in this field are now paying considerably more for all kinds of old paper, bags of all descriptions, rags and cotton and wool waste. One of the leaders in this line in New York and Boston, the Main Paper Stock Company, has grown to such an extent within recent months that it has had to enlarge its main office and factory in New York so that it now occupies all the territory at 25, 27, 29 and 31 Peck slip. One of the specialties of the company is the production of manila envelopes, which have become exceedingly popular among New York business firms.

The more general use of the fibre board box in the shipment freight is looked upon by the Forestry Bureau of the Department of Agriculture as an important factor in forest conservation, since only about one-sixth of its material is new wood pulp. In a recent report of the bureau are cited a number of points in favor of its use for this purpose. Among other things it is claimed that the fibre box aids better utilization of freight car space, so necessary at this time. The average fibre box weights from two to five pounds, a considerable reduction of shipping weight when compared with the same size wooden boxes. It is shipped flat when empty and in this form occupies about one-tenth of the space it will contain when set up. It is much used for preventing breakage of fragile articles. The manufacture of these boxes is a comparatively new industry, dating from about 1905. There are now 190 factories in the United States making corrugated and solid fibre boxes with a total annual production valued over $75,000,000.

Twenty mills in New England states and Northern New York, visited in the course of a recent business trip, are reported by Louis I. Elson, president and general manager of the Washington Paper Company, as being more or less behind in the completion of their orders due to delays they are encountering in the receipt of raw stock. Representative of these mills, according to Mr. Elson, are expecting that there will be no let up in this shortage of ray material before next Spring.

The Webster Mill of the International Paper Co., at Orono, Me., is to have more power. Two new concrete and penstocks are being built and others improvements to the lant will be made.

A. P. W. CO. LOOKING FOR TIMBER IN LABRADOR.

The St. John's Newfoundland Telegram says that a number of Americans have been looking over some timber areas in the vicinity of Pinware River, Labrador, on behalf of the A. P. W Paper Co., Albany, New York. The party spent two and a half weeks cruising at Pinware. They report dense growth of very fine pulp timber in that locality. The A. P. W. Paper Co., have had to depend upon other paper mills for their raw material. They now propose erecting mills of their own of 16 machines.—Western Star.

Technical Section

REVIEW OF RECENT LITERATURE.

C-5. Fighting low pile fires, F. J. Hoxie, Paper, **26,** 636-9, (1920). (See also Pulp & Paper, **18,** 105-11, (1920). Prevention is the most important factor in considering fire control. Methods of extinguishing are second and the separation of the wood into small parcels is the third. Dry pulpwood can most effectively be protected by hose streams when the wood is piled in low well separated stacks. When wet wood can be used the entire pile can be kept wet; gaining greater uniformity, reducing rotting and preventing fire. With the introduction of automatic sprinklers fire possibilities are lessened, but there are few mills at the present time which have a sufficient water supply to successfully extinguish a widespread fire. The stacking and conveying apparatus in use at pulp mills can be made useful at a slight cost for fire protection, facilitating the continued wetting of the piles in dry weather, as well as allowing access to a fire on the top on such a pile.—A. P.-C.

E-2. Soluble tanning extracts from sulfite pulp waste liquors. Fr. patent No. 496,496, H. Landmark, Norway, Aug. 5, 1919. Chimie & Industrie, **3,** 356, (March 1920). Tanning extracts which are difficultly soluble in cold water are rendered easily soluble by the addition of sulfite extract, which acts as a peptiser for the insoluble phlobaphenes. The sulfite extract is obtained from sulfite waste liquor by freeing it of lime and Fe and concentrating to 25° B.—A. P.-C.

E-2. Sulphite spirit manufacture. A discussion of the design of the digester fittings and the quantity of waste liquor. A. D. Kuhn, Woch. F. Papierfab.; Paper, **26,** 628, (1920). The ratio of liquor to wood depends upon the method of digestion, species and moisture-content of the wood, so that the quantity of waste liquor may show variations between 5 and 10 c.m. per ton of pulp. Digestion proceeds most favorably when the proportion of free to total S is about 70 or 80 to 100. The digestion must be stopped when the concentration of sugar in the liquor has reached a max., because the sugar which has been formed then undergoes a gradual decomposition. The use of a concentrated liquor effects an economy of S and steam and a higher efficiency in the digester with uniform results in the product. In order to obtain the max. quantity of waste liquor, the digester must be blown under pressure. It is also advantageous to introduce hot water on to the pulp under pressure, because in this way the water displaces the spent liquor, whereas the introduction of water without pressure merely results in the dilution of the spent liquor. The spent liquor coming from the digester under high pressure should be conducted to a pressure relief vat, where a powerful evolution at SO_2 takes place, and this gas may be recovered.—A. P.-C.

K-6. The rational treatment of esparto. E. Arnould. Papier, **23,** 99-101, (May 1920). (See also Pulp & Paper, **18,** 48, Jan. 15, (1920). The faults found with esparto pulp made by the so-called English process are: low yield (12-14% of the cellulose is lost); short soft fiber lacking strength; excessive formation of lumps on the machine; it bleaches to a dull yellowish white and requires 12% of bleach; it causes fuzzing of the sheet at the couch roll; its cost is high. These are due to excessive cooking, the soft upper portion of the stalk getting the same treatment as the hard foot. This may be overcome by a thorough grinding and washing before cooking, thereby decreasing the required strength of the liquor 60-70% and increasing the yield from 38-40% up to 50%. The same liquor can then be used over again to treat a second portion of grass, yielding 65% of a very satisfactory second grade pulp.—A. P.-C.

K-7. Improved discharge valve for beaters. World's Paper Trade Rev.; Papeterie, **42,** 447-8, (May 25, 1920). The valve seat, in the bottom of the beater, is cone-shaped and is provided with a rim at the bottom. The valve is built up of superposed plates, with a ring of rubber, or other elastic material, having a wedge-shaped section, which easily fits into the seat. When the rubber ring is pressed against the seat by the plates it makes a tight joint. The valve is operated by means of a threaded stem and hand wheel.—A. P.-C.

K-9. Fine paper loaded with talc. Papier-Zeitung; Papeterie, **42, 408,** (May 10, 1920). A sample of paper was found to be composed of 25% bleached beech pulp, 25% bleached birch pulp, 20% bleached balsam pulp, 20% fine white trimmings, 10% talc. It resembles paper made from cotton rags, and is equally suitable for writing and printing. The stock was warmed to 40°C when beaten, and it was colored and sized according to the Ebbinghaus process.—A. P.-C.

K-12. Functions of the smoothing press. Paper, **26,** 633, (1920). The smoothing press is not used to press more water out of the sheet, but to make a uniform pressure per in. of width of the machine by smooth rolls which are run on the paper and without any felt. Such operation taking place immediately before the paper enters the dryers, and while the paper is in a damp and softened condition, will enable wire-marks and felt-marks to be removed much more readily than after the paper becomes dry.—A. P.-C.

K-18. Coarse pulp for fiber board. Fr. patent No. 499,226, Société dite Cellulose et Papiers.—Société de Recherches et d'Applications, France, Dec. 8, 1917. Papeterie, **42,** 403-4, (May 10, 1920). The raw material is subjected to a mild cooking treatment, followed by crushing; or the crushing may be both preceded and followed by cooking.—A. P.-C.

K-19. The origin of coated paper. Journ. des Imp. Suisses; Papeterie, **42,** 408-9, (May 10, 1920). Coated paper is probably as old as papermaking, and its manufacture travelled West in the same manner as the manufacture of other papers. It was first made in the U. S., about 50 years ago.—A. P.-C.

K-23. Machine for reinforcing paper with threads. Fr. patent No. 501,904, Ernest Cotta, France, Feb. 7, 1920. Papeterie, **42,** 444, (May 25, 1920); Papier, **23,** 102-3, (May 1920).—A. P.-C.

K-23. Machine for making reinforced paper. Fr. Patent No. 497,936, Chas. Henry Howard, U.S.A., Dec. 11, 1917. Papeterie, **42,** 404, (May 10, 1920).—A. P.-C.

K-23, R-5. Papermaking in India. World's Paper Trade Rev.; Papeterie, **42,** 410, (May 10, 1920). A description of the manufacture of hand-made paper in Hyderabad, India.—A. P.-C.

K-0. Durability and conservation of paper. Aribert et Bouvier, Papeterie, **42**, 338-52, (Apr. 25, 1920), 386-92, (May 10, 1920). The durability of paper depends on: (1) the nature of the stock used, (2) The treatments to which it is subjected during its transformation into paper, (3) traces of chemicals remaining in the paper, (4) conditions under which the finished paper is kept. (1) Paper manufactured from cotton rag stock with all the necessary precautions can last for centuries. Properly prepared rag stock consists of "normal" cellulose, which is one of the stablest organic compounds, occurring in nature. Chemical pulp, i.e., the cellulose obtained by delignification of vegetable tissues, is much less resistant to the action of oxidising and hydrolyzing agents than is normal cellulose. Paper made from chemical pulp will not be as durable as that from rag stock; but when properly prepared it may constitute up to 25% of the furnish and yield a very durable paper. Mechanical pulp consists of impure ligno-cellulose; it yellows very easily, becomes brittle and possesses very little strength.. It should never be used in the manufacture of durable paper. (2) The cooking of the raw materials should be just sufficient to dissolve out the impurities and incrusting matter; for both insufficient and excessive cooking yield a pulp requiring a very energetic bleaching treatment, which is very detrimental to its durability. The cooking must be followed by a very thorough washing to eliminate all the soluble products formed during cooking, as they might form colored compounds, with Cl, which would be very difficult to eliminate. Proper bleaching consists in oxidising all substances other than cellulose, without attacking the latter. The usual causes of the addition of an excessive amount of bleach are insufficient cooking, excessive cooking, incomplete washing after cooking, use of rule of thumb methods of bleaching. The addition of acid (usually H_2SO_4) and heating of the stock to hasten bleaching frequently result in impairing the quality of the stock. $KMnO_4$ is superior to Cl as a bleaching agent, for even a large excess does not attack the cellulose, providing the bleaching is carried out in the cold. Beating, as it was carried out in the early days of papermaking, yielded a much more durable product than do modern methods. Properly purified loading materials are not detrimental to the quality of paper, if they are not added in excessive amounts. But in practice some of them, notably kaolin and $BaSO_4$, sometimes contain traces of acids. Though animal size and starches are readily attacked by most microorganisms, papers many centuries old sized with both these classes of material have been found in perfect condition, showing that with proper care size does not impair the durability of paper. For rosin sizing, the use of hard water causes the precipitation of Ca and Mg resinates, which are very hygroscopic and may be hydrolyzed by the H_2O they absorb. It is also important to avoid acidity in the alum. In gelatine sizing, formaldehyde (CH_2O) should be used to prevent bacterial action, and glycerine or spirits of turpentine to prevent the gelatine film from cracking. It has not yet been proved that aniline dyes injure the durability of paper; but there is the possibility of their undergoing a slight decomposition during drying, yielding harmful products. It is suggested that certain dyestuffs may be capable of condensing light of certain wave-lengths, which would profoundly affect the constitution of the cellulose. For machine-made paper, if the drying temperature is too high, or if it is not properly graded, the product will be brittle and weaker, and the formation of harmful products will be greatly favored. (3) The most frequent and most harmful chemicals remaining in the paper are free acids and free Cl. The latter acts only after having been transformed into HCl (or HOCl). As antichlors merely transform Cl (or HOCl) into HCl, they are useless, and the only safe way is to wash the stock free of Cl and acids. The action of free acids in transforming cellulose into pulverulent hydrocellulose is discussed at some length. (4) The durability of finished paper is affected by light, temperature and humidity, and the surrounding atmosphere. The yellowing of mechanical woodpulp is due to the oxidation of fats, waxes, resins, lignin, etc., brought about by the action of light of short wave-length (blue, violet, ultra-violet). Yellowing of paper made entirely of chemical pulp may be due either to an excessive cooking treatment to which the pulp was subjected, or to traces of free acid and free Cl, resin, Fe resinates, etc., the destructive action of which is much more harmful than the mere yellowing. It is suggested that light may have a catalytic effect in breaking down cellulose or some of the impurities present in the paper. The paper should be kept at a proper and even temperature, and under such conditions that it will retain sufficient, but not too much, moisture. Excessive moisture may result in the formation of H_2SO_4 from SO_2 or H_2S present in the air, and it greatly favors the development of molds and fungi. Their growth may be hindered or prevented by the use of CH_2O. The atmosphere of large cities contains appreciable amounts of compounds such as H_2S, SO_2, etc., and also numerous germs, which are harmful to paper. Klemm's test for free resinate and Hughes' reaction for detecting free acidity due to alum are described, and a brief note on sizing with coumarone is appended.—A. P.-C.

N. Y. WORLD BUYS CANADIAN MILL.

The New York World has bought the property of the St. George Pulp and Paper Company located at St. George, Charlotte county, New Brunswick.

This purchase comprises the groundwood pulp mill at St. George, the daily output of which is thirty tons of freehold land and about 120 square miles of licensed lands, the estimated stand of pulp wood being approximately one million cords.

Some time ago the New York World bought the St. George mill of the same company located at Norwalk Ct., the groundwood pulp for which has been coming from the New Brunswick mill.

It is estimated that the annual growth on these lands will provide the raw material for a 100 ton pulp mill, all of which means that the future growth of the New York World is protected up to at least seventy-five tons a day of news print paper by the enlargement of the St. George Pulp Mill, together with an additional paper machine at Norwalk, Ct.

The New York World is also in a position to add another paper machine to its De Grasse mill whenever its requirements call for it.

The three mills which the New York World now owns and operates have a weekly capacity of 1,325 tons of news print paper.

If the St. Louis Post-Dispatch should decide to take its supply from these mills the expansion above referred to can be made to take care of this paper as well as the New York end.

PULP AND PAPER NEWS

A luncheon was tendered E. Roy Sales by the people of Port Elgin prior to the departure of himself and family to take up their residence in Toronto where Mr. Sales is now the manager of the Canadian Weekly Newspaper Association. An address and a handsome club bag were presented to Mr. Sales and cut glass to Mrs. Sales. Most of the municipal officials took part in the gathering.

Because their premises were broken into and a quantity of newsprint seized on January 12, the Fort Francis Pulp and Paper Company, Limited, have had set for trial an action for $20,000 against W. A. Baker, J. L. McNichol and R. A. Pringle, former Newsprint Controller for Canada.

A novel newspaper, a copy of the "strike edition" of the Liverpool Echo and Express, has been received in Toronto. Owing to the strike of compositors, Liverpool and Manchester were without their regular daily papers for some time. The Liverpool Echo partially met the problem in the same manner as the Literary Digest, when the U. S. printers were on strike. The edition consists of one page only, but thanks to the excellent system of condensation prevailing in Britain, a tremendous amount of news is given, in tabloid form, none of the day's events, apparently being overlooked. The paper was produced by means of the typewriter, the engraver and the ordinary printing press, typesetting thus being eliminated.

A number of the pulp and paper workers from the Niagara district mills will attend the annual convention of the International Pulp and Sulphite Workers Union to be held in Ottawa for five days starting October 5th. Ottawa is the first Canadian city to have the honor of entertaining the delegates of the union which was formed some years ago.

The program for the annual convention of the Canadian Paper Trade Association to be held at the King Edward Hotel in Toronto on October 6 and 7 has been issued and indicates good work by the executive committee in preparing a full two day's of addresses, discussions and entertainment. The various routine reports will be read at the morning session of the first day and this will be supplemented by an address by Mr. W. C. Ridgway, General Secretary of the National Paper Trade Association of the United States on "the outlook for the paper industry in the United States," while delegates will also report on trade conditions in their various sections. There will also be a reading of a composite statement as to protection to jobbers by manufacturers. The visiting delegates will be guests of the Toronto members at a luncheon at noon and there will be a dinner in the evening. Among the other features of the two day's proceedings will be a paper by Mr. Edward Beck of the Canadian Pulp and Paper Association on forestry conservation, an address by Mr. A. L. Dawe, secretary of this association, and a tour of the Toronto harbor improvements. A large attendance is looked for at the gathering.

Mr. Nelson Gain, of the Don Valley Paper Co., Ltd., is receiving the congratulations of his many friends in the paper trade in Toronto and elsewhere on the arrival of a lusty young paper maker at his home.

Mr. E. B. Archibald, of the Harland Engineering Company, Montreal, called on the paper trade in Toronto this week.

Mr. and Mrs. de Shryber, of Auckland, New Zealand, where Mr. de Shryber is a prominent paper dealer, spent several days in Toronto during the week calling on members of the paper trade.

A break in the shaft of the machine at the Provincial Paper Mills Company's plant at Thorold this week caused a shut down of the mill for several days.

Mr. A. B. Stovell, of the Stovell Lithographing Company, Winnipeg, was in Toronto this week. Another Winnipeg visitor was Mr. Percy Kellett, of the Bulmer lithographing firm.

Before his departure to take up his new duties as managing editor of the Ladies Home Journal, Mr. T. B. Costain of Toronto, was tendered a dinner at the Ontario Club when he was presented with a handsome cabinet of silver.

A charter has been granted the Kratz and Hall Lumber Co., Limited, with headquarters in Vineland, Lincoln County, to carry on the business of timber merchants, pulpmill owners, etc. Among the incorporators are John H. Kratz, Louth Township and Joseph Hall of Waterloo. The new organization is to take over as a going concern the business and assets of the business now carried on at Craighurst, Simcoe County, by J. H. Kratz and Co. A charter has also been granted the Pembroke Timber, Tie and Pulp Co., Ltd., Pembroke, with a capital stock of $40,000. Among the incorporators are James S. Fraser, L. M. Chapman, A. J. Miller and F. J. Shepherd.

Mr. John Mather, manager of sales of the Whalen Pulp and Paper Mills, Ltd., is in Montreal. He reports business was as steady in B. C. with his firm making 200 tons of sulphite pulp—and selling it.

D. G. Calvert of Strathroy, Ont., has been appointed resident engineer of the Fort William Pulp and Paper Co. He will have charge of the construction and equipment of the plant on the Mission site. Mr. Calvert is a graduate of the University of Toronto and served three years as assistant engineer for the Transcontinental Railway, with headquarters at Cochrane. He then joined the Canadian Stewart Co. on the Toronto Harbor improvement work as office engineer, and was later associated with the Mead and Talbot interests.

Mr. T. J. Stevenson, of the Riordon Company, is expected home this week, after four months in England and Europe.

A step in the direction of enlisting the listed section of the Toronto Stock Exchange came this week in the listing of the common and preferred stocks of the Abitibi Power and Paper Co. which were called for the first time on Tuesday.

There is general regret in the paper and pulp industry that Mr. A. L. Dawe, secretary of the Canadian Pulp and Paper Association is confined at home with tonsilitis. His friends hope for a quick recovery.

Mr. L. P. Andrews, president of the British Wood Pulp Association, and Mrs. Andrews are in Canada on a short visit. They expect to return home in about a week, but Mr. Andrews declares he is coming back.

The Ottawa river, which has been at its lowest level since 1916, rose three inches Friday night and this came as welcome news to mill owners, who have been seriously handicapped by lack of water.

Kenora Gets New Backus Mill.

The agreement between the Ontario Government and E. W. Backus, the American pulp and paper manufacturer, under which a new pulp and paper industry is to be established at Kenora, has been signed. It contains the following undertakings:—

Mr. Backus (the Keewatin Lumber Company and the Keewatin Power Company), is confirmed in his possession of the Lake of the Woods limit, but agrees to pay the present dues on pulpwood, a substantial increase over those fixed in the original agreement:

He agrees to proceed at once with the construction of a fifty-ton capacity pulp mill at Kenora and to resume operations at the Kenora saw mill, formerly owned by the Rat Portage Lumber Company:

He secures for his companies a lease of the water power at the White Dog Rapids, subject to full Government control:

He secures an undertaking by the Government to place the English River limit in the market at public competition and agrees to tender upon it:

He also accepts a condition that any part of his output must be sold to Canadian publishers if the Government directs.

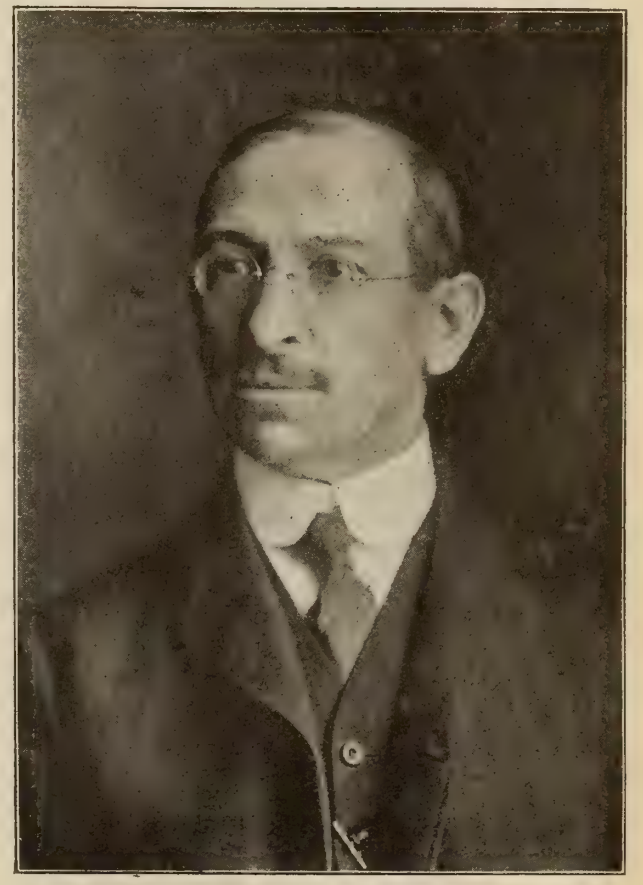
SPANISH RIVER IS NOW ON SEVEN PER CENT BASIS.

Spanish River common stock was placed on a 7 per cent basis at the annual meeting of the Spanish River Pulp and Paper Mills, Limited, held at the head office of the company in Toronto on September 30. About ninety per cent of the total outstanding preference and common shares were represented at the meeting. The former directors were all re-elected and at a meeting of the board the following officers were elected: President, George H. Mead; vice-presidents, P. B. Wilson and Lieut.-Col. T. Gibson; secretary J. G. Gibson and treasurer A. H. Chitty. At the close of the general meeting the following statement was handed out:

"The directors wish to announce further that after careful consideration it is felt that the company is warranted in placing the common as well as the preferred stock upon a cash dividend basis, and at the meeting, held today, formal declaration was made of the first quarterly dividend on the outstanding common stock of 1¾ per cent per annum, payable October 15th to stockholders of record September 30."

Discussing the outlook for the paper trade President George H. Mead, of Dayton, Ohio, said: "From all present indications the paper business is in a strong condition. While there have been recessions in production and price in other commodities, we have seen no indication of the falling off in consumption of newsprint paper. There is quite a good deal of production contemplated during the next two or three years, but it is proceeding slowly, and at the present rate will not catch up with consumption in the immediate future; in fact, so far, the development in the industry is behind the normal increase in consumption. Of course, it is impossible to tell what to-morrow may bring forth, as the world is in an upset condition, but the paper industry as a whole looks to be sounder than almost any other line of trade.

"It is becoming more evident each year that the supply of newsprint paper for this continent must be furnished by Canada, and that with the development in the [illegible] countries that have large resources [illegible] trade [illegible] at a standstill the opportunity is at present open to the Canadian industry very largely to control the markets of the world. The question of conservation of timber supply and reproduction is most vital, and should be given greater and greater consideration each year."



A. G. CAMPION.

Well known factor in the pulp and paper industry who died suddenly in Montreal last week at the age of 55. Mr. Campion came to Canada from Sittingbourne, England, where he was associated with Edward Lloyd, Limited.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Oct. 2.—A fresh opportunity for the expansion of the paper trade into an avenue hitherto very little explored, developed this week when it became known that thousands of dollars worth of fruit was rotting in the Niagara district and other parts of Ontario through lack of baskets to transport it from the orchards to the cars. Paper baskets have been made but not used to any great extent and according to a practical paper maker in Toronto there is no reason why there should be any shortage of baskets while paper or box is available. It is claimed that [illegible] could be opened up in this line if paper manufacturers or specialty manufacturers from paper products could find the time to divert some of their [illegible] energies into this channel. It would appear, however, that the present state of the trade, with its enormous demands upon the production of the ordinary lines of paper, precludes the possibility of taking on any specialty lines, although such a line as paper baskets at the present time would be a god-send to the fruit farmers. As a result of the basket shortage the Toronto papers are advocating a daily collection of empty baskets after the manner of waste paper collection and it is estimated that some 25,000 baskets as five cents each could be gathered in for fruit farmers. The fact that during the milk price investigation a milk dealer said that he had a loss of thousands of dollars yearly through the breakage of bottles, has also suggested the possibility of the general use of paper bottles which, with the lacteal fluid, could be left at the door on a cold winter's morning and not be cracked by the frost. While the need for such receptacles is generally acknowledged it would appear as if the paper and board industry was not in a position to enlarge the scope of its activities in this direction at the present time, but those on the outside of the paper business are wondering why this breach has not been filled by the paper manufacturers.

Newsprint and Pulp.

Although there is said to be a falling off in the pulp market there are no very direct evidences of it. One firm sold groundwood pulp this week for $150 and better, while a paper mill in Ontario is known to have secured a shipment at $100 according to the invoice which was seen by a salesman who passed the information on to the Pulp and Paper Magazine. The truth seems to be that there is neither a falling off nor an advance in the pulp market. It would appear as if very little pulp is being traded in but what is changing hands covers an average range for ground wood of $130 to $160, according to the Toronto salesman of one of the big pulp and paper companies, while unbleached pulp is ruling at from $175 to $200. No bleached pulp is being offered for sale as far as can be learned but it was stated in Toronto this week that a certain pulp mill had been offered an order for 2,000 tons of bleached sulphite at $290 in American funds, but could not touch the order on account of being tied to capacity with their contracts.

As far as the newsprint situation goes a slightly easier condition is discernible in the United States spot market but it has not materially affected the Canadian newsprint trade. Newsprint is still very hard to get and practically no deliveries are being made outside of contracts. From 5c to 6½c for rolls and 7½c to 14c for sheet news are about the ruling figures but very few, if any, spot transactions are being made. Some see symptoms of a slight hesitation in the newsprint buying market and while the future is admittedly uncertain it is pretty freely predicted that the first quarter of the new year will see news up again two or three cents a pound. Predictions such as this, however, are made with reserve and it is generally conceded that no one knows just how the market will go in the next few months.

Book Papers Tighter Still.

The trade reports that bonds and flat papers are coming through a little more freely but book papers are tighter than ever. Supplies of book paper are very hard to get and there are many complaints from jobbers and printers as to the quality of paper the mills are sending out. It is recognized, of course, that the mills are up against the raw stock proposition and that whereas a few years ago they could turn out a fairly good paper using groundwood pulp at $20 or $30 a ton, now they are hard put to it to get groundwood at around $140 a ton and have to use sulphite at the present high price. The scarcity of raw material is having a serious affect on the quality of the paper being turned out and the mills seem powerless to remedy the matter. One jobber declared that the book paper he has been receiving from the mills of late is not fit to send out and yet he passes it to the printer who in only one or two cases has sent is back to the warehouse as unfit for his use. In this way many big contract jobs are being hold up, for, if the customer insists on the original stock for the job as per sample submitted the printer has simply to tell him that he will have to wait until the mill turns it out which may be in the more or less distant future. Contracts too that have been based on a 9¼c paper which has been long delayed in delivery and is now 20c have been revised by the customers, the printer laying down the dictum that the price he is to get for the job is governed by what he has to pay for paper today and not what he quoted when estimating the job some time ago.

The general opinion seems to be that in paper lines generally a point very near to the peak in prices has been reached, although a decline in sympathy with other lines that have been on the down grade lately is not looked for immediately. In this connection it is pointed out that many lines of merchandise, perhaps bought at high prices, are now due for a drop if they have not already come down. This is going to make business a bit dull but in



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paper trade circles it is believed, too, that it is going to make the merchants use more advertising space than ever. One jobber declared it as his belief that next Chistmas would bring a bigger rush for paper than had hitherto been experienced. The mills are still away behind with their book paper orders and in some cases this week orders placed almost a year ago are only now beginning to come in.

Wrapping Paper.

A new regulation affecting the wrapping paper trade from the mill to the jobbers went into force this week when the trade was notified that all free freight delivery points, outside of mill points, in Ontario had been cut off. Toronto, Ottawa and Merrington are the chief Ontario exceptions. The wrapping paper trade continues to enjoy big business but the jobbers complain of being unable to get sufficient stock for the requirements of their customers. There have been no changes in prices during the week.

Tissues up Slightly.

As indicating the firmness of the market for tissues, the present week saw a slight advance in light weight kraft papers and manila tissues. There is a big demand for these classes of papers and the mills and jobbers have more business than they can handle.

NEW YORK MARKETS.

New York, October 6.—(Special Correspondence).—The demand for paper of practically all kinds has developed a decidedly quieter tone. Contrasted with the situation existing not so long ago, the market now presents a notable contrast. Consumers in all directions are operating as buyers in very limited fashion, and where a short time back, demand was of an urgent character and there were buyers for two pounds of paper for every one pound produced, today manufacturers and jobbers alike are complaining of the difficulty in obtaining new orders. The entire turn of affairs is believed to be due to the wave of conservatism sweeping the country. The slashing of prices on various commodities has brought buying very nearly to a standstill, buyers evidently being of the belief that by holding off for a time they will be enabled to purchase at cheaper prices later on. For quite a spell this situation has been developing, and the paper trade managed to ward off similar conditions up to a few days ago. Now, however, consumers of paper are exhibiting the same reluctance to buy as are users of numerous other commodities. Then, too, the dullness prevailing in virtually all lines of merchandising naturally makes for a light consumption of paper, which in turn permits consumers to refrain from placing orders.

Prices thus far have been little affected. There have been cases cited where paper has been sold at recessions from commonly recognized market levels, but this is more of an exception than the rule, and mills have not resorted to general price cutting. On the contrary, quotations on most grades of paper are well maintained and even in some instances there is still an upward tendency apparent. In certain kinds of paper, notably high-grade bonds and writings and in tissues and box boards, reports tell of easiness of a degree bordering on a break in values. Yet there has been no actual decline in prices to amount to anything. Manufacturers take the view that the lowering of prices at this time would avail them nothing in the way of creating more business, because buyers are in that frame of mind where they are going to buy only if immediately in need of supplies and not otherwise, regardless of the quotations named. The general uncertainty existing throughout the business world, tight money conditions, the upheaval of the United States foreign trade by the dropping off of exports and the market increase in imports, together with various other depressing factors have placed the consumer and business man in a position where he is determined to pursue a waiting policy, to refrain from buying for a time. So that, generally speaking, it can be stated that the paper market is in a much quieter condition than it has been in upwards of a year, but that prices on the whole have undergone very little material change.

Printing papers constitute the firmest end of the market. This applies to both newsprint and book papers. Mills making these grades are so well booked ahead with orders that they can afford partially to ignore the market situation at the moment. Few cancellations of orders are being received by manufacturers of such papers. Publishers who have orders on file are letting them remain; moreover, indications are that if additional tonnages of news or book paper were available they would easily find buyers. Prices are at previous levels, with book papers evincing a tendency to advance. Fine writing papers are easy, and while mills have sufficient business in hand to keep them running full, it is understood that they have had many cancellations and that they are apprehensive over the future. Tissue papers are in unusually limited demand and the market presents anything but a strong undertone. Wrappings are in less demand than for a lengthy period, while reports have been heard of some board mills re-

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ducing quotations on news and chip board.

That the market will improve its position over that now prevailing is the opinion expressed on all sides. Manufacturers and dealers alike look for matters to spruce up within a short time when conditions become better stabilized and when commercial activity in general gets back to a more normal scale. Everyone seems confident that there will be no appreciable drop in paper prices during the balance of this year. What may happen after that time is a question concerning which few are willing to haazrd a guess, but it is generally accepted that mills have enough business booked up to keep them busily occupied for the next three months and to maintain prices at about current levels.

GROUND WOOD.—There is a rather limited demand for mechanical wood pulp at present and the market reflects this by displaying a more or less soft undertone. Prices have not changed this week, and business has been done at levels indicating that values are being maintained, but on the other hand there have been reports of transactions in some cases at figures under accepted market levels. Prime quality spruce ground wood has been sold at $125 and $130 per ton at grinding mills, and foreign ground wood has brought the same prices, yet it is stated authoritatively that purchases have been effected in out of the way instances down to $115 a ton. The main factor in the ruling situation is that consumers have let up in their buying, which, in conjunction with the arrival of fairly large tonnages of ground wood from European sources, makes for an easier market condition. Everyone in the trade is of the belief that ground wood prices will become stronger during the next several months, or when cold weather hampers producers, at which time grinders will fail to have the surplus stocks to draw on that they usually have in the early winter.

CHEMICAL PULP.—Although chemical wood pulp prices have undergone no sharp declines, there is no gainsaying that they are easier in tone and that most kinds of pulp can be bought at recessions from the quotational levels recently prevailing. This applies especially to foreign pulps. There have been offerings of imported unbleached sulphite of strictly No. 1 quality here this week at 9.75 cents a pound ex dock, and sulphite of this description of secondary quality is reported available down to 9 cents. Foreign bleached sulphite is obtainable in larger quantities than in a long time and is quoted at between 13 and 14 cents per pound ex dock Atlantic ports. Foreign easy bleaching sulphite is also quotably lower at around 10.50 cents, while Scandinavian kraft is offered at 7.25 cents on the docks. Indications are that Swedish manufacturers are endeavoring to sell all the pulp they can find buyers for in America at the prices they want, and in frequent instances they are lowering quotations to put through deals. Domestic pulps hold fairly steady in spite of a narrower demand from consumers. Papermakers are buying only when immediately in need of supplies, and, evidently realizing that offered lots are on the increase, are doing a good deal of shopping around the market in search of low-priced holdings.

Receipts of foreign pulp at New York this week included 4,415 bales from Gothenburg, 2,352 bales from Christiania, 1,618 bales from Kobe, and 2,175 bales from Rotterdam.

RAGS.—Few paper manufacturers are actively in the market as buyers of rags and there is consequently little trading current. New cuttings of most kinds are holding their own in price, due not so much to the amount sold as to their relative scarcity resulting from the light production of new rags recently, but old rags are easy and can be brought in most quarters at recessions from the prices lately quoted. Roofing rags of No. 2 quality have been sold down to as low as 2.10 cents a pound at shipping points and feltmakers are securing all the supply wanted at 2.25 cents. Old whites are a little off in price at around 14 cents for No. 1 repacked, and old thirds and blues of repacked quality are available at 4.50 cents. New shirt cuttings are firm at a basis of about 26 cents for No. 1 packing, and washables, new muslins, white lawns and new silesias rule quotably steady.

PAPER STOCK.—The retirement of most box board manufacturers as buyers has resulted in quite a severe break in prices on low grades of old paper. Folded newspapers have sold at 2.25 cents a pound at shipping points, or $10 per ton under recent prices, while No. 1 mixed papers are freely obtainable now at less than 2 cents a pound, against a previous basis of around 2.15 cents. High grades hold steady, shavings in particular. Soft white shavings of No. 1 quality can scarcely be bought under 8.50 cents a pound at shipping points, and packers demand 9.50 cents and more for No. 1 hard white shavings. Old book stock is bringing around 3.15 cents at shippers' points and No. 1 overissue newspapers 2.60 cents.

Imports of miscellaneous paper stock at New York this week included 961 bales from Belfast, 121 bales from Dundee, 278 bales from Manchester, 40 bales from London, and 25 bales from Glasgow.

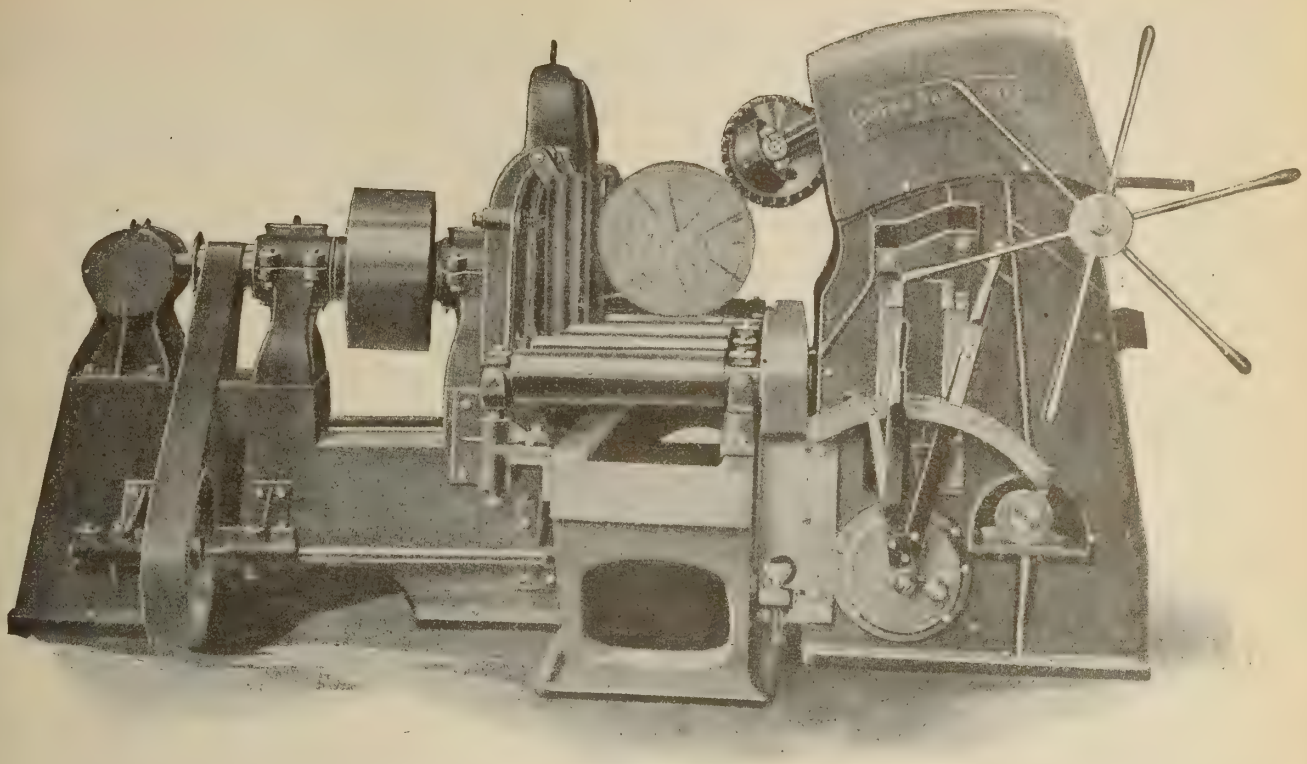
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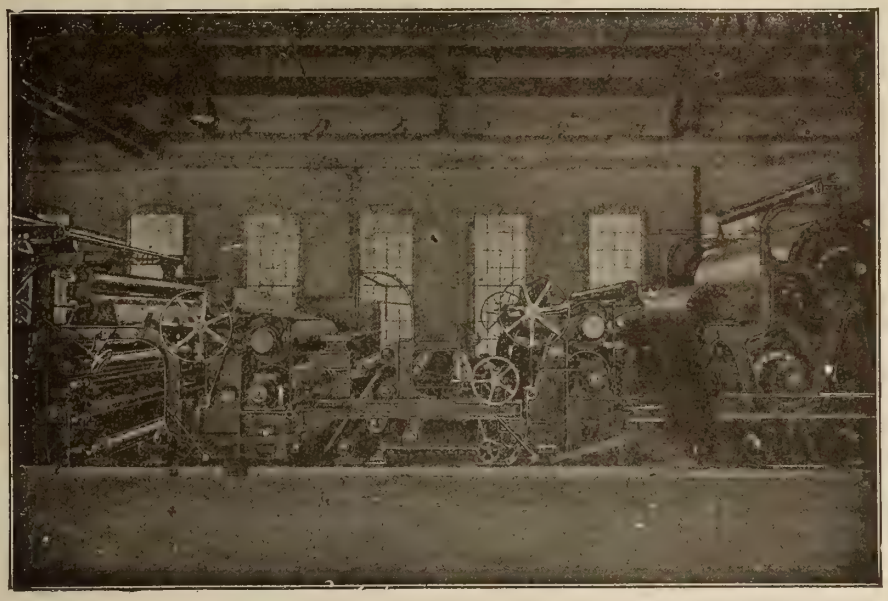
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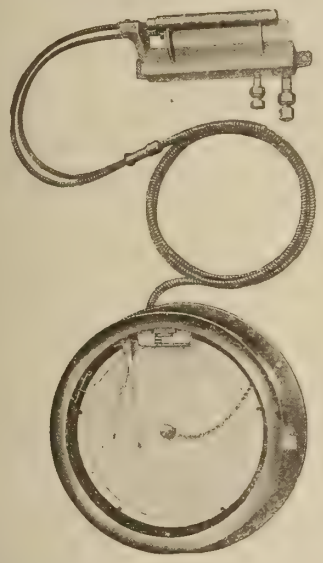
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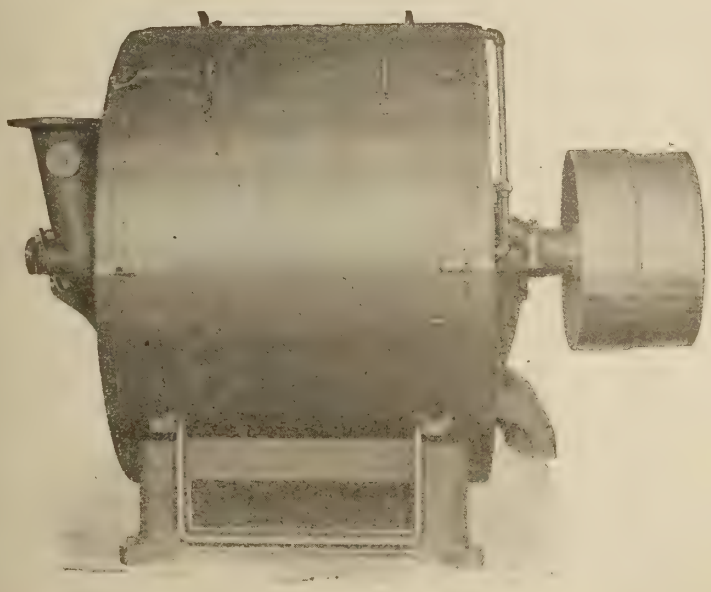
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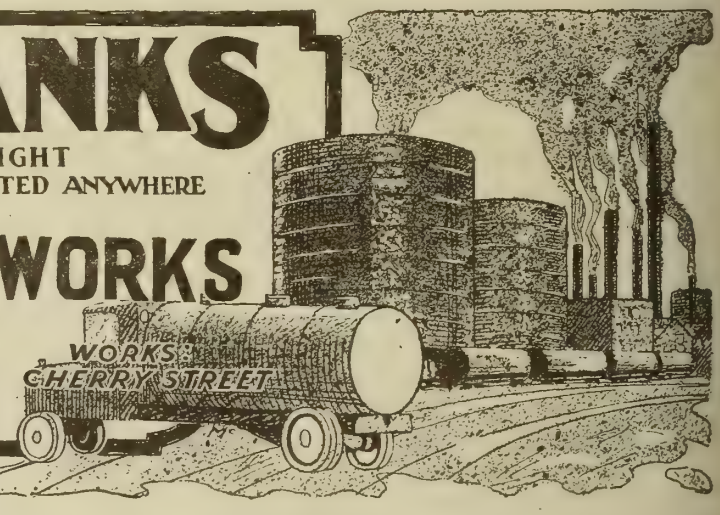
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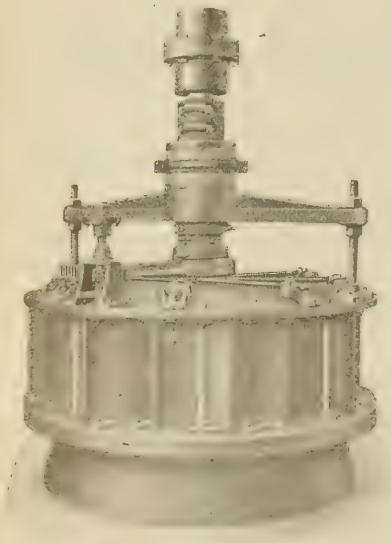
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VOL. XVIII. **GARDENVALE, P. Que., Oct. 14th, 1920.** **No. 42**

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-:- EDITORIAL -:-

REGARDING IMMIGRATION.

The tendency is to make access to Canada and the United States more difficult. This is particularly true with regard to the would-be immigrant, who has not been able to afford even the scanty opportunities for education that many other countries provide. The result is that many able-bodied honest workmen are barred from our shores. At the same time the increase in educational opportunities and requirements within our borders is creating a condition where there is a much greater proportion of labor available for the higher classes of work and a serious lack of labor willing and able to undertake the rougher tasks. While the growth and building up of our cities and the construction of our public works require much labor of a character not demanding very much education or even intelligence, such labor is practically non-existent among those who have previously come to our shores.

The question of immigration is by no means simply in providing unskilled labor. It is the more serious problem as to whether the new-comer will be a desirable citizen. Experience has pretty well shown that even a college diploma may not be a badge of safety, as regards citizenship. An examination of the ideals of the individual and an estimate of character would be to our mind a better basis for measuring the reliability of an immigrant than a literacy test. The ability to read and write simple phrases in the immigrant's language does not seem to be a measure of his ability to earn a living in this country. He may be proficient to a degree, in a language which is seldom or never seen in printed form. Y.M.C.A. and other workers among foreigners have shown that it is not a difficult matter, nor a long process, to acquaint such students with the common terms and expressions that are most important to them. It would seem to us far better to provide opportunities for such study and require attendance at such classes by the illiterate immigrant than to admit foreigners who know no English at all on the basis of having a smattering of their own language, and letting them continue in their ignorance of the language of their adopted country. Such instruction in simple English, and we would advocate that all foreigners be required to attend classes therein, should be the best opportunity for showing him the opportunities that await honest workers in this wonderful country, and impress upon him his obligations of residence and citizenship.

As his proficiency with the language increases, the new-comer can be further acquainted with fundamental principles of economics, which would both discourage his exploitation by capital, and the tendency for him often to follow the misleading and unfounded statements and non-Canadian doctrines of those whose business it is to stir up unrest.

To our mind the problem of the immigrant is not whether we let him in but what we do with him when we get him here. The selection of the immigrant is fundamental, and must have first attention and careful consideration. But the responsibility of our government, which means ourselves, is by no means dispatched when the examination is passed. The government employment bureau and colonisation agency should first see that the new-comer is guided in the right direction and placed according to his financial and mental qualifications, and that a dominion wide immigrant educational program should provide them at least the fundamental instruction in English and citizenship. We feel that such a movement is absolutely necessary. The critical nature of the problem was brought out forcibly in an address recently delivered before the Kiwanis Club of Montreal. The speaker told of the difficulties facing many immigrants both regarding themselves and their children. The Province of Quebec provides by law only for the education of Roman Catholics and Protestant. There is no *real common* school. Consequently, many foreigners have found thmselves without educational opportunities. The lack of this is perhaps more unfortunate with regard to the children because they do much of the teaching to their parents.

So long as the British North America Act stands it is probable that we shall not have a national school system. The federal government probably will continue to have no authority in educational matters. However, this should not hinder the greatest possible co-operation between federal departments, such as the Ministry of Labor and the Ministry of Immigration from working hand in hand with the educational authorities of the provinces in this matter of educating the immigrant. At present it seems that only philanthropic and semi-philanthropic organizations such as the Frontier College and the Y.M.C.A. are really doing anything along this line. There is no co-ordinate, Dominion-wide effort, as far as we can discover, to provide the foreigner, whether newly landed, or an old resident, with an opportunity to learn the English language, and to become acquainted with Canadian customs and ideals.

Although, as stated, there is little likelihood of a national school system, there is a chance for the federal government to assist in the organization and maintenance of schools for immigrants throughout the Dominion. Although the non-English speaking foreigner enters largely through our Atlantic and Pacific Ports, he frequently finds his way to the interior, so that his education concerns every province. Every centre where a class could be formed, should have a school of some kind for teaching English to the foreigners. By federal co-operation uniformity of procedure and standards could be obtained, and the country would be far better off for the greater intelligence of these residents. We believe that the effort along this line would not only be an important factor in preventing much social and industrial unrest, but would also add to the attraction of the Canadian Prairies for settlers. The higher standard of education, even if it should mean only an ability to read and write, would enable the settler to keep in touch with the rest of his country and the world, and would greatly lessen the monotony of the pioneer's life.

It is a big proposition, but there is here an opportunity for doing a much needed service for the illiterate immigrant that will return abundant profit to the Dominion and the Provinces.

WOODLANDS SECTION FOR THE A. P. & P. A.

The Canadian Pulp and Paper Association need not be unduly puffed up, but there is a source of satisfaction in having started two movements that have been found good enough to be copied by our American confreres, the American Paper and Pulp Association. The Technical Section of the C. P. & P. A. was followed so closely by the organization of the similar section of the A. P. & P. A. that it would be hard to decide where the idea first took root. There is no question however, about the Woodlands Section. The Canadian Association some years ago realized that the emphasis placed on the management of mills along scientific lines should be extended to the scientific management of the forest, on which the life of the mill depends. It was in November 1917 that a meeting was held to plan for the organization of the Woodlands Section, and there is no question of the good that has already been accomplished by this youngest member of the association family.

It is graftifying to learn that the American Pulp and Paper Association contemplates the formation of a Woodlands Section at the meeting to be held in Chicago on November 11th. We venture the opinion that an attractive woodland section would, if formed fifteen years ago, have accomplished a great deal to prevent the serious situation as regards pulp wood that now faces the American mills. Foresters in the United States have been preaching conservation and reproduction, and in Canada likewise. The principal difference is that in Canada some action has been taken, while in the United States, for the most part the matter is still in the vocal stage. We expect that the new association will have not only a financial support and complements of the manufacturers, but that it will have real co-operation from the pulp and paper manufacturers.

The forestry committee has gone carefully over the ground, and has made careful and important recommendations. The new section should succeed in putting these recommendations into effect. No doubt some of the prescriptions will not taste good to some manufacturers, but if the situation is to be cured a certain amount of medicine will have to be taken; and the sooner and more carefully it is taken the more rapidly will be the patient's recovery.

In connection with this important work that the American Association has undertaken, the secretary has sent out cards with seven questions to be answered. Any manager with reasonably accurate and recent records can answer them in twenty or thirty minutes, and the information will enable the secretary to assemble this information in a form that will be of great benefit to every mill, and the more accurate and prompt the response, the greater will be the benefit. Canadian mills have been courteously included, and should esteem it a privilege to give full information, in order that there may be an intelligent effort made to relieve what is coming to be an extremely serious situation for the paper industry on both sides of the line. We are rapidly approaching the time when this industry will know no boundary line. Co-operation in many respects has already made great progress, and accomplished important results. In approaching this problem, co-operation should be made use of. Nothing is more fundamental to the success of the industry than the forestry situation, and every mill will be acting in its own interests by giving the American Pulp and Paper Association all the assistance possible in their worthy effort to get at the facts of the case.

The latest report of the Government on pulp and paper exports shows a most remarkable increase. Comparing August of 1920 with August, 1919, we find a grand total of very nearly $20,000,000 against a little over $9,000,000 a year previous, while for the first five months of the fiscal year the increase has been almost 100 per cent. An examination of the more complete statement shows that the increase in quantity is not in proportion to the increase in value although there is a very substantial gain in the quantity shipped. It must be remembered also that the consumption of paper has largely increased within the Dominion so that the industry has certainly a record to be proud of.

Convention of the Canadian Paper Trade Association

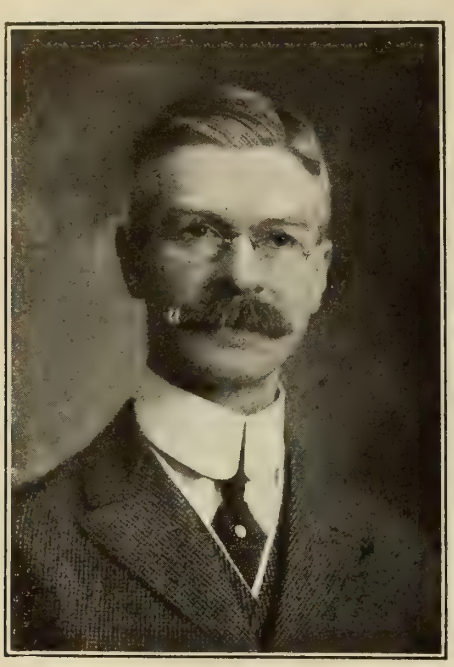
Many problems affecting the jobbing section of the Canadian paper trade were discussed and some of them solved at the annual two-day convention of the Canadian Paper Trade Association held in Toronto last week, under the chairmanship of John Martin of Winnipeg. The gathering brought together representatives of the paper jobbing trade from most parts of the Dominion, the Western Provinces and Ontario sending the largest representation. The jobbers were joined in their deliberations on trade matters by a number of the mill representatives and in the course of several conferences which were held excellent relations were shown to exist between the producer and the distributor of paper. The report of the Mill Relationship committee indicated that there had been considerable improvement in various matters touching the interests of mill and jobber, but a few of the mills were still going over the heads of the jobber and selling direct to the printer. It was contended that the jobber should be placed in a fair position in relation to the manufacturer touching the matter of resale prices, the jobber stating that they were ready to play the game if all the mills would do the same. During their discussion it was brought out that the Canadian paper trade is now face to face with British competition and it was stated by one of the Western delegates that he had positive information that the British Paper manufacturers were determined, even to the extent of expending large sums of money, to get hold of a portion of the Canadian paper trade. It was stated that representatives of English houses were already in Canada offering their goods at attractive prices and in any quantity, with favorable freight rates which would chiefly benefit Western jobbers in view of the 80 cents freight rates between Liverpool and Vancouver. These and other matters, including classification and the jobbers cost of running his business were all thoroughly discussed with the result that there will be a better understanding between the jobber and the manufacturer touching these matters in the future.

A feature of the gathering was an address by Mr. W. C. Ridgway, General Secretary, of the National Paper Trade Association of the United States who dealt with the relationship between jobbers and manufacturers of paper and with trade conditions generally in the United States. Mr. Ridgway pointed out that the problems facing the trade in this country were practically the same as existed in the United States, although there were only two or three big paper firms who were not dealing direct with the jobbers in the distribution of their product. This satisfactory condition of affairs has been brought about largely through persistent effort and organization on the part of the National Paper Trade Association with the result that during the past several years the mills generally have been willing to market their product through the paper merchants, although an out-break of direct selling was anticipated when the output caught up with the demand in the more or less distant future. His association had been endeavoring to educate the manufacturer and merchant in the idea that they were both component parts of one and the same business and if that principle could be established firmly in both countries, along with the application of common every day business sense, all problems existing between manufacturer and distributor would be solved.

As to the outlook for the paper trade in the United States, Mr. Ridgway said that one man's guess was as good as another's and he, himself, was not prepared to say what would happen. The fact was, however, that production capacity in the United States had not increased to a point any where near the normal consumption of paper during the past five years. It had been figured out that the normal average increase in demand from 1900 to 1910 had been approximately 10 per cent, varying according to the grades. How much productive capacity exceeded the demand at the beginning of the five-year period no one knew and it was impossible to tell how much the War demands have been over and above the natural increase in the demand for paper. As a matter of fact the War demand had only begun at the time of the Armistice in November 1918. It is pointed out that the present demand in the United States had been cliding since June the 1st and according to figures it is still above normal. September business showed a slight increase over August and it was generally expected in the States that after the election, business in most lines would start to take on new life.

Mr. Ridgway said that the great factor in the demand for paper in the United States had been the tremendous demand for advertising. Big advertising campaigns were being staged and would continue as long as the present tax laws over there were in existence. Many corporations were spending huge sums of money on advertising on account of the taxes levied on earnings and for the good that would accrue in the future when taxes would not be so high. As long as advertising kept up there was no chance in the world of a lessening in the demand for paper. Mr. Ridgway said that the slaughtering of a number of lines in the spot market was having a psychological effect upon the paper trade but he could not see any possibility of a drop in prices of paper, except in the spot market, in the near future. The situation in the United States today was not in any way in a dangerous condition. Never had stocks been so low and many houses were without a sheet of book paper. It would take three or four months before stocks were built up to a point where the merchant could do business on a proper basis. The average mill has from three to four months' orders on its books and prices have reached what Mr. Ridgway termed the saturation point. A feeling was beginning to develop among customers of paper that if the product was to go any higher they would endeavor to get along without it.

On the subject of the protection of jobbers by manufacturers the Secretary read a complete statement based on reports from the paper jobbers, on that topic. It was stated that the wants of a publisher are largely in news and book and coated papers and it would appear that as the situation is in Canada to-day this field is, in many respects, a mill proposition. "It



Mr. CHARLES E. GRAHAM,
Of Hamilton, Ont., who was elected President of the Canadian Paper Trade Association at the annual meeting in Toronto last week.

does not seem to be the view that it will be practical to turn this particular business into the hands of the paper dealer, but the opinion is expressed that the mill should not accept orders from job printers who may publish specialties from time to time and in this way buy certain lines to better advantage than the ordinary job printer who does not pose as a publisher. The point is very well taken that a list of publishers in Canada who are to be recognized as such by the mill and by the paper merchant would be prepared and approved by both the Associations."

An enjoyable banquet.

The entertainment features of the convention had been well worked out by Secretary N. L. Martin and included several luncheons, a banquet at the King Edward Hotel on Wednesday evening and a trip around Toronto Bay in the Harbor Commissioners' boat where the harbor improvements were viewed. The dean of the paper trade in Canada, Mr. John F. Ellis presided over the banquet and extended a hearty welcome to a large number of guests from among the jobbing and printing houses in Toronto. There was excellent vocal music, some lusty chorus singing and an amusing climax when several of the officials of the Association were ushered into the hall in costumes representing the industries of the Canadian west, from the industrious squaw to the B. C. fisherman and Alberta cowboy. In the course of the evening the toast of the pulp and paper industry of Canada was proposed by President-elect Graham of Hamilton and responded to by Edward Beck of Montreal who dealt with pulpwood and forestry conservation in Canada in an able paper which has previously been read and published. "Our Guests" was responded to by W. C. Ridgway of New York, F. H. McPherson, President of the Detroit Sulphite and Fibre Co. and Atwood Flemming, job printer, Toronto. Mr. McPherson gave the gathering an extended description of the profit-sharing scheme that is now in force with his company and is working smoothly and to the advantage of the firm and its employees.* Mr. Flemming gave a straight from the shoulder talk to the jobbers and dropped a good many hints as to how the business relations between the jobber and the printer might be improved.

(* See Pulp & Paper, p. 485, May 6, 1920.)

Officers Elected.

The following officers were elected by the Association for the current year :

Honorary President, John F. Ellis, Toronto; President, Chas. E. Graham, Hamilton; 1st Vice-President, Ernest Dawson, Montreal; 2nd Vice-President, Chas. J. Kay, Vancouver; Treasurer, E. S. Munro, Toronto; General Secretary, N. L. Martin, Toronto.

It is decided to hold the next Annual Meeting of the Association in Montreal, in the latter part of October or the beginning of December.

The Delegates.

The following delegates were registered at the Convention :

E. S. Munroe, Wilson Munroe Co.; J. R. Rolland and F. T. Haney, Rolland Paper Co.; A. W. Whyte, Whyte Paper Co.; W. J. Finlay, United Paper Mills Co., Ltd.; Fred W. Halls, Fred W. Halls Paper Co., Ltd.; J. B. Larkin, Federal Paper Co., Limited; Edward Bogin, McFarlane, Son & Hodgson Co.; Fred Smith, Smith, Davidson & Wright Ltd.; Geo. H. Scott, L. B. Cammon and John F. Ellis, Barber, Ellis Co., Ltd.; Wm. J. Thompson, John Martin Paper Co. Ltd.; J. L Kenny and C. W. Graham, Buntin, Gillies & Co., Hamilton; Mr. Ewing, Victoria Paper & Twine Co., Montreal; Jas. Home, Beveridge Paper & Twine Co.; C. V. Syrett, Victoria Paper & Twine Co., Toronto; Geo. Wilson, Clark Bros. & Co., Ltd.; Alfred Phillips, Phillips Paper Co., Winnipeg; C. J. Kay, Columbia Paper Co. Ltd., Vancouver; Wm. C. Ridgway, National Paper



JOHN F ELLIS,
Hon. President Canadian Paper Trade Association.

Trade Association, New York; Geo. C. Winlow, Canada Paper Co., Toronto; John Martin and A. C. Hunt, John Martin Paper Co., Ltd., Winnipeg; N. L. Martin, General Secretary, Toronto; H. H. Love, W. J. Gage & Co.; E. H. Schofield, St. John, N.B.; H. F. E. Kent, Kinleith Paper Mills; Chas. Davidson, Howard Smith Paper Mills; I. H. Weldon S. F. Duncan and J. B. Piper, Provincial Paper Mills Ltd.; Geo. Pauline. Ritchie & Ramsay Co., Ltd.

PAPER TRADE ON FIRM BASIS.

Following is the address of President John L. Martin, of Winnipeg, which contains some interesting comment on paper trade conditions in Canada :

Coming together as paper merchants from all over this wide Dominion it seems to me that this presents an excellent opportunity for us to consider the main facts that present themselves in connection with the industry in which we are engaged. The development of the paper business in Canada has been so rapid that any review which may be made is bound to fill the observer with little short of amazement. While these facts are, in a general way, known to us all, we who are in the business necessarily have our faces so close to the picture that perhaps it is not out of place for us, at this time, to stand back a little way along with the casual observer and take a momentary glance at the whole field.

The growth of the paper business in Canada has necessarily been made possible by the fact that over our mountain ranges, hills and valleys a kindly Nature has spread out for us a great carpet of spruce, fir, and poplar, the greatest untapped source of pulp wood in the world. For centuries the world had stood back and looked upon our Canadian forests as being merely the abode of wild animals and the hunting ground for wandering bands of Indians, but the ever receding forests of other nations finally compelled the attention of the Capitalist to those virgin bush lands. The amazed settler in the far backwoods saw, springing up around him, the buildings of huge pulp and paper mills dotted throughout the wide expanse of this northern half of the continent. The result of this has been that whereas in 1911 the total exports of pulp and paper from Canada amounted to the sum of $8,600,000, last year these exports had reached the magnificent total of $104,800,000.

The conditions throughout the world, owing to the Great War, have been such as to improve our normal opportunities for foreign trade, and it is to the credit of our manufacturers that they have risen to the occasion and that these opportunities have been taken advantage of to the fullest extent. Were it not for this fact there is no doubt but that the rate of exchange against Canada would be very much larger than it is to-day. When we, as paper merchants, are apt to cavil at the shortage of supply perhaps it is well for us to bear this fact in mind. On the whole while, at times, the rations of paper which the kitchens of our paper mills have placed before us have not been in the nature of a nine course banquet, at the same time our plates have not been empty and we have been able to keep our bodies and souls together.

It is interesting to notice that the public at large and even our tardy Federal and Provincial Governments are gradually awakening to the importance of conserving for the future the vast supplies of pulpwood which Nature has given to us. The subject of fire protection and reforestation is now very much in the foreground and if the efforts of our paper manufacturers can be backed up with wise and efficient legislation then the everlasting permanency of the industry in Canada should be assured.

As paper jobbers we are interested in looking afield to see what the conditions of the industry are in other lands, and as to what the prospects are for a resumption of pre-war competition.

Briefly it may be stated that paper conditions are much the same all over the world in that all grades are scarce and high in price, and that the output is far below the demand. In Europe the factors entering into the general shortage of paper are somewhat different than on this continent. Production, decreased during the war, will be a long time in reaching pre-war levels. On the Continent many paper machines were destroyed or dismantled, and while many of these are again being set up, it will take a long time to get them into operation again. In other of the war countries, the industry is suffering for lack of coal, chemicals and pulp, but particularly for coal. In the



JOHN MARTIN,
Retiring President C. P. T. A.

Scandinavian countries, mills have been running full, though with production below normal on account of labor troubles.

In England, conditions are somewhat different. British paper manufacturers are steadily recovering normal production, but the demand for paper stocks from Europe and from other foreign countries has far exceeded the production of English mills. But few new machines have been installed, and this has mitigated against overcoming the increased demand.

Present conditions in the United States are perhaps best indicated in the fact that on the best evidence obtainable the productive capacity of the paper mills has been increased only 5 per cent in the past year, while the normal increase in the demand for paper is estimated to be somewhere between 8 per cent and 12 per cent. Except for the fact of the general feeling that commodity prices must soon assume a downward trend, there seems no reason to believe that there

is anything in the paper situation itself in the United States to indicate lower prices in the near future.

At home the same general stringency in paper stocks continues to prevail, with but few signs of immediate improvement. Basic raw materials are still very much below the demand, and the mills are having the greatest of difficulty in running full owing to the shortage of bleach, sulphite, and groundwood.

In book and bond papers production seems to be increasing somewhat, although recently some mills have been running short on account of lack of bleached sulphite. Mills are booking orders for January and February delivery, and orders booked months ago are only now being delivered to the jobbers.

Coated papers are still very short. Several coating mills are running only one shift owing to lack of supplies of body stock. If this could be secured they could run continuously for some months on orders at present booked.

In the newsprint field conditions are much similar, although most of the larger newspapers are now securing necessary supplies. Sheet news, however, remains very scarce, and the smaller publishers are not as comfortable as they would like to be, and jobbers are finding it most difficult to obtain adequate supplies of this line.

The demand for kraft and manilas seems to be fully maintained and kraft prices were advanced just recently a matter of ten dollars a ton.

In considering the factors which have operated in the development of the paper industry in Canada, I feel quite justified in claiming that as distributors of paper products, we have played a considerable part in the process of creating new demands for paper. This has been done by our own direct advertising, as well as through the thorough manner in which our travelling representatives have persistently preached the importance and necessity of using paper. At the same time we have emphasized the need of educating the consumer to the use of paper of the better qualities.

A further factor which has operated to improve the output of paper has been the elimination of some former abuses.

May I now briefly refer to the activities of our Association during the past year? Many obstacles have faced us, and conditions existing, were, at times, beyond our control. Nevertheless, we are proud of what we have achieved, not only because of the better understanding among us, but also because of the service we have been able to render one another.

"Unity is Strength," and by this we have achieved a strong feeling of consideration for the other fellow. The service rendered to each other has meant profit, not larger profit for selfish gain, but profit in binding us together on one common ground, and, thus, enlarging our vision. We see around us, as never before, close cooperation among the members of our trade, and in addition the manufacturers, manufacturing stationers, and the wrapping paper people are working in closer harmony in their own lines, to the betterment of all.

Since this Association was formed we have had an opportunity of testing out its real value to us, and it seems to me that from the general benefits that have so far resulted, we have reason to hope for much in the future. The conditions of the past few years, however, have been favorable for the development and the working out of the plans of the organization. The real test of our good will and real interest in the Association will come when we are further involved in the resumption of more normal conditions in all industrial and commercial life. I am hoping that the friendships and the understanding now existing will do much to carry us all through any such period of stress as we may be called upon to face.

I desire also to emphasize the situation created by the rapid and persistent increase in costs of paper during the past few years. Every dealer has felt the pressure of the demand upon his resources in taking care of the increased investment in his stocks of paper, owing to the advanced prices. But I venture the opinion that paper stocks in the hands of the legitimate paper dealer have increased in volume as compared with the period before the War. If I were to hazard a guess I would say the paper jobbers in Canada are carrying at present, stocks worth seven million dollars. This has helped in no small measure in the development of the industry in Canada. In addition I should like to suggest that there has been an ever increasing disposition to give marked preference to the handling of Canadian made papers. These factors, as well as others, would seem to justify our confidence that the paper manufacturers will give early and favorable consideration to our urging for more protection for the legitimate paper jobber, whom we understand to be a dealer carrying a general stock of various grades of regular stock sizes and weights of paper, from which any quantity may be sold.

During the year many important meetings of the various sections have been held.

There was a joint meeting of the mills and representatives of the jobbers held at the Board of Trade in Montreal, on December 22nd, of last year, on the subject of the increase in freight rates, at which your President and Secretary were present. This meeting was followed by a meeting of our Executive, at which we dealt with a complaint from one of our western members as to a manufacturer selling a firm of lithographer-manufacturers in Vancouver on the same basis as jobbers. We also discussed the credit bureau, which was then established, and which, by the way, is working very satisfactorily. We also arranged at that meeting that the Secretary of this Association was personally to take up direct with any of the mills any matter of complaint with respect to any individual mill.

In addition our Secretary visited the Western sections of the Association, and, with him, your President held meetings in Winnipeg, Calgary and Vancouver.

As a result of representations made to the mills following our last annual meeting, several important matters were arranged. One of the most important of these was the adoption by the mills of a wider spread over the cost price, in the suggested resale prices. A request made to the mills for a reduction in the number of grades of white writings has also had favorable consideration, and has been satisfactorily met, as has also been the suggestion to standardize the weight of envelope papers.

As the result of a conference of your President and committee with the manufacturers an arrangement for a marginal protection of the Ontario and Quebec jobbers on manila writings was successfully completed.

Our Secretary has also instituted the publication of a bulletin under the name of the "Canadian Paper Trade Association News" in which he has kept the members informed of many important matters affecting the trade.

In retiring from this honorable position, as president of this Association, I wish to thank our members for the hearty support given me.

For my successor I know and feel confident he will receive the same good, friendly, and co-operative support that exists among us all, and, in conclusion, I am pleased to state that no other organization has appealed to me so much as the Canadian Paper Trade Association, because it works in harmony with friendship, consideration, co-operation, and a desire for the betterment of all, and I am confident that we will go on to bigger things.

THE PROTECTION OF PAPER DEALERS

The following composite statement as to protection of jobbers by manufacturers was read by Secretary N. L. Martin and evoked an interesting discussion :

In the Canadian Paper Trade Association News, issue of September 3rd, the request was made that the members of the Association should intimate their views on the subject of "The Protection of the Paper Dealer by the Manufacturer." A number of replies were received. The object of this request was that diversified views could be obtained from members of the Association in different parts of Canada and that these views might be arranged in a composite statement which would indicate the feelings of the paper jobber as to the present situation, and as to how it could be improved upon.

An examination of these replies shows a uniformity of view which, in the light of trade conditions, is perhaps not to be wondered at.

The selling field for the paper dealer may be roughly summarized as including the publisher, the lithographer, the printer, the commercial stationer and converter, and large corporations.

The wants of the publisher are largely in news and book and coated papers and it would appear that as the situation in Canada to-day is that this field is, in many respects, a mill proposition. It does not seem to be the view that it will be practical to turn this particular business into the hands of the paper dealer, but the opinion is expressed that the mills should not accept orders from job printers who may publish specialties from time to time and in this way buy certain lines to better advantage than the ordinary job printer who does not pose as a publisher. The point is very well taken that a list of publishers in Canada who are to be recognized as such by the mill and by the paper merchant should be prepared and approved by both Associations.

The lithographer is also, to a very large extent, in the hands of the book and coated mills, and, insofar as these lines are concerned, however much we may agree with the theory that the lithographer should not be entitled to buy his supplies in any lower market than the job printer, with whom indeed he is frequently in competition, at the same time there appear to be a good many practical difficulties in the way of putting the matter on a different basis. The principal difficulty appears to be one of precedent. Years of continuance of this practice has strengthened and enriched the favored ones who, no doubt, seriously and strongly object to any attempt to take away their present advantages. A different situation, however, arises with respect to the bond paper requirements of the lithographing trade. A good many of the lithographers use a special, watermarked paper, but the jobber is expected to carry high grade stocks of bonds from which the lithographer selects odd lots from time to time, or will sort up his stock while waiting for a shipment from the mill. Fair minded persons must recognize that the practice of the mills selling bond papers direct to the lithographer is creating a situation which is absolutely unfair to the competitor of such lithographers. It is also unfair to the paper dealer who finds one of his active markets taken away from him. The uniform feeling of the paper dealers is that the mills should be prevailed upon to leave in the hands of the paper dealers the bonds and writing trade with the lithographers large or small, in trade or private watermarks.

In their relations with the job printers, the paper dealers find they have little cause for complaint, but the barnacles of an old custom still cling here and there and should be removed.



N. L. MARTIN,
Re-elected Secretary C. P. T. A.

When we come to consider the trade of the commercial stationer we find again existing a privileged class. Many of these commercial stationers are nothing more or less than retailers, the majority of them having no printing or manufacturing plant of their own. The mills would lose nothing by diverting this trade through the paper dealer. There are many more spots throughout Canada which the manufacturer, by the wave of a magic wand, could instantly heal.

Another evil thing which the paper dealer has to meet with day by day is the fact that many large corporations buy their bond papers with private watermarks direct from the mills. This practice is as great an injustice to the job printer as it is to the merchant. The view has been expressed that the proper place for the large corporation to buy its paper is from the printing house which does its work, except indeed in cases where the corporation has a printing plant of its own, in which case it might properly be conceded that the trade in such case should naturally fall into the hands of the paper merchant.

The paper merchants of Canada carry large, individual stocks and turn over probably as much as fourteen million ($14,000,000.00) dollars worth of Canadian made paper in a year. The distribution of this com-

paratively large total costs the mills nothing. It would be inconceivable for the mills themselves to take care of the diversified wants of the consumers of paper and it would seem futile to argue that the paper merchant has a firmly established position in the trade of the country. The paper merchant, therefore, with his large investment, his selling organization and with his financial burden is entitled to the recognition and respect of the paper manufacturer. He should get a deferential discount as against all other buyers of the product of the mill, no matter how small that discount on certain lines or certain quantities may be. The situation must be looked at by manufacturers and dealers without thinking solely of their own immediate interests. The merchant is frequently faced with the necessity of quoting dangerously close figures in certain orders because of the fear that manufacturers will consider the buyer or the business to be of sufficient importance to justify direct quotation at practically the same price as is quoted to the dealer, or that some agent will be able to buy as cheaply and, having little or no expense to pay, will take the business on the barest possible margin. If some recognized list of those houses which the mills consider as "mill accounts" could be prepared and placed in the hands of the merchants this would at least be a step in the right direction.

It is the feeling that if these difficulties could be overcome it would be for the good of the whole industry. It is a matter for the pulp manufacturer, the paper manufacturer, the wholesaler, the lithographer, the printer, the converter and the consumer to work together with one mind towards the most economical and the most practical method of supplying the product of the mill to the use and benefit of the ultimate user of the product.

GROWING ONE TREE, CUTTING FOUR.

At a conference held at the White House a dozen years ago, while Roosevelt was President, it was stated that the timber supplies of the nation were being used up three times as fast as they were being renewed by growth. The correctness of that statement having been doubted, more complete surveys have been made with the result that the Forest Service now declares that the United States are losing more than four times what growth replaces. Our United States neighbors are now realizing that necessity will soon compel them to restore their forests instead of using them up. As in Canada one of the most pressing duties of the forestry service is the protection of all forest lands against fire, — cut over lands as well as the merchantable timber. A proposal of legislation to provide for this is the first and most important recommendation of the recently issued report of the U. S. Forestry Service on the subject.

It is not surprising that Canada and the province of Quebec in particular should long ago have awakened to the lesson taught by the wasteful methods of American lumbermen, and paper makers, and should have taken early and effective means to prevent further destruction of their own forests by those who have made such profligate employment of theirs.—Quebec Telegraph.

The real trouble with the world today is not that there isn't money enough to go around, but that there isn't character enough to go around.—Springfield, Union.

PROPOSE ONTARIO GOVERNMENT PAPER MILL.

An interesting announcement in paper trade circles this week concerned a plan for operating a pulp and paper mill as a provincial enterprise, which has been receiving the serious consideration of the Ontario Cabinet for the past three months. The establishment of such a plant as a publicly owned and operated concern is stated to be by no means improbable. According to the plan under consideration the mill would be established in the Nipigon district at some point to which power could be transmitted from the new Hydro-Electric power development plant at Nipigon Falls.

While neither the details of the plan nor the general policy has yet been decided upon, it would occasion no surprise in Government circles if a favorable conclusion was reached. The plan is unique in that it would be the first time an Ontario Government had ever undertaken the utilization of the province's pulp resources for the production of paper. If decided upon it is probable that the large timber limit in the district chosen will be set aside for the project.

The Nipigon Hydro-Electric plant will have a surplus of power available for some years. A Government owned pulp mill, supporters of the idea argue, would furnish a good customer, and a basis of a mutually satisfactory contract for power. Another important feature from the Government's standpoint is that the results obtained in a plant of this nature would provide the means of ascertaining with far more definiteness than is now the case, what remuneration the province is entitled to in return for timber and pulpwood concessions granted to private enterprises.

FOLLOW THE RAINBOW TO THE POT OF GOLD.

(Reprinted from the Passaic Daily Herald, May 17, 1920).

Do you remember the childish superstition about the pot of gold, buried where the rainbow touched the ground? But no one has ever found the end of the rainbow.

Many a poor wanderer has followed the glittering lure of "easy money," only to return after wasted years, weary in body and broken in spirit.

The home stayer and the home makers are men who find prosperity and happiness.

The worker who wanders from job to job, and from town to town, is following a rainbow that has no end.

Serve your own selfish interest by staying with the employer who pays a just recompense for your skill and energy.

Invest years of faithful service. Your reward will come in promotion, and your employer's good will.

There are days when men are too few for the work that must be done.

There HAVE been years (and may be again) when men were plentiful and jobs were few.

When the day comes, that men must be laid off, be one of the workers selected to stay.

Your employer isn't deaf and dumb and blind.

If he were he wouldn't be boss for long.

And he knows the men who are loyal, when the temptation to follow the rainbow lure is strong.

Keep to the work you know best—it's a necessity now, and good business ANY time.

Opportunity can be spelled with four letters—WORK.

Utilization of Sulphite Waste Liquors*

By A. KLEIN.
Translated by CLARENCE JAY WEST, Information Department, Arthur D. Little, Inc.

Technical men have been interested in the question of the utilization of the waste liquors of the sulphite process, ever since the process itself was discovered. Muller published the first part of his "Literatur der Sulfitablauge" in 1910, and a supplement to the same in 1914. (This has been revised and brought up to date by Johnsen and Hovey, "Utilization of Waste Sulphite Liquor," Forestry Branch, Department of the Interior, Canada, Bull. 66; 1919. See Pulp and Paper Vol. 17, p. 596.) Since then various suggestions have been made, some of which have been useful, while others have been questioned. Among the latter the most significant is the suggestion of Strehlenert to prepare coal from these liquors. The process has been declared unsatisfactory because the use of a very high pressure is necessary, and further because the necessary rapid rotation of the application and release of the pressure would very quickly injure the apparatus. Strehlenert meets these objections by pointing out the Norway experimental plant, which has been in operation for some time and which shows no defects in the apparatus. One naturally asks, then, why a profitable process, such as Strehlenert suggests, for the production of fuel does not find general application today, when not only is the price of fuel advancing from day to day, but also, when the possibility of obtaining fuel in suitable amounts is very limited. This question has not been answered. This case is quoted to show how a process, that undoubtedly offers new and promising possibilities, has been judged unsatisfactory and how this affects its rapid and general introduction.

It is probably true that Sweden is, today, the country in which the practical utilization of waste sulphite liquors is most advanced; at least is it true that all the factories utilize their liquors as far as the fermentable constituents are concerned. Of the other countries, Canada shows a marked interest in this question. In 1916, Canada used 727,945 cords of wood in making pulp by the sulphite process, while in 1917 this use amounted to 855,489 cords. 1 cord is equal to 128 cubic feet. The yield from a cord of wood, as obtained in Canada, varies considerably. This variation depends not only on the method of cooking in the individual factories, but also on the source of wood, which determines, to some extent, the cellulose content.

The Canadian Census of Industry (1917) gives the following yields per cord of wood: Using the sulphite process, the plants in British Columbia obtained 1,137 pounds; those in New Brunswick, 1,116 pounds; in Ontario, 961 pounds; in Quebec, 1,039 pounds; while the average yield for all of Canada was 1,063 pounds. The difference between the yields in Ontario and in British Columbia is nearly 30 per cent of the total yield produced in Ontario.

The average yield, calculated on a cord of wood, is 1,061 pounds (482.2 kg.). Considering a cord as 3.624 cubic meters (128 cubic feet) and a cubic meter of wood as having 0.7 cubic meter of actual wood, the average yield for one cubic meter of wood is 190 kg. (418 pounds) which, for German practice, is low. In 1917, 25 plants were in operation and produced, on the basis of the above figures, 406,000 tons. For 1920, the yield of 27 plants is calculated as 690,000 tons, of which about 190,000 tons is to be bleached pulp. From this surprisingly rapid development it is clear that Canada must be specially interested in the utilization of the sulphite waste liquors.

In the same way that the United States has a Forest Products Laboratory at Madison, Wisconsin, so the Canadian government has established a similar laboratory at Montreal. Here B. Johnsen and R. W. Hovey, under the direction of J. S. Bates have and are attempting to solve the problem of the utilization of the waste liquors. In 1919 they published a compilation of the literature (mentioned above) with general statements of interest to all countries using cellulose.

The composition of the pine, according to Klason (Chem. Zusammensetzung des Fichtenholzes) is about 53 per cent cellulose, 14 per cent carbohydrates, 29 per cent lignin, 0.7 per cent protein, 3.3 per cent rosin and fat. These figures are not the same for American woods, grown under quite different conditions. Spruce (*Picea nigra*) and hemlock (*Tsuga canadensis*) are the two woods most used for the sulphite process. Spruce contains about 55 per cent cellulose, 26 per cent lignin, 0.75 to 1 per cent rosin and fat and 11 per cent pentosans; hemlock contains 49 per cent cellulose, 26 per cent lignin, 1.75 per cent rosin and fat and 12 per cent pentosans.

The cellulose is determined after removal of rosins and fats by treatment with acetic acid and chlorine, as suggested by Cross and Bevan. Since Renker (Bestimmungsmethoden der Zellulose) and Schwalbe (Chem. Betriebskontrolle) consider this method to be the most reliable, these figures may be accepted as the cellulose content. Lignnin was determined by decomposition with 72 per cent sulphuric acid (according to Fellenberg). Even though Schwalbe believes the determination of the methyl number according to Benedikt and Bamberger to be the most suitable method for the determination of lignin (l.c. p. 70), still Fellenberg's method is widely used and, until a series of comparative determinations show the unreliability of Fellenberg's method, the results by this method can be accepted as correct. The pentosan content was determined by the aid of the furfurol determination.

In this connection an interesting observation should be made. In white spruce two samples taken at a distance of 48 feet apart showed a difference in cellulose as much as 4 per cent. The lignin content seems to increase with the distance from the ground, but not in proportion to the decrease of the cellulose content.

H. Bergstrom has determined that during the cooking of one ton of cellulose 10 kilos (22 pounds) of

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*Wochenblatt fur Papierfabrikation, 51, nos. 24 and 26, pages 1704-1706, 1840-1842 (1920).

Editor's Note:—This article is in the nature of a supplement to the work of Johnson & Hovey, particularly insofar as it reviews material in European journals during the war that were not available in Canada.

methyl alcohol are formed (*Z. angew. Chem.* 1910, p. 1823; *Papierfabr.* 1909, p. 1314). 5 to 5.5 grams of methyl alcohol are found in each liter of the condensate from the gases blown off during the sulphite cook. This condensate also contains about 10 grams of sulphur dioxide and 1 to 1.5 liters of oil, furfurol, etc. per ton of cellulose (*Papier J.*, 1914, p. 389; *Papierfabr*, 1914, p. 1040). Bergstrom has fractionally distilled this oil with the following results: 7 per cent boils between 150-160 degs., having a specific gravity of 0.845, and containing no terpene; 55 per cent boils between 160-190 degs., and consists largely of cymene; 17 per cent boils between 190-210 degs., and has a specific gravity of 0.951. The distillate between 205-250 degs., is a solid of the composition $C_{10}H_{18}O$, while the fraction boiling above 250 deg. has a density of 0.925 (*Papierfabr.* 1912, p. 359).

The composition of the sulphite liquors varies, naturally, according to the method and the degree of cooking and the kind of wood used. Johnsen and Hovey give as the average density of the liquor 1.05; they state that it contains 10 to 15 per cent of dry substance, of which about 12 per cent is organic and 1 to 1.5 per cent is inorganic matter. H. Wichelhaus states, however, that the liquor contains 82.8 grams of dry residue per liter, of which 68.3 grams were organic and 14.5 grams were inorganic (Hagglund, Sulfitablauge, p. 4; Wichelhaus, *Papier-Ztg.* 1895, 1180; Hoffman, *Handbuch*, p. 1622).

Tollens and Lindsay have proven the presence of sulphonic acids, sugars, gums, vanillin, and other substances (Muller, l. c., p. 28; also Muspratt, Tech. Chem. p. 1557). The very complete work of Klason (*Tekn. Tidskr. Afd. Kemi och Bergsvetensk*, 1893, p. 43; *Kem. Tidskr.* 1897, p. 133; *Arkiv Kemi* 1908, nos. 5 and 6; *Tekn. Tidskr.* 1908, no. 7; and other references) should be specially mentioned, but I must disagree with Klason and return to my original statement before the Zellstoff- and Papierchemiker Vereins, 17, 11, 1905 (*Papier-Ztg.* 1905-6, Nos. 103, 105) that the change of the lignin during the sulphite cook is not entirely cleared up, since ester formation, condensation of the bisulphite with aldehyde and ketone groups, addition to the double bonds or a sulphonation is possible.

Colloidal-chemical considerations lead to the view that the process of sulphite cooking cannot be explained by a simple chemical formula. Since we know that wood is far from a uniform chemical substance, Schwalbe is justified in pointing out, as he has clearly done, that the substance which we call ligno-cellulose is really only a cellulose-rich mixture; it is clear that with variable raw materials we must expect the decomposition products to be very different. This is specially true, since the varying strength and composition of the cooking liquors (there is 50 per cent difference in the SO_2 content of the liquor of various plants), the widely varying temperatures (128 to 145.6 degs. and even higher in some cases) and the variable reaction time (the cooking time varies from 9 to 10 hours to 25 to 28 hours) all affect the composition of the waste liquor.

It is therefore felt that it is a mistake to use the average composition of the waste liquor as an established basis from which to judge the possibility of utilizing these liquors. It is probably better that each plant determine for itself the most favorable composition from time to time. This is confirmed by the fact that even in the best regulated sulphite plants, unforeseen difficulties arise. Compilation of the figures may be found in Hagglund and in Schwalbe's Referate.

The difficulties which may be caused by these liquors are well known. Certain mills are hindered at times in their production because of them. Other mills concentrate them without regard to the cost (Rattimau), while still others dump them in the sea (Konigsberg). In some cases (Konigsberg) the liquors have been made the basis of large irrigation projects, while in other cases (Wloclawek) they are evaporated on large surfaces during dry seasons. The literature upon these uses and upon the losses which they cause is very interesting.

J. H. Vogel has repeatedly presented results along these lines before the Zellstoff und Papierchemiker Verein (*Papier-Ztg.*, 1906, pages 1278, 1314, 1355; 1907 961, 1010, 1054, 1098; 1908, 3855, 3890, 3931. *Papierfabr.*, 1911, page 438). The work of Gottestein (*Papier-Ztg.*, 1899, page 1556; *Wochbl. Papierfabr.*, 1912, page 4329) and Hofer (*Allg. Fischerei-Ztg.*, 1908, page 71; 1915, No. 20-21) are also worthy of mention.

Other discusions of the waste liquors and the composition of the woods used in the process may be found in Hoffmann's Handbuch, in Stutzer's "Arbeiten uber Einwirkung auf Pflanzen" (*Deutsche Landw. Pr.*, 1903, page 725), in the work of Lassar-Cohn (*Papier-Ztg.*, 1908, page 3379), Luerssen (*Z. Hyg.*, 58, page 121), Schmidt Nielsen (*Papier J.*, 1916, pages 17, 196), and specially in the work of J. Konig and E. Becker (Bestandteile des Holzes und ihre Hirtschaftliche Verwertung, being No. 26 of *Veroffentlichungen der Landwirsch Kammer in Munchen i. W.*).

Following the order given by Muller, alcohol production from the waste liquor is the first subject to be considered. In this connection the best work is that of Hagglund, "Sulfitablauge und deren Verarbeitung auf Alkohol (Braunschweig, 1915). My personal opinion has been presented in *Papier-Ztg.* 1918, Nos. 34, 35, 43, 44, and 45. The work of W. Kiby (*Chem. Ztg.* 1910, pages 1077, 1091; 1915, pages 212, 261, 284, 350) is less known than that of Hugo Wallin, the meritorious champion of the utilization of waste liquors. The different patents of Ethyl A.-B., of H. B. Landmark, G. Ekstrom, and the work of P. Klason and others need not be mentioned further, because they are well known. It may be stated that this utilization of waste liquors has had a remarkable development, but that it has suffered since 1915 because of the high cost of concentration, due to the increasing price of coal.

Sulphite waste liquors may be used as binding materials and adhesives, either alone or mixed with other substances. This subject is fully discussed by Muller. Austrian Patent 1576 (1888) by A. S. Nettl is probably the earliest of these suggestions, though the work of Tilghman (1867) and of Mitscherlich (1874) are mentioned by Muller and by Kirchner (Das Papier, III, C.).

W. Sembritzki has published several notes on cellpitch (*Papier-Ztg.* 1908, page 872, and others). Among the patents covering this material may be mentioned those of Gewerkschaft Eduard (Swedish, 23,464 of 1906, German 246,289, 25,439, etc.), Trainer (U.S. 969,504, 974,001 of 1910) and others. D. Aufhauser

PULP AND PAPER UNIONS MET IN OTTAWA.

A gathering of over one hundred and thirty delegates, representing over thirty thousand pulp and paper mill workers in American and Canadian pulp and paper mills, and which may by their revisions to their constitution, later on have a decidedly important bearing in the relation of the employee to the paper mill employers, took place at Ottawa last week.

The occasion was the ninth bi-annual convention of the International Brotherhood of Pulp, Sulphite, and Paper Mill Workers of the United States and Canada. It was the first convention of its kind to be held in Canada, during the eighteen years of the existence of the Brotherhood. The last convention was held at Albany, N.Y., in 1918. In addition to over one hundred and thirty male delegates there were also a goodly sprinking of the fair sex, representing affiliated locals from the American mills and paper bag factories. The Convention got under way Tuesday morning, when important addresses, both of welcome and of an advisory nature, were made by prominent speakers. The speakers included Controller John Cameron, of Ottawa, and Mr. Tom Moore, president of the Dominion Trades and Labor Congress. The addresses and remarks of the speech makers on Tuesday morning while not of direct bearing to the manufacturers, nevertheless carried with them a message of much importance, that will be well to be kep tin mind by the employers of pulp and paper mill labor. In short the "other fellows" side of the question was shown.

Throughout the newsprint inquiry and ever since the Dominion Government first attempted to regulate the price of newsprint paper, the position, cost and place of labor, in relation to the production of paper has been very much heard of. Consequently the holding of the nineth bi-annual convention of the workers of Ottawa, naturally had its importance to the industry.

For instance it was mentioned by Mr. Frank Lafortune, president of the Ottawa Trades and Labor Council, in relation to the capitalization of paper mills, that capital had become international. So, he maintained must labor become international if it were to survive. He predicted that so long as the International Trade Union Movement survived as the governing body of labor in America, that the Canadian and American paper mill workers would continue in their brotherhood and would never be divided.

The President of the Dominion Trades and Labor Congress, Tom Moore, in refering to the capital of America's pulp and paper industry, said: "The paper industry today has the greatest and best organization and regulation of capital, that the world has ever known."

The principles of International Trade Unionism were fully touched upon, and the attempts of the members of the One Big Union to disrupt its progress were also referred to. The attempts of the O. B. U. to disrupt and destroy organized labor had in some communities, president Moore said, set the wheels of progress back eight or nine years.

Touching upon the outlook for the paper mill worker in America and especially in Canada, president Moore pointed out that while the growth of the organizations embraced in the Dominion Trades Congress, had been rapid that the Congress, after thirty five years of existence, was only in its infancy. Capital's interests and the Manufacturers' Association, were charged with fostering a nation wide attempt for an open shop in relation to paper mills. The International Trade Union Movement was styled by Controller John Cameron, as the most sound and constructive body in the world today.

Mr. J. T. Carey, president of the International Brotherhood of Paper Makers, also addressed the meeting Tuesday.

COULD GET MORE FOR PULP THAN FINISHED PAPER.

A despatch from New York to the Montreal Star, reads:

Manufacturers of paper, particularly of newsprint, are in exceptionally good position in regard to inventories. While many of the industrial companies are now confronted with large inventories which will necessarily have to be marked down this year, this will not be necessary among the paper companies.

On the contrary, wood and wood pulp, which are the chief items in their inventories, have enhanced in price over last year's quotations to an alarming degree and give every indication of going higher still. Wood pulp is now selling at $140 a ton, the highest price in the history of the industry. There is a scarcity of this commodity and many of the paper companies, if they wished, could dispose of their stocks at prices representing considerable advances over what they paid for them.

Wood for paper making purposes is now selling at approximately $34 a cord against $21 a little more than a year ago. It continues scarce and higher prices this year or early in 1921 would not be surprising. This is explained in part by the fact that last year's cutting was below normal. Paper companies usually cut their wood at least a year in advance, so that they are now using timber which was cut last year.

Timber cutting operations are being restricted this year to a large extent by the inability to secure adequate labor. There is a growing disposition on the part of the men to seek less arduous forms of employment and despite exceptionally high wages it is difficult to obtain a sufficient force.

It would appear from first glance at the balance sheets of some of the large paper companies that they are carrying exceptional large inventories for the amount of business transacted in a year. This is not so. The large stocks of raw materials carried as inventories have increased in price more than 100 per cent in the last four years. Only a negligible portion of inventories of the paper companies is represented by finished stocks on hand. This is explained by the fact that the pressing demand for paper practically clears out stocks as soon as they are manufactured.

The International Paper Company, the largest American producer, at the close of 1919, showed inventories of $23,713,388 against $21,397,041 in 1918, and $12,762,692 in 1917. The increase is accounted for in large measure by increased wood prices. The company could today dispose of its raw materials at higher prices than it paid for them. As an instance, the company is selling the finished product, newsprint, at $130 a ton. The ton of paper is practically all wood pulp together with added chemicals, and the pulp is selling at $140 a ton, or $10 over the selling price of the paper.

PULP AND PAPER NEWS

Mr. W. F. V. Atkinson, formerly with the Spanish River forces at Sault St. Marie, and who recently moved to Toronto, has accepted an appointment as forest and hydraulic engineer for the Dryden Pulp & Paper Co., Ltd., of Dryden, Ont. Mr. Atkinson will have charge of all forestry, stream-flow and water-power work for the company, which owns 1,157 square miles of timber limits adjacent to Wabigoon and Eagle Lakes, and has an interest in 2,000 square miles of additional limits in the same district. The company is now developing 2,000 h. p. at Dryden and owns a water-power at Eagle Lake which is partially developed. Construction work is now in progress for the completion of this development to 5,000 h. p. in charge of B. S. McKenzie of Winnipeg as consulting and construction engineer. The company is also erecting a new 40-ton ground-wood mill.

A new bond issue for $1,000,000 will be offered by the Provicial Paper Mills, Limited, as part of a authorized issue of $3,000,000. The purpose of the money is new construction, additions and betterment to the plant and to refund outstanding bonds upon the plant of the Port Arthur Pulp and Paper Company, recently acquired, amounting to $200,000, and a balance of the mortgage on the Georgetown property amounting to $60,000.

Mr. Norman Phelps, for over 30 years the editor, business manager and proprietor of the North Bay Times has disposed of his newspaper and job printing plants owing to poor health, the new proprietors being T. Ruebottom and George H. Wilson, late of the Sudbury Star staff.

Mr. A. P. Costigane, Secretary of the Ontario Pulp and Paper Makers' Safety Association, has returned from Milwaukee, where he attended the annual convention of the National Safety Council. Mr Costigane describes the meeting as one of very great interest, benefit and enthusiasm and one that will do much towards stimulating interest in the great safety movement. Hundreds of delegates were present from all over the continent while the Old land was also represented at the gathering.

Reports from Northern Ontario are to the effect that while curtailment of work in certain of the industrial plants in southern centres has not yet resulted in influencing the labor supply at the gold mines, the large amount of construction work at the several large pulp mills throughout the north appears to be absorbing the larger percentage of incoming labor, and these concerns are able to outbid the gold mines in point of wages paid.

A big deal in Harbor Commission property in Toronto has just been completed by which the Dominion Envelope and Carton Company of Toronto takes possession of seven acres of land not far from the eastern gap. It is the intention of the company in the spring to commence the erection of a factory 300 x 500 feet and a unique feature is that it will be all of one story. At the present time the company has two five-story structures on Duchess Street and in the new plant over 350 hends will be employed.

The death took place this week of an old member of the Toronto Globe staff in the person of Mr. Archibald Fleming at the age of 71 years. He also served with several newspapers in the United States until ill health forced him to give up work. For the past five years he was a patient at the Hospital for Incurables.

Mr. W. Nelson Wilkinson, a popular Toronto newspaperman, and president of the Canadian Newspaper Service, Limited, is assuming the Managing Editorship of the Ontario Newspaper Corporation, Limited, the new owners of the Hamilton Times. The head office of the Canadian Newspaper Service will be moved from Toronto to Hamilton where Mr. Wilkinson has purchased the business of the Canadian Readyprint Company and the Hamilton Newspaper Union list of weekly newspapers.

Before the adjournment of the convention and following conferences between jobbers and manufacturers the gathering passed a resolution subscribing to the principle that the best method of distribution of paper was through the wholesale merchants and the manufacturers will be asked to co-operate to this end.

A second morning paper for Hamilton, Ont., is now a possibility. It is stated that the Hamilton Spectator has applied for a franchise and the Hamilton Times, under John Imrie, is about to publish a morning edition.

It is reported in Winnipeg that one of the most important newspaper deals in recent years is practically consummated. According to the report, Sir Clifford Sifton, who owns the Winnipeg Free Press, and interests associated with him have acquired from Mr. W. F. Herman the Saskatoon Star and the Saskatoon Phoenix. Mr. Herman, who, over a year ago, established the Border Cities Star in Windsor, Ont. and has recently established there the Border Cities Sun as a morning paper, has, it is reported, acquired options on newspaper properties in Hamilton and Toronto. If the present deal goes through, Mr. Herman will hereafter concentrate his activities in Ontario. Until recently he was the owner of the Regina Post but a few weeks ago disposed of his interests in that paper, acquiring at the same time the Saskatoon Phoenix. He has been for many years proprietor and publisher of the Saskatoon Star.

Reports from Port Arthur show that the work of constructing the plant of the Kaministiquia Pulp and Paper Company is progressing satisfactorily and it is expected to be ready for operation by Nov. 1. The wood-room is almost ready and the construction of the mill building is proceeding smoothly with the installation of the machinery keeping pace. Word has also been received that the plant of the Western Canada Pulp & Paper Company, near Vancouver, is operating at full capacity with an output of 40 tons of sulphate pulp daily.

The death of Ludwig K. Cameron, for many years King's Printer for the Province of Ontario, occurred on October 1 at Santa Monica, California, where he had gone for his health about six years ago. Mr. Cameron was 67 years of age and was born in Stouffville, Ontario. Some 38 years ago, Mr. Cameron went West and founded the "Nor' West Farmer" at Winnipeg. After remaining there for several years Mr. Cameron came East to The London Advertiser, of which paper his brothers had control. At that time one brother, John Cameron, was editor of The Globe. Mr. Cameron remained with The Advertiser only a short time and was appointed King's Printer. This was about 30 years ago.

"No wonder there is a feeling among the people in the northern country that some step towards secession should be taken," remarked J. J. Carrick, ex-M.P. in Toronto, this week. "Due to the timber investigation and the inaction of the Department of Lands, Forests and Mines, no permits or timber leases are being issued in Northern Ontario, and consequently no men are going into the woods. About this time of the year there are usually 4,000 or 5,000 men in the bush taking out ties and pulp-wood and carrying on other operations. At present, however, practically everything is at a standstill."

Owing to the growth of their business the Wilkinson Paper Co. is about to take over a couple of extra floors at their present premises on Bay Street, Toronto.

Mr. William Scott and his son George Scott, who are large makers of twine in Stockport, England, were guests this week of Mr. Charles V. Syrett, of the Victoria Paper and Twine Co., Limited, Toronto.

INTERNATIONAL PLANS ANOTHER HUGE MILL

The developments which the International Paper Co., of New York, will make in Canada, will be far greater than had been anticipated. On his return from the trip to the new Riordon mill at Kipawa, P. T. Dodge, president of the International Paper Company, stated that the company was planning a new mill in addition to the one that is under construction at Three Rivers. No announcement has been made yet as to where this new mill be located. The company owns several timber limits in addition to the ones up the St. Maurice River, but it is concluded that it may be at Grand Falls, N.B., where the company has timber limits and water power available or perhaps somewhere in Quebec, according to the Financial Post. This mill is likely also to represent an investment of at least $5,000,000 and will duplicate, to a great extent, the mill now being built at Three Rivers. Indeed it would not be surprising if eventually this paper company, which has the largest output of any newsprint mills in the world, should decide to construct several other mills in Canada.

The International Paper Company, a number of years ago, secured leases of extensive pulwood limits belonging to the Crown in Quebec Province, but have been unable to export the pulpwood to feed their mills in New York State. One of the latest results of this scarcity has been that the large mill at Niagara Falls, N.Y., with a capacity of 160 tons has been forced to change over from newsprint to other grades of paper. The production of this mill alone woull be sufficient to cover nearly half the consumption of all the newspapers in Canada.

CHEMICALS AT NEW YORK, OCT. 6th.

	Units	Carloads	Less th. C.L.
Acetic acid 28%	cwt	3.50-- 3.75	4.00-- 4.50
Acetic acid, glacial 99½%	cwt.	14.00--16.00	16.25--
Hydrochloric acid (nomin.)	cwt.	2.00-- 2.50	2.75-- 3.00
Muriatic acid, See Hydroch.			
Sulphuric acid 60°—Tank cars	Ton	12.00--16.00	
Sulphuric acid 66°—Tank cars	Ton	16.00--17.00	
Sulphuric acid 66°—Drums	Ton	26.00--28.00	
Alcohol, denatured 190 prf.	Gal. (U.S.)		1.05-- 1.10
Alcohol, wd. See 'Methanol'			
Alum (Aluminum Sulphate, Iron free)	Lb.	.06--	
Bleaching Powder	cwt.	7.25-- 7.50	8.00-- 8.50
Chlorine gas, liquid (100 lb. cylinders)	Lb.	.09--.09½	.10--.10½
Lead nitrate crystals	Lb.		.90--1.00
Methanol (Wood alcohol) 95%	Gal. (U. S.)		3.25-- 3.30
Salt cake	Ton		48.00--50.00
Soda Ash	100 lbs.		3.25-- 3.50
Sodium Silicate 40%	Lb.	.01¼--.01¾	.02--.02¼
Sulphur-crude	Ton	16.00--20.00	

New York, Chicago and St. Louis report quiet markets.

Salt cake is firm.

Very little bleaching powder offered.

In Naval stores there is great inactivity.

Rosin less than car lots $13.70 to $13.80 per Cwt.

CHEMICAL ENGINEERING CATALOG READY

The 1920 issue of the Chemical Engineering Catalog is now ready for delivery.

Owing to the tremendous increase in the cost of paper, printing and other essentials connected with this issue, the publishers are compelled to make a nominal charge for the use of the Catalog this year. This charge (Foreign) is $3.50, including the cost of delivery.

As the size of this edition is limited, copies will be sent only to those who apply for them. A letter which is being sent to those who received copies last year says: "You will be asked soon to ship the copy of the 1919 book you now hold to your nearest scientific school. We cannot give to the students in the institutions offering courses in chemistry the "current" edition, but we have promised several thousand copies of the 1919 Catalog to such institutions this Fall."

We know from experience the value of these catalogs to students of Industrial Chemistry and trust that all will co-operate promptly in sending last year's catalog to the school indicated.

ON SHIPPING ACIDS.

Viele, Blackwell & Buck, exporters, etc., 49 Wall St., New York, have issued a very interesting bulletin, No. 11, on acids. It includes the names of 41 commercial acids in four languages, with formula, chemical name, principal properties and uses and gives information as to manner of packing, shipping regulations and classification as regards danger.

The Markets

CANADIAN PAPER TRADE CONDITIONS.

Toronto, Ont., 8.—Whether prices in the pulp and paper line will come down sooner or later is causing some discussion in the industry and, while there have been no recessions so far, the question arises what does the future hold in store? Values are well maintained at the present time but miscellaneous orders are falling off and there is the general wave of price reduction, now sweeping the country which has to be reckoned with. The conviction that quotations in practically all commodities have reached their apex is generally recognized, and the query forces itself to the front, will pulp and paper escape?

This is not saying or suggesting, that present rates are too high in view of the demand and the high cost of production, wages, shortage of raw materials, coal, transportation and other practically fixed charges. All these have to be thrown into the discard by the force of events. Speaking to the "Pulp and Paper Magazine" this week, a leading manufacturer of book paper said that they had orders to carry them many weeks ahead, but there was no gainsaying the fact that the law of supply and demand ruled, and when demand fell below a certain point, the cost of manufacture "cut no ice". It was all right to remark that prices in any line could not come down but the market would determine that,—and shatter many theories, which hold sway under normal conditions.

Recent despatches from New York have stated that Canada is about to face a new competitor in the newsprint market of the United States in the shape of German importations but the invasion is not likely to be of large enough proportions to cause much anxiety, in view of the ever increasing call for newsprint and the fact that consumption is increasing more rapidly than production. In the book and writing paper line it was stated by one of the speakers at the Canadian Paper Trade Association meeting, held last week in Toronto, that English makers of fine paper were now beginning to canvass the trade in Canada for business and had made some attractive offers. Not since the outbreak of the war had this been the case, and what effect English competition will have on the book and writing trade of the Dominion is a subject of speculative interest.

Book paper manufacturers are faced all the while with increasing cost of pulp. One firm stated this week that they had been offered as a "special inducement" a large consignment of the bleached commodity at twelve cents a pound whereas the latest previous proposition was eleven cents, at the mill. The recent increase in freight rates, shortage of coal and other factors have also to be considered. The groundwood pulp situation is also causing anxiety and supplies in sufficient quantity are difficult to obtain. As high as $160 was paid, at the mill, recently for spot delivery.

Deliveries on other lines of paper are a little more satisfactory than they have been for some time although kraft shipments are away in arrears. Some wholesalers have been "pyramiding" their orders of late in order to secure more prompt shipments. One dealer reports that the system has worked out to better advantage than placing one big order and then sitting down and waiting for it to be filled. Printing establishments are getting busier and manufacturing stationers are rushed with trade for the holiday period which is now only a couple of months off. They are still finding it difficult to secure sufficient stock in many lines. Envelope manufacturers are also very busy.

Toilet and tissue paper mills are catching up with production and prices remain unchanged. They have business enough ahead for several weeks but the rapid advances in price, which prevailed some weeks ago, are not in evidence now.

Box board prices remain the same and will continue to do so for the remainder of the month. Paper box factories are not now rushed to the same extent that they were weeks ago and there is not the persistent clamor for stock. This state of affairs is welcomed by the mills. The plant at Frankford of the Canada Box Board Co. will be closed down for a couple of weeks to undergo repairs and additions in the boiler room. The new groundwood building of the company is now completed and the machinery is on hand ready for installation.

In regard to newsprint paper, certain increases went into effect at the beginning of the month. The former price for sheet news varied from $120 to $140 and now the figure runs from $140 up to as high as $156 in some cases. For roll news the weekly papers, which use newsprint in this shape, are now paying as high as $130 whereas the former figure was from $96 to $120. It is reported that, at least, two new daily morning papers will be launched in Ontario during the next few weeks and this will increase the demand while the dailies now in the field never used as much newsprint as they are doing at the present time by reason of the great amount of advertising being done. Merchants, who never used newspaper space before, are employing printers' ink in order to reduce the stocks of goods on hand and make known that they are joining in the universal wave of price cutting.

One question of interest to the trade in general is the price of pulpwood. Many lumbermen are cutting their small logs up into pulpwood and others in the east are establishing rossing plants. Scarcely a week goes by but that some new company does not embark in the pulpwood field and many of the big paper plants are offering exceptionally high wages to induce men to go to the bush. Lumbermen have been feeling this competition keenly, so far as the labor market is concerned, as they say that they cannot pay the scale offered by the pulp companies, owing to the fact the lumber business generally is in a quiet state at present, due to the falling off in the United States market and the decline in building operations. Pulp and paper producers are in a far different position as there is an abnormal demand for their output at the highest figure ever known and the requisitions for tonnage must be met as far as it is humanly possible to do so. Naturally labor in the forest flocks to the heaviest bidders.



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INQUIRIES SOLICITED.

NEW YORK MARKETS.

New York, October 9—(Special Correspondence)—Demand for paper of practically every kind has continued to recede this week, and the market is in a quieter state than for a long time. Consumers of paper, like those using various other manufactured commodities, are pursuing a policy of holding off in buying unless immediately in need of supplies. Publishers and printers who, a few week ago, were urgently seeking paper and who were apparently willing to pay any prices to secure supplies, today are doing very little purchasing, most of them getting along as best they can on shipments being received on contract without resorting to fresh buying. One consolation for the paper trade is that virtually every commodity is experiencing the same market conditions. The people of the United States, evidently being firmly of the belief that the inevitable price readjustment is well under way and that they will be able to buy substantially cheaper figures in the near future, are for the present doing as little buying or any and all articles as their actual requirements will permit. This general lack of buying is at the bottom of all the dullness affecting business in this country, and there is little probability of improvement in trading conditions until commodity prices have touched bottom, at least temporarily.

Paper manufacturers as a class are in a more favorable position than probably any other set of manufacturers in the country. Most paper mills have back orders on hand taking the great bulk of their output for several months hence, so that a large majority of plants are running at close to capacity and are shipping out their product about as quickly as it is available. Neither have paper prices been materially affected thus far. With demand at a low ebb, values naturally are characterized by an easy undertone, yet actual prices remain on fairly steady levels. Mills have received quite a few cancellations, of course, and there have been cases where certain manufacturers or dealers have cut prices to effect sales, but generally speaking, the price tone of the market is favorable; furthermore, it seems likely to continue so. Sellers of paper realize that lowering of quotations would bring them little results in the way of stimulating business. On the contrary, the cause for the prevailing lack of demand is nothing else than the downward trend of values, and the cutting of prices on paper now would merely prompt buyers to hold off a bit more.

The spot basis on newsprint is a bit lower. The influx of foreign print paper supplies from Scandinavia and Germany, coupled with the reluctance of publishers to buy in the open market, make for increased offerings, and sales have been recorded down to 10 cents a pound for news in standard rolls. In fact, there habe been rumors of transactions at as low as 9.75 cents, and the probabilities are some scattering lots have been sold this low. Despite the refusal of consumers to buy spot tonnages, proof is not wanting that most publishers are short on needed supplies. Newspapers in New York and other cities are leaving out columns upon columns of advertising almost every day, and the fact that they are limiting the size of their issues to a certain number of pages indicates they are confining their consumption to the paper they are getting on contract.

Book papers rule quotably firm and are in a favorl able market position. Reports are heard of a sagging of prices but buyers admit being unable to acquire supplies at cheaper rates, and mills say they are shipping their output to contract customers without having much, if any, surplus left. Coarse papers are in quiet demand but are holding up in price excepting in some few instances. Tissues can be bought a little cheaper, and kraft wrappings are not as firmly quoted as they were. Fine papers are steady to firm, and although the bulk of demand is for the low-priced grades, the market shows enough activity to give it a fairly lively complexion.

Slight reductions in board prices are reported. Old waste papers have fallen off in price considerably which apparently enables board manufacturers to sell their product for a little less. News board is quoted at $110 per ton at mills and plain chip board at $100. Demand in the open market is narrow, due largely to the dullness reigning in the paper box industry.

GROUND WOOD.—There is a moderate amount of business current in ground wood. Consumers are buying mainly against direct requirements, but producers and dealers say they are occasioned little or no difficulty in finding an outlet for all the pulp they have for spot shipment, and prices are holding steady at $125 to $130 a ton at grinding mills. The strongest factor in the market today is that grinders haven't the surplus of pulp stored away that they invariably have at this time of the year. This leads pulp men to believe that when demand broadens in the early winter, as it customarily does, supplies will fail to be large enough to cover the wants of buyers and that values will undergo sharp enhancement. Doubtless

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Let us know your requirements. We will be glad to send you a ***Sample Casting*** for an ***Acid Bath Test.***

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this is one reason why manufacturers are not pressing consumers to anticipate their forward requirements, and why they express satisfaction over the manner in which buyers are operating at present.

CHEMICAL PULP.—Demand for chemical wood pulp is far from strong or voluminous, yet the market is attended by fair activity insofar as regards trading in current lots of pulp. Papermakers are confining their buying almost solely to tonnages immediately required, reflecting their evident belief that the market is destined to go lower and their unwillingness to buy ahead in the fear that they might find themselves later on with stocks representing a higher cost than at which they could be acquired at that time. The strongest kinds of pulp at present are bleached sulphite and soda pulp. Few producing mills have these pulps to offer for prompt delivery, being generally sold up, and the scattering spot lots available are held at high prices. Kraft, on the other hand, is softening in price, while unbleached sulphite appears easing off slightly. Quotations show no marked change at about these ranges: Domestic bleached sulphite, 12 to 12½ cents, and foreign, 13 to 14 cents; domestic unbleached sulphite No. 1 grade, 8¾ to 9 cents, and foreign, 9¾ to 10 cents; domestic easy bleaching sulphite, 9½ to 10 cents, and foreign, 10½ to 11 cents; domestic kraft, 7 to 7¼ cents, and foreign, 7¼ to 7½ cents.

Imports of wood pulp at the port of New York this week included 878 bales from Yokohama, 1,500 bales from Hull, 711 bales from Osaka, and 61 bales from Hamburg.

RAGS.—New cotton rags are in a steady market position and demand appears ample to sustain values, whereas old papermaking rags are little wanted by consumers and prices are moving consistently toward lower levels. The reason for this divided state of affairs chiefly is that new cuttings are in limited supply, due to the slow operations of cutting establishments, and are therefore wanted by buyers. Old rags, however, seem in plentiful supply, both at mill centres and in dealers' hands, and the former are holding off in buying in expectation that they will be able to secure supplies later at lower prices. White shirt cuttings, which are marked by a good inquiry, are priced at 26 cents and up to 27 cents per pound. Unbleached muslin cuttings are held at 19 cents, washables at 13 cents, while lawns at 22 to 23 cents and new light silesias at 15 cents. Roofing rags have declined further, with sales reported of No. 1 packing down to 2.10 cents at shipping points. Old white and blue rags are quotably easy and are moving only in limited quantities.

Receipts of foreign papermaking rags at New York this week included 445 bales from Havre, 210 bales from London, and 56 bales from Buenos Aires.

PAPER STOCK.—The market for low grades of old paper is in a chaotic condition. Due to the refusal of most box board mills to buy, offerings are increasing and prices are dropping at a rapid rate. Dealers, in their anxiety to find outlets for old newspapers and mixed papers, are accepting almost any prices within reason they are offered, and folded news has sold down to 1.80 cents a pound f.o.b. New York and No. 1 mixed paper at 1.50 cents. White news cuttings, which ruled strong for a long time, can be bought today at close to 6 cents a pound at shippnig points, while over issue newspapers are freely offered at around 2.15 cents. Old kraft paper is quotably lower at about 6 cents, as are books and magazines at 3 cents. Shavings represent about the only grade holding firm in price. Packers are demanding and getting 8.50 cents for No. 1 soft white shavings at shipping points and in the vicinity of 9.50 cent for hard white shavings of No. 1 quality.

OLD ROPE AND BAGGING.—There is moderate activity in old rope and prices are maintained at 6.00 to 6.25 cents per pound for No. 1 manila rope. Old bagging is in very slack demand and largely nominal in price, there being few transactions on which to base values. No. 1 scrap bagging is available to mills at 2.25 cents and less, roofing bagging at 1.25 to 1.50 cents and gunny at 3 cents.

Imports of old rope at New York this week included 224 coils from Hull and 106 coils from Liverpool. Receipts of foreign bagging at this port included 720 bales from Antwerp and 250 bales from Genoa.

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Every now and then someone is hurt in an accident and we hear people say "Oh, he was careless". Is that so? Didn't he care? Did he want to be hurt? He may not have thought of what he was doing but he certainly cared whether he was hurt or not.

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1	1	75	550	60	900	Can. Westinghouse
2(Note)	1	350	600	60	514	Westinghouse
3	1	300	440	25	237	Westinghouse
4	1	450	440	25	300	Westinghouse

All field volts 110-125. Rheostats included. Exciters not included. Miscellaneous spare armature and field coils included.

Note.—Item 2 has squirrel cage winding on field for use as motor. Also bedplate extension and outboard bearing with drive sheave.

D. C. MOTORS

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5	1	30	1100	250	Shunt	C. G. E.
6	1	35	975	250	Shunt	C. G. E.
7	1	95	700	500	Shunt	C. G. E.
8	4	7½	760	500	Series	Westinghouse
9	2	30	900	550	Series	Browning
10	2	Spare armatures for Item 9.				Browning
11	1	50	900	550	Series	Browning
12	1	12	(750 (1000	550	Compound	Fort Wayne
13	2	40	990	550	Compound	G. E.

Items 12 and 13 have vertical shafts.

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16	2	10	440-220-110	H—Form E.	G.E.
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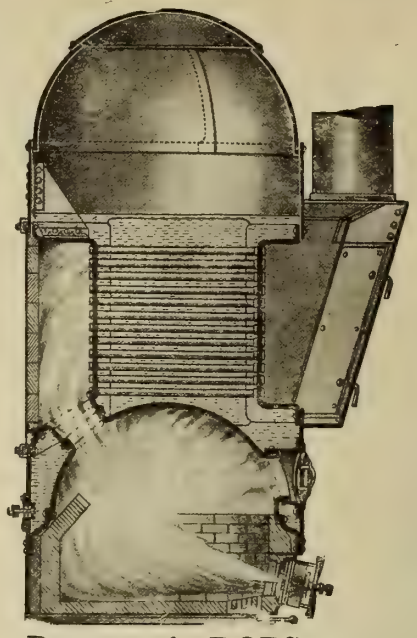
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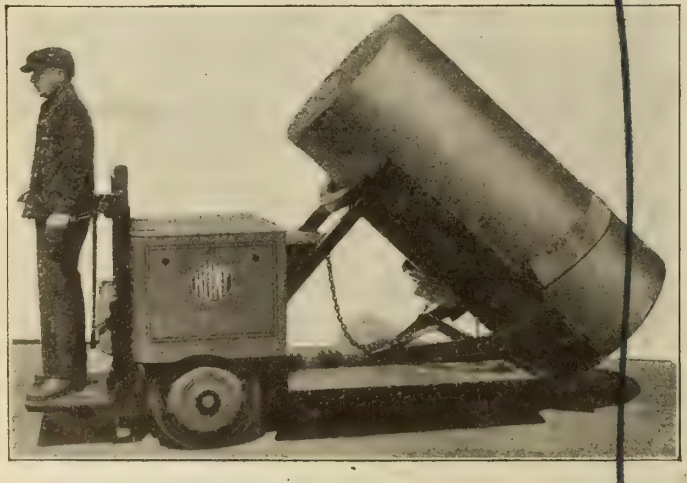
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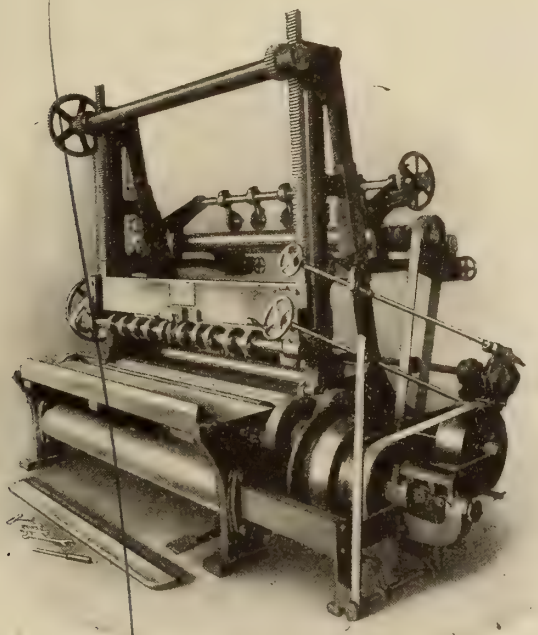
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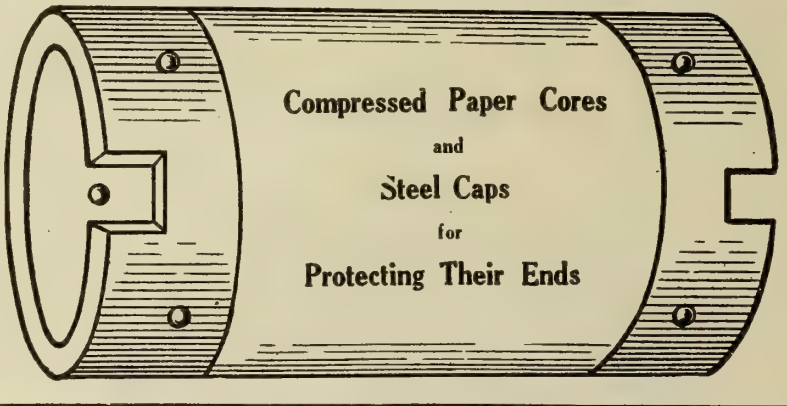
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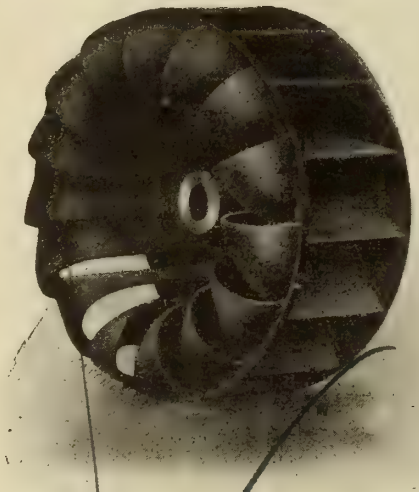


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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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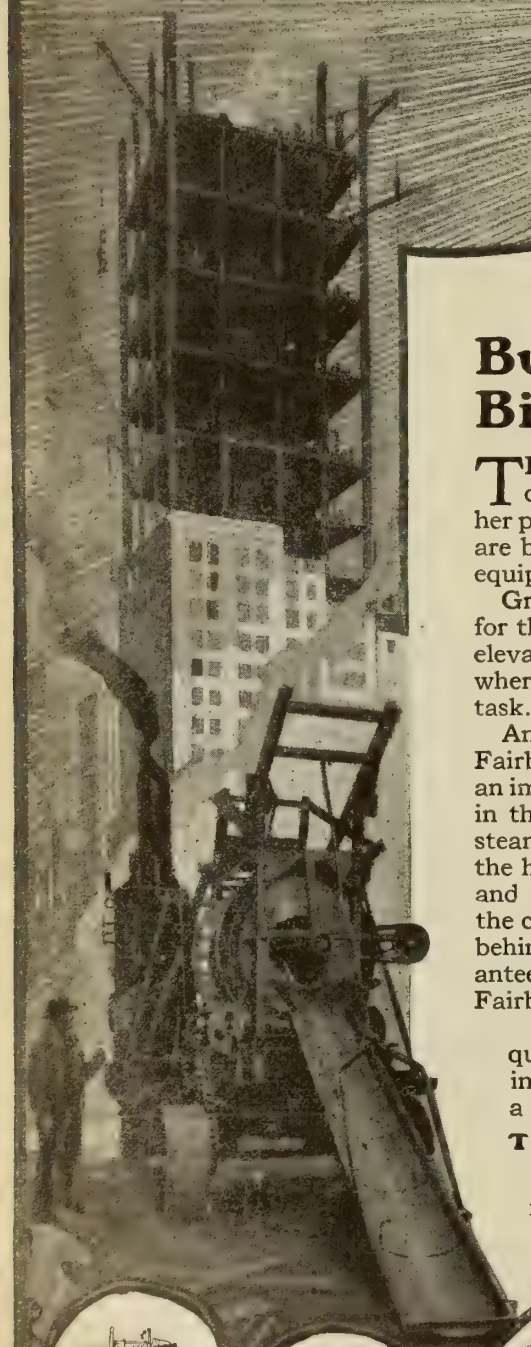
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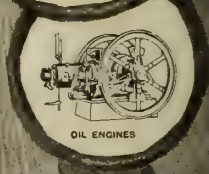
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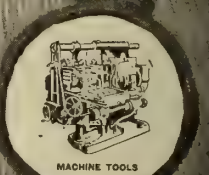
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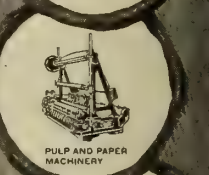
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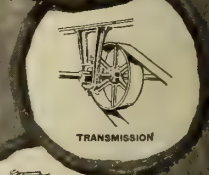
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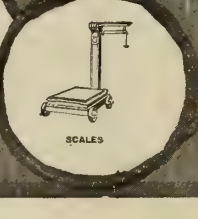




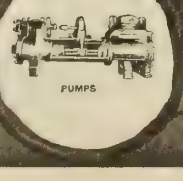














-:- EDITORIAL -:-

OUR FAMILY THANKSGIVING DINNER.

The Industrial and Educational Publishing Company, publishers of the Pulp & Paper Magazine and other technical journals moved from Montreal to Ste. Anne de Bellevue two years ago and established the Garden City Press. One of the fundamental ideals of the concern is to develop an organization that is an institution rather than a business. In harmony with this desire the company has bought land surrounding the new printing establishment and is developing what will one day be really a garden city. Comfortable cottages are being erected as rapidly as conditions permit and in company with the growing personnel of the plant.

Last year the President and General Manager, Mr. J. J. Harpell, conceived the idea of gathering the employees and some local friends of the company about the banquet table for a Thanksgiving Dinner. The event was such a success that it was repeated this year on a slightly larger scale and the staff from the branch plant at Toronto were invited to come down. Altogether about seventy partook of the menu and enjoyed the brief, earnest speeches.

The most striking one was the talk of the Hon. W. S. Fielding who responded to the toast to "Our Country". After dwelling on the fact that Canada is enjoying comparatively peaceful conditions while there is unfortunately so much distress and unrest throughout other parts of the world, he outlined some of the reasons for this happy state of affairs in the Dominion. Mr. Fielding's particular plea was for a greater realization of individual responsibility for maintaining our government, especially on the part of the young people who will soon be required to carry the burdens of their fathers. It is a time for serious thought and consideration as to whether there is the same sense of responsibility among the young people of today that the older generation, now passing, speak of as rather common in days gone by. Certain it is that the happy conditions that we enjoy today are in no small part due to the unselfish efforts of the public men who have so far guided the affairs of provincial and dominion governments.

It would be difficult, if it were possible, to find in Canada a man today who is better qualified to make such an appeal to the young people than is Mr. Fielding. For thirteen years the Premier of Nova Scotia, for fifteen years Finance Minister of the Dominion and latterly a prominent figure in the Dominion Parliament, his forty-three years of clean and self-sacrificing service to the people of Canada is an object lesson that would be difficult to duplicate in the world today. The publishers of the Pulp & Paper Magazine are proud of their association with Mr. Fielding who is editor of the Journal of Commerce which is also printed at the Garden City Press. His example should be an inspiration to all of those who have a desire to take an active part in parliamentary affairs as well as to us all, who should feel a greater sense of obligation and responsibility as to how we discharge the privileges of residence and citizenship in the Dominion.

EDUCATING PAPERMAKERS IN ENGLAND.

At the convention of the Technical Section of the British Papermakers Association which has just been held in England, Major J. E. Aitken read a paper on Technical Education in Paper Making which vigourously supports the work so extensively and courageously undertaken on this side by the Technical Section of the Canadian Pulp & Paper Association and our confrères across the line. Major Aitken cites an instance of a young man who was so desirous of improving his knowledge of the industry that he was willing to take two years in order to cover a single session course because he was employed on shift work and could attend classes only every other week. Ambition of that kind we believe is not exceedingly rare nor confined to England. There is a thirst for knowledge among papermakers as there is among those engaged in other industries. There is a realization on the part of many who are engaged in this industry that they have missed something. There may be a bit of jealousy, but we believe it is rather a feeling of disappointment in the minds and hearts of many that they were obliged to leave school or voluntarily left school at an age when others continued their studies and in later years find themselves handicapped by a lack of knowledge, often of a simple and elementary character. The editor realizes the position of the young man mentioned by Major Aitken as he one time found it necessary to attend a certain class and could attend only every other week (mornings after the night tour), because of the same reason, being engaged on shift work. This is a serious problem in educating the papermaker and one that affects relatively few industries.

Major Aitken suggests one method of overcoming the difficulty, by repeating the same lecture immediately. A Canadian mill is planning to accomplish the same

result by repeating the lesson two weeks in succession so that all who wish may get the full course. In addition to those who can attend such classes there are also a number who cannot do so and who are best provided for with regard to educational opportunities by providing correspondence courses. England already has some opportunities of this character and correspondence courses are well known in the United States and Canada.

One of the principal factors in the success of any educational work intended to benefit those employed in industry is the co-operation of the employer with the employee and the educational agency. Undoubtedly there is just a smuch ambition among our pulp and paper makers on this side for a better education as there is among British mills, even though some people think that the present day workman is interested only in the mill whistle and the pay envelope. There are unfortunately a large number of such employees and there always will be but we believe that as educational opportunities increase there will be fewer clock watchers and more quality watchers. It is gratifying that the Technical Section in the Old Country is interested in this coming problem which has engaged so much attention from the Technical Section in Canada.

THE SHAWINIGAN REVIEW.

Like the seed of corn that is planted, the Belgo-Bulletin has died that something bigger might come to life. So it happens that we have the Shawinigan Review, a weekly paper serving the social, industrial and civic interests of the people of Shawinigan Falls, P. Q. It is printed in French and English and covers the events of the city and its many industries. The old Bulletin served the one industry, the Belgo-Canadian Company, probably better than the Review, but there is a community spirit at the Falls and the new publication will be a big factor in uniting and promoting the interests of the people there. Besides items about the various plants, subjects of civil and social interest are included.

COBWEBS.

One of the most striking comparisons in the recent report on the exports of pulp and paper is the item relating to groundwood. In the month of August, 1919, the value of this item of export was a little over $475,750. During the same month in 1920 the value had risen to $2,800,000 or almost exactly six times. This increase in value was very largely due to a considerable increase in price but the quantity during the same period increased from 387,000 cwt. to 816,000 or a little more than double. The price is still well maintained and with new production coming on the market there is likely to be a continual increase in the value of this product even though there be some slight recession in the price per ton.

We understand that by using paper clothes one may have a new suit every week. From some things we hear, it looks as if one would have to.

Where provision has not already been made for the winter's coal supply, there is likely to be some scrambling before January. These brisk autumn days, with a touch of frost in the morning remind us of what is to come.

One frequently hears a man say that the world owes him a living. This is not so. The only thing the world owes a man or is under obligation to give him is an opportunity to earn a living. This means that industries are under obligation either to furnish continual employment with at least a living wage or to pay such wages for seasonal employment as will provide a fair average income for the whole year. The former is by far the better because of the moral effect of having continuous employment and a permanent residence Pulp and paper companies are constantly striving to organize in such way as to provide this type of employment. One of these days an employer will be required by law to do something of this kind.

IS YOUR OWN HOME SAFE?

Every year there are hundreds of citizens badly scalded by boiling water and year by year by the appalling total of children scalded to death grows. **Put all hot liquids out of reach of the babies.**

Gasoline fumes will explode when exposed to flames. Coal oil poured on a burning fire has wrecked many homes. Gasoline should not be kept in the house and always keep it away from fire. If you think you must use a small cup and stand clear of the rush of flame.

Matches have a horrible fascination for children. Hundreds of fires have resulted from children playing with matches and many young lives have been suddenly snuffed out—because someone was careless with matches.

Someone has said "An upturned nail is a prong of evil." Keep your house and property free from broken glass and boards with nails in them. Blood poisoning and serious infections are often the result of stepping on nails or broken glass.

Keep all poisons out of reach of the children. Put a piece of tin in the cork of the bottle so you will know a poison bottle even in the dark. If you can, do not keep any poisons in the house.

Figures show that falls are responsible for more accidents and deaths than any other cause in the home. Keep your stairs, especially the cellar steps, clear of boxes, bottles and other material. Keep the steps in good repair. Keep dark halls free from obstructions that might trip someone. Train the children to put toys away instead of leaving them lying on the floor.

Nearly all of the cases of infection and blood-poisoning are caused by the neglect of small injuries. If you scratch or cut yourself use iodine to kill any possible infection. Iodine is cheap and efficient.

The children of the community are the responsibility of the fathers and mothers. Parents are morally obligated to make their homes safe and to teach safety to the children.

The Consumption of Power in Beating

By W. B. Campbell, Process Engineers, Limited, Montreal.

The economical use of power in the beating process is a subject which has received slight attention in American paper mills. Very few plants are equipped so as to be able to measure accurately the power consumed under various conditions. In the majority of cases power is provided for maximum requirements and the beater is operated to produce the result desired, regardless of whether this is obtained with a large or a small expenditure of horsepower-hours. The facility with which the action of the beater may be modified to produce different results and the skill which an experienced beater man displays in adapting his procedure to the pulps provided for him and to the product desired, also tend to discourage any accurate study of the reactions. Whether to work with a light furnish and high circulation speed or with a heavy furnish and correspondingly low circulation speed are matters usually decided by the beater man in the light of his particular experience, rather than by an exact knowledge of the power consumption in the various alternatives. With the present lack of data this condition is likely to persist for some time, since no hard and fast rules should be laid down before they are proved. This, however, should not be a bar to utilizing the information actually at hand.

Up the present, progress in beater design has been slow on account of this lack of knowledge of the fundamental factors involved. Such progress as has been made is due largely to the instinctive feelings for what is right rather than to calculate improvements. Naturally many of the changes brought about in this way have proved by experience to be of no advantage and in such cases they have disappeared in the course of time. When the changes showed good results they have been retained. It is out of the accumulated experience of these things which have been tried and have been proved or disproved by practical working that there has come to be a certain general conception of what is desirable in a beater. Rapid circulation and heavy furnishes are generally considered advantageous although it is doubtful whether many papermen could back up their opinion by logical arguments. In the same way the circumferential speed of beater rolls has become practically standardized at from 2000 feet to 2300 feet per minute. Although these things are difficult to prove they are nevertheless the result of sound experience accumulated over many years, and at the cost of many experiments and mistakes.

While the fact is recorded in several places in the literature, it is probable that many paper makers will be surprised to learn that, other things being equal, **the power required by a beater is greater when filled with water only or with a light furnish than it is with with a heavier furnish.** Even so experienced and able an investigator as Beadle was surprised at this and notes it as very curious though without finding adequate explanation. As will be seen later, however, the reason is quite simple and like many other mysteries, it is a mystery only so long as some of the factors are unknown.

Let us consider where the power for the beater is used. In the first place, a portion of it is necessarily absorbed by friction in the bearings. The next and the greatest portion of the power is absorbed between the beater roll and the bed-plate or perhaps it would be more correct to say between the beater roll and the stock passing under it, since, unless the roll is down extremely hard, it does not really touch the bed-plate; otherwise there would be no rubbing action on the fibres. It is this part of the power which does the real productive work in the beater. The third portion of the power is used in accelerating the stock and water from the very low velocity with which it moves in the tub to the circumferential velocity of the roll. This portion of the power has received little attention from most investigators and, indeed so far as articles published in America are concerned, only those by Schlick mention it at all. In addition to these three main uses, power is also wasted, to some extent, in the churning of the stock in the immediate neighborhood of the roll and also in elevating it from the level in front of the roll to the level behind the roll. Comparatively speaking, however, the power consumed in these latter ways is very small and, until greater refinements are reached in our other calculations, it may be neglected.

Since the power consumed in journal friction is a matter of mechanical engineering only, we may leave it out of consideration in this paper and devote our attention entirely to the uses of power in the beater itself.

With regard to the power consumed between the roll and the stock and between the stock and the bed plate it may seem at first that this power will increase as the consistency of the stock increases. It is doubtful whether this is a fact, at least within certain limits. In all cases where power is absorbed in friction the amount of power consumed varies directly with the pressure between the two surfaces in sliding contact. For every two surfaces there is a co-efficient of friction by which this pressure must be multiplied to obtain the measure of the force which opposes motion. If the roll is rubbing against a layer of fibres, which in turn are rubbing against the bedplate, it will be seen, therefore, that the actual resistance produced here is dependent only on the nature and condition of the fibres and the pressure of the roll against them. It must be remembered, however, that in the case of a very thick furnish the pressure of the roll may be increased when the thickness of the furnish is increased, since a large amount of solid material will be drawn in between the roll and the bedplate, thus furnishing pressure which tends to raise the roll. On the other hand, the thick furnish, by providing more fibres to support the actual weight of the roll, decreases the amount of pressure on each fibre though leaving the total resistance unchanged. So far as the writer is aware no experiments have been made to determine the actual co-efficient of friction between different fibres, and the material of beater rolls and bedplates. Assumptions have been made by various experts but it is doubtful whether there is much authority for them. Until scientific data is accumulated on this point, we must content ourselves with the knowledge that the power in this portion of the beating is proportional to the circumferential speed of the roll and to the pressure between roll and bed-plate, multiplied by some co-efficient of friction, at present undetermined, but which is in the neighborhood of O. 1.

We next come to the third portion of the power—that used in accelerating. As the stock approaches the roll it has a velocity of say 15 feet per minute or 0.25 feet per second. It has, therefore, stored up in it energy amounting to

$$(0.25)^2 \div 64 = 0.001 \text{ foot pounds}$$

for each pound of material, including both stock and water. As it leaves the roll it has the velocity of the roll face or about 35 feet per second. The energy stored in it per pound of material is then $(35)^2 \div 64 = 19.14$ foot pounds. The first figure is so low that it may be neglected without serious error and we may consider that for each pound of material passing the roll 19.14 foot pounds of energy must be added. In a beater having a tub at 15 square feet cross section area and a velocity of circulation of 15 feet per minute, the amount of material passing the roll per second is $15 \times 15 \div 60 \times 62.5 = 234.4$ lb.*. The H. P. required for this is $234.4 \times 19.14 \div 550 = 8.15$ H.P.

If the speed of circulation is doubled by reducing the consistency or by other means, this power is also doubled since the amount of material to be accelerated per second is increased to twice the quantity. The power required for the acceleration becomes then 16.3 H.P. It will be seen that this is the explanation of the fact mentioned above, that a beater full of water or with a charge of low consistency consumes more power than one with a heavy furnish since the circulation speed is much greater. This phenomenon is much more marked when the beater is on a light brush than when the roll is down hard. When the beater is on a light brush nearly all the power is consumed in this acceleration, whereas when the roll is down hard a great deal of power is used between the roll and the bedplate and the difference due to acceleration, although the same as before in actual H. P. is a much smaller proportion of the total power supplied to the beater.

The actual beating effect is due almost entirely to the action under the roll and, with the same consistency, when the circulation is doubled naturally the beating time will be cut in two since there is double the quantity of material passing under the roll per minute. From this it will be evident that any change in beater design which enables the circulation to be doubled, will cut the beating time in two at a cost of power equal to that originally used for acceleration alone. If the total power supplied to the beater in the first place amounted to 50 H.P., of which 10 H.P. was used in acceleration and the beating time consumed four hours, the total H. P. hours for a charge would amount to 200. With four times the circulation speed the power required would be 90 H.P., and the beating time would be 1 hour. The total consumption of power for a charge would then be 90 H.P. hours, a saving in power of 55 per cent. due entirely to improved beater design.

If the assumptions made in connection with the power absorbed between the roll and the bedplate are correct it is immaterial what consistency of stock is fed to the beater and the power required for this portion of the work will depend only on the pressure between the roll and the bedplate. This pressure, of course, may be greater if the consistency is very high, on account of the fact that much solid material will be passing under it and will tend to press the roll upward. High consistency brings with it another factor which is important although not at present susceptible of mathematical treatment. When stock of high consistency is agitated, even without any roll and bedplate, it becomes hydrated by the friction of the fibres on each other and we have then a certain amount of beating which takes place along the entire trough. This fact has been realized by beater men for a long time and is really the basis for their practise of running a beater at as high a consistency as possible, especially when making greaseproof and other papers where hydration is important. Moreover, if circulation speed is constant and consistency is doubled the capacity of the beater is also doubled.

It will be noted that the above conclusions take no account of the particular kind of beating desired. It is immaterial whether the stock is to be beaten in such a way as simply to cut the fibres or both to cut and hydrate or simply to hydrate. The considerations apply to all cases and lead to the conclusion that in the design of a beater from the point of view of power efficiency the shaping of the tub so as to secure as great a circulation as possible is of greatest importance. Designing the beater for use on a particular stock is another matter and is concerned chiefly with the material and proportion of the beating surface. For instance, if blotting paper is to be made, the beater bars and bedplate should be sharp, with as small a surface as is consistent with strength. If more rubbing action is desired, so as to increase the proportion of hydration effect, the bars should have more surface and should be dull. If the rubbing action is to be carried to an extreme, a wide rough surface such as is provided by basalt lava should be used.

For the most part very little attention has been paid to the design of the beater tubs in America and it is not out of place to suggest briefly the lines along which improvements can be effected. In the ordinary beater tub the circulation is secured by the roll raising stock to the height of the backfall in order to provide a head which in turn causes the stock to flow around the tub. In most cases this head amounts to approximately half the diameter of the roll. By carrying stock higher up and delivering it over the top of the roll, as is done in the old Horne beater and the new Rabus beater, the head is doubled and moreover the velocity which has been added to the stock, at the cost of acceleration horse power, is turned in the direction in which the stock is intended to flow. Again, in ordinary beater tubs the stock flows down one side of the beater, makes a sharp turn at the end and flows back on the opposite side. The frictional resistance of the trough in this case is extremely high, not only because the cross section is of a shape poorly designed for the easy flow of the liquid, but the sharp turn at the end impedes the flow tremendously.

By making a trough with a cross section more nearly approaching a semi-circle and of an outline with easy curves we may expect a vast increase in the speed with which the stock circulates and a corresponding increase in the all round power efficiency of the beater.

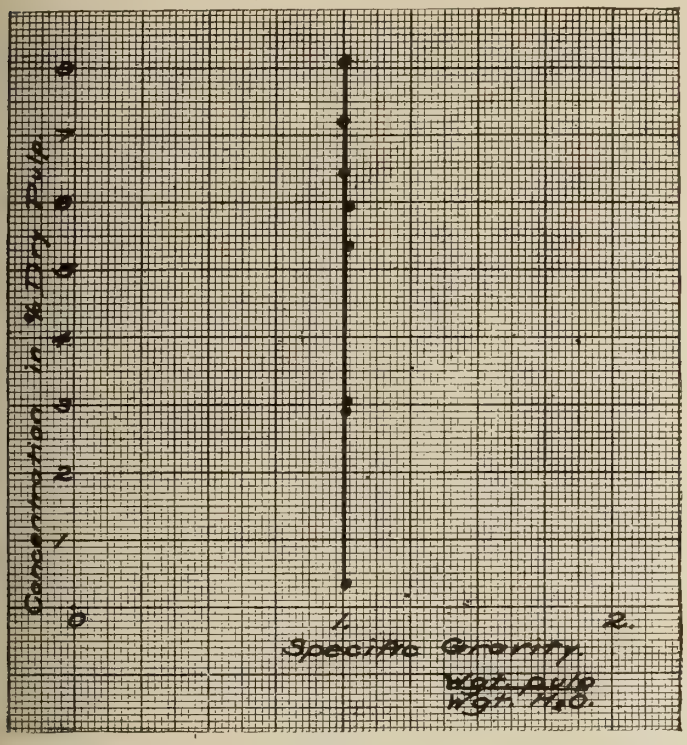
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* See note in next column showing relations of weight and concentrations.—Ed.

THE SPECIFIC GRAVITY OF PAPER PULP.

About six years ago the Editor read a statement in a magazine wihch intimated that a cubic foot of stock in the beater weighs 50 pounds. Landolt and Bornstein tables give most fibres a specific gravity of about 1.5. The two statements do not agree. With the assistance of Mr. A. O. Bragg, then a senior student at the University of Maine, a simple investigation was carried out. A 2-liter Erlenmeyer flask was filled with bleached sul-

phite pulp which had been slightly beaten, and from which some water had been squeezed out in the hand. Air bubbles were eliminated as far as possible with a stirring rod. The net weight was found and the specific gravity calculated from the weight of an equal volume of water, both pulp and water being of the same temperature. The percentage of bone-dry fibre was determined by placing a small sample of the stock in flask, about 20 cc, in a small beaker, weighing carefully, drying thoroughly, and again weighing. About half the stock in the flask was then discarded, the volume made up with water, and the process repeated. This was done several times and the results plotted to show specific gravity as related to content of bone-dry fibre, which the chart will show.



The airing of this bit of work is suggested by the fact that W. B. campbell, in his interesting article on the power used in beating, uses 62.5 lb. as the weight of a cubic foot of stock. This we agree with for straight pulp, but believe it would be different, may be 65 lbs. or more, if the paper is sized and loaded or if very thick stock is beaten till all air is removed. Perhaps some readers have other data or opinions on these matters.

CHANCE FOR CANADA IN INDIA.

Mr. F. P. Scharsmidt, Canadian Trade Commissioner to India and Ceylon, says, in the Weekly Bulletin, of the Department:

There is a pressing need in India for paper and fibre boxes, and at the present time Japan enjoys almost a monopoly. Prices of boxes have increased from 300 to 400 per cent and Canadian manufacturers would do well to look into the possibilities of this market.

Owing to the conditions above described in connection with tea and rubber boxes, I can see no reason why the introduction of wood fibre boxes into India would not prove successful. Manufacturers contemplating the introduction of fibre products into India for the tea packers must bear in mind that the same must be odorless, but this does not apply to rubber containers.

United States Notes

Mr. H. W. Welsh, former manager in Sherbrooke, Que. for the E. & T. Fairbanks & Co. Limited, and latterly manager of the Scale Department of the Canandian Fairbanks Morse Co. Limited, Montreal, Que., has joined the organization of the MacKinnon Steel Co. Limited, Sherbrooke, Que., as Manager, and has already assumed his duties.

The McKinnon Steel Co., Limited, of Sherbrooke, Que., have been awarded contracts for structural steelwork in connection with the large extensions which the Brompton Pulp & Paper Co., of East Angus, Que., are making to their plant, and at present are busily engaged in the fabrication of steelwork for Grinder Room, New Boiler House Extension, Sulphite Mill Boiler House, etc.

The office of the Technical Association of the Pulp & Paper Industry has been moved from 18 East 41st Street, New York City, to 542 Fifth Avenue.

After spending about 18 months with the Federal Trade Commission, at Washington, D.C., M. L. Smith has just become associated with the News Print Service Bureau, with headquarters in New York City.

The Penobscot Chemical Fibre Company is planning some extensive improvements at its Great Works, Me. mill. Among them are a new digester house and blow pit room. It is estimated that this addition will cost in the neighborhood of $100,000.

A news report from the New York State College of Forestry at Syracuse states that the course in paper making has become so popular that it has been found necessary to limit it to the sophomore and higher classes.

The work new sulphite mill and wood room of the Consolidated Water Power and Paper Company, which was started the early part of this year, is nearing completion. The engineering department of the company has announced that operations on both will begin the first part of November.

According to a news dispatch from Appleton, Wis., the Fox River Paper Company is making many improvements to the mill at Telulah, which was purchased from the Kimberly-Clark company recently. It is planned to have the mill in good running order for the manufacture of writing papers by the first of the year, when it will be formerly transferred to the new owners.

The Giant Paper Products Corporation has just been chartered at Wilmington, Del. The company has a capital of $1,500,000 and will engage in the manufacture of paper and paper products.

Another incorporation recorded during the interval is that of the West Dudley Paper Company at Pawtucket, R. I. This concern has a capital of $500,000 and will engage in a general paper and pulp business. The incorporators are: L. P. Emerson, Lowell Emerson and J. C. Knowles.

The meeting of the American Paper and Pulp Association, scheduled for November 12, at the Congress Hotel, Chicago is creating considerable interest among the wood pulp members, as it will deal in part with the logging methods, reforestation, purchase of pulp wood lands and taxation of same.

Plan great things if you would be successful, but remember that mere planning accomplishes little. It is the action that produces results.

THE ONLY PRACTICAL REMEDY FOR OUR DISAPPEARING FORESTS.

Editor Pulp and Paper Magazine.

The International Paper Company, in a recent advertisement in the "American Forestry", states:—"If the Canadian forests held by leases which convey all rights of property to the timber, could now be regulated, and scientifically protected and operated as are the company's forests in the United States, there is ample authority for an annual increment of at least four per cent."

In the first place it would be interesting to know of any lands in the United States or Canada, either owned by the International Paper Company or any one else, that are producing a net annual increment of four per cent.

Secondly, if the International Paper Company is practising scientific forestry methods on its lands in the United States, it also would be interesting to know where.

The only practical forestry and the only way we can save the remnants of the once magnificent forests that covered this continent, is:

(1) By immediately reducing the present cut at least one-half.
(2) By greatly increased fire protection.
(3) By improved and less wasteful logging methods.
(4) By planting at least six seedlings for every tree



FRANK J. D. BARNJUM.

cut or otherwise destroyed (as not more than one tree out of six planted ever reaches maturity).

To show the fallacy of the statement of the International Paper Company, it is clear that if there had been a net annual increment of even one-half of one per cent, on this continent (instead of an annual growth of four per cent, as claimed) there would be more timber standing to-day than there was one hundred years ago.

It must be borne in mind that even if we reduced the present volume of the cut one-half and began planting, not millions but billions of seedlings, it would entail a wait of at least fifty to seventy-five years for the maturity of the crop, while the best authorities we have in the country state that the present supply of timber in the East will be exhausted within a period of twenty-five years.

Therefore, all this idle talk about supplying our mills in perpetuity by improved forestry methods is simply pure bunkum, unless we reduce our cut, at once, at least to one-half the present amount.

This applies with double force to Canada, due to the fact that fire has done and is doing a far greater damage than in the United States, and from the added fact that a large portion of our wood growth is so far north that it is too small, too scrubby and too inaccessible to be available as a pulp wood supply, and also from the fact that it is acknowledged that the standing supply of timber in Canada is only about one-fourth of the amount still remaining in the United States, small as their supply now is.

The thought which I wish to bring out prominently is that, even if we, at once, begin planting six trees for every tree cut or destroyed, it will take fifty to seventy-five years for the new crop. Hence, it is necessary, immediately, to reduce our cut, at least one-half in order to make our remaining supply hold out till the new crop matures.

The above conclusion is based on the claim of the best authorities that we have a twenty-five year supply in the East. On the other hand, if my own opinion is correct that this supply will last not more than fifteen years, then the gap between the end of the present supply and the maturity of the new crop will be correspondingly greater.

In addition to the fire loss, the loss that is being caused through the ravages of the Spruce Bud Worm and other enemies of our forests, is simply appalling; in fact at the present time, and during the last three of four years, it has amounted to more than our loss from fire and wind.

The International Paper Company states in their advertisement that they have holdings amounting to 4,500,000 acres that will average five cords per acre; but they fail to state the fact that of these holdings only in the vicinity of 750,000 acres are in the United States, and even conceding their own figure of five cords per acre, and their consumption of 700,000 cords per year, this would only give them sufficient to supply their American mills for a period of five years.

Small wonder there was frantic appeal for the passage of the Underwood Resolutions.

FRANK J. D. BARNJUM,

Annapolis Royal, N.S., Oct. 9, 1920.

Editor's note:—It is very gratifying to learn that American paper companies are making efforts to make their forests productive as mentioned here. The International will soon be making pulp and paper in Canada from Canadian wood and their good exemple in scientific forestry and lumbering will be a great help in forwarding the cause on this side of the line.

TO CARRY PULPWOOD

It is announced by the St. John, N.B. office of the Canadian Government Merchant Marine that the steamer Canadian Sailor will be put on a regular service between this city and Portland, Me., carrying pulpwood. It was said that the Canadian pulpwood cannot be sent into the United States in Canadian cars and foreign cars cannot be obtained, so recourse is had to the water route. It is expected that large shipmets will be made from this port.

Some Economic Aspects of Welfare Work*

By H. P. CARRUTH, General Manager, Mead Paper and Pulp Company, Chillicothe, Ohio.

I have been asked to present to you the economic aspect of safety work and similar measures sometimes grouped under the general heading of Welfare Work.

Welfare work has been somewhat criticised of late as smacking too much of paternalism in these days of rampant democracy and as no doubt it carries to the minds of many of us a rather smug odor of sanctity or rather of sanctimoniousness. It associates itself with "Scientific Management", "Efficiency" and other words and phrases that have been overused or misused until one hardly dares use them at all for fear of creating an unfavorable effect upon the audience.

To clear the air, therefore, let me say at once that I believe in Welfare Work, not as it has been practised very frequently as a sort of general specific for all the industrial ills, but as part of a general industrial policy which is in line with the trend of the times and in sympathy with the modern idea that workmen are regular human beings, thinking and reacting like the normal man in any walk of life.

Safety work in general appears to me as one aspect of a general program looking toward industrial progress. No doubt there will be others here today who will be able to give you facts and figures showing how many dollars each type of accident costs the employer, the employee and the community. I believe such data is well worth while but I do not propose to use any in this paper, but rather to present the subject in a more general way.

My subject then is to try to show that under proper conditions efforts to improve the living and working conditions of men and women employed in industrial plants are a proper activity for manufacturing plants to consider because they can show a profit on the year's operations which is the legitimate field of industry.

You will notice that I said "under proper conditions". The importance of this cannot be over emphasized. All of the welfare work conceivable will be a most dismal failure if the general conditions of the plant are not sound before such work is begun. The employer who uses welfare work on a substitute for proper wages or working conditions is inviting trouble.

Assuming that conditions are sound, which means good wages, (not only in the sight of the employee, but so admitted by the organization as a whole), a clean and well kept plant, foremen who are fair and straightforward in dealing with their men, a sound business policy and efficient management which protects its men against unemployment to the maximum degree and a generous dash of the Golden Rule, we have then the foundation upon which profitable welfare work can be built.

It is almost inconceivable that a plant which conforms to the above specification could be doing no welfare work, but frequently it is quite unorganized and hit or miss. When unorganized, it is likely to be unfair or unjust. To illustrate : two men become incapacitated by serious illness. The first man has lived up to his income, the second is more thrifty and has laid by a bit against the rainy day. Our first man and his family soon become in abject need and sooner or later help is forthcoming, either from his fellow workmen or as a loan or gift from the company. The second man is known to be able to stand the strain for a while so no help is given. In other words the man who has been thrifty is given less consideration than his less valuable fellow workmen, assuming that thrifty workmen are better and more valuable in our mills than the shiftless. This is not a square deal.

My illustration might be given to show that unorganized benevolence to employees tends to create the exact opposite of the spirit which is desired, and of necessity it must be of the most paternal character except perhaps in very small organizations.

On the other hand organized benevolence in industry is likely to be a cold-blooded matter-of-fact thing which has no advantage to the company and very little to the employee.

The proper basis seems to me to be to put all such efforts squarely before the men as co-operative methods which repay the man and the company mutually, although perhaps not in the same coin. The average workman is suspicious of his employer and if you do not show him what gain you expect to make he will be likely to suspect a sinister reason.

To sell safety ideas to workmen you must convince them that care is a sound investment which they should make for themselves and their families and also show the advantages to the company. Don't try to force rules and regulations down their throats by means of signs and threats of discharge or punishment. Such means are no longer effective, in fact, they never were really of value.

To sell recreation to workmen it should be frankly stated that good health is an asset not only to the man himself, but to his employer also, because a healthy man is a better and more efficient member of the organization.

To sell insurance, whether it be wholly or partly paid for by the company, should be shown to be worth while to the company because it helps the men to stop worrying and so adds to their effectiveness on the job.

The same ideas hold in regard to all types of welfare work such as free medical and dental attention, visiting nurses, restaurants, etc. You cannot fool your men on these matters and you know you wouldn't do it if it didn't pay. At least you wouldn't do it except as individuals rather than as a company policy.

Now let us see just how these various types of welfare work do pay the employer. Like any other investment it is quite easy to put in more money than can be taken out. Unfortunately, when dealing with the human machine, it is very difficult to place exact figures on the improvements which result from any policy and again these values are constantly varying with location, with time and with general conditions. They are very difficult in different industries and change with the seasons. Nevertheless, every employer has a pretty clear idea what such factors as labor turn-over, good morals, health quick learning, care, etc., have in his own business and can best interpret values for his special conditions.

* Delivered before the Paper and Pulp Section at the Ninth Annual Safety Congress of the National Safety Council at Milwaukee, Wisconsin, September 30, 1920.

Sport organized by industry is perhaps the most widely used type of welfare work. This may be handled in many different ways, but has has its chief value to the employer in its effect on morale and secondarily on health. In most plants the health factor is of small importance as relatively a small percent of employees take active part in such activities, the effect on morale, is such greater but varies much in degree. Some companies strive to get results by producing a winning team at all costs, even to the hiring of professionals, while others bring into play the idea of true sportsmanship. The first idea is dangerous because in any league there can be but one winner and the losing team may have a bad effect on the organization from which they are chosen. On the whole, in my opinion, sport is one of the least profitable forms of welfare work.

Safety probably comes next in general use. The effect on profits of safety work is fairly clear. First, we have the direct losses when men are hurt which must be paid in insurance premiums which such work eliminates to a greater or less extent. Second, we find that safety work is frequently one of the best contact points between management and men out of which grow various benefits to the bank account. Then again, it has its effect on labor turnover and general morale.

Insurance of various kinds, whether life, accident or health, is valuable in its effect on turnover and helps to secure good men to fill vacancies. Its appeal is quite as much to the wife at home as to the man on the job. It also keeps the force as a whole in a proper mental condition by minimizing worry, and is especially valuable when a man returns from a siege of illness or incapacity due to injury.

Vacations are very highly regarded by the men, perhaps more highly than any other one thing. We all like to sit by the fire and plan our little outings for the coming summer and the workman is no exception to the rule. Idleness is a goal which always attracts in prospect, although seldom justifying itself in the present. For these reasons vacations are a very powerful stimulus to hold men to their work if used as a special reward for continuous service. The value lies in their effect which is considerable on turnover, especially with employees of long service, and on general morale; they also have an undoubted effect on health, although this is more mental than physical.

Outings are of little value in developing morale, although frequently used for that purpose. When morale is already good they may be a stimulus, however, but it is doubtful if they are worth the cost which they frequently run into unless engineered by the employees themselves.

Free medical and dental service has a very definite effect on morale, turnover and production. Its value is naturally greater in those industries particularly liable to occupational disease, but is considerable in all cases. Many men will consult a company doctor, who makes no charge, long before they would spend the money to see their regular physician. This means the checking of contagious disease and in extreme cases might save a shut down.

House organs are almost a necessity in a well run plant as a means of selling the ideas of the management and increasing morale and loyalty. They form a connecting link between the plant and the homes of the men which is of the greatest value. They should, however, be something more than a collection of trite phrases or collected sermons to make a profitable investment.

Co-operative purchasing is frequently a worth while addition to the best of welfare activities, but should only be undertaken after due consideration as there are many pitfalls for the unwary.

Housing is more often a necessary adjunct to operation than a real welfare effort. When necessary to consider, it should, however, be placed upon such a basis that it is something more than an expedient.

These are only a few of the great number of activities possible to the welfare department. All are good, all are potentially profitable but only as conditions warrant. The field for such efforts will vary with your own conditions as stated earlier. Look over your own problems, talk to your men and the profitable series of activities will not be hard to find.

In closing let me add one word which, although not on welfare or safety work, still lies at the root of all such work. It is my firm conviction that a workman reacts to the same influence as any other human being. This "psychology of the workman" of which we hear is a myth except as it is the psychology of human nature. Most of our mistakes in the past have been due to a tendency to think of workmen as a class or species differing from ourselves in important respects. This I believe to be an error which has been very costly to industry and to civilisation.

Assuming that your employees are just normal human beings and that you yourself are normal, then it becomes very easy to predict what reaction will result from any labor policy, for by projecting yourself into the position of the workman your own reaction to the surrounding conditions may be expected to be the same as that of the great majority of your employees. There will be differences in degree, but not in kind. In brief, the Golden Rule is a practical and workable business policy.

ANOTHER PORT ARTHUR PULP PROJECT.

A delegation consisting of Mayor Matthews, T. N. Andrew, president of the Board of Health; E. T. Ross, representing the local branch of the U.F.O.; Alderman L. J. B. Bolduc and William Scott, of the Pidgeon River Lumber Company, went to Toronto, recently to interview members of the Government in regard to the purchase of a timber limit for the Pidgeon River Lumber Company. The company, if it can secure a limit, has promised to erect a pulp and paper mill in Port Arthur.

PRESENTATION TO MR. D. W. SHERMAN, OF THE CANADIAN EXPORT PAPER COMPANY.

On behalf of the staff of the Canadian Export Paper Company, Mr. G. F. Steele, General Manager, presented, October 13th, a very fine travelling bag, containing a number of useful toilet articles, to Mr. D. W. Sherman, Manager of the Pulpboard Division, who, with his family, is leaving by the SS. "Megantic" this week to take up his residence in England, where he will represent several Canadian pulp and paper interests. Mr. Sherman, who is very well known, spent five years in the Sales Department of the Laurentide Company at Grand'Mere and Montreal, was two years at the Front and leaves Canada with the very best wishes of the Pulp and Paper Industry. He has taken an office in Blackfriars House, 20 New Bridge St., London.—E.C.4.

TECHNICAL EDUCATION IN PAPER-MAKING.

By Major J. EDINGTON AITKEN, Inveresk Paper Mill, Scotland.

(Reported by Our London Correspondent).

The members of the Technical Section of the British Paper-Makers Association held a conference the first week in October, at Manchester. Some very interesting papers were read and a predominant note throughout the proceedings was the advocating of methods based on modern principles and particularly a technical training for those engaged in the paper mill from the highest director to the youngest workman. Practical men, it was adduced, should have technical principles, as paper-making in the mill had ceased to be an Art, and, instead, had become a Science.

One of the most interesting papers read was on "Technical Education in Paper-Making", by Major J. Edington Aitken, (vice-chairman of the British Technical Section) of the Inveresk Paper Mill, in Scotland, who, as a sound technologist, gave some valuable advice. He said, in the course of his address:

Technical education is for the purpose of enabling those employed in an industry to acquire knowledge of the theory, principles, and fundamental methods involved in the various stages of the manufacturing process in which they are directly interested. The man whose training has been obtained in the works, without having acquired any knowledge of the broader principles upon which the industry is built, is generally satisfied with empirical methods, and often fails to appreciate any possible value in variations of procedure. He becomes imbued with the idea that there is only one way of conducting his part of the process, namely, that by which it had always been done by his predecessors and himself. It is difficult for him to comprehend that other methods based upon defined principles may yield a better result at less cost, and with greater efficiency.

The technical expert who, in the course of his training, or, by experience, has acquired a certain amount of business knowledge, and the Manager or Director whose business training has been augmented by technical knowledge, are each in a position to appreciate and discuss the aims and objects of technical suggestions of possible improvements, not only from the standpoint of their effect upon the manufacturing process, but also the bearing which they will have upon the output and returns. Commercial success and manufacturing economies will receive due share of consideration. Conversely, the paper-maker without technical training, and the technologist without business knowledge, very seldom appreciate each other, with the result that technical advancement and scientific control are much retarded.

Benefits Derived From Technical Training.

Paper-making occupies a somewhat anomalous position in British manufactures. Many employees can trace their ancestry back for generations and methods of conducting various operations have been handed down from father to son. In consequence of this conservatism, it is difficult to induce workmen, and frequently managers, to believe that more economical applications can be effected. Technical education must inevitably bring its influence to bear upon the industry if we are to make progress. The Paper-Makers' Association of Great Britain and Ireland has shown appreciation of its importance in the formation of the Technical Section. The second clause of the Association's constitution states as one of the objects:— "To promote scientific and technical education of those who enter the industry." On level ground one mill will not benefit more than another; but those employers who do all they can to ensure that their employees will have opportunities of studying the technology of the process will undoubtedly derive the maximum of good results. Qualities will be improved; economies will be safeguarded; less time will be spent in endeavouring to make adjustments, because, instead of guessing the probable cause of anything getting out or harmony, reasoning and deduction will become effective and greatest of all, the workman will take a more intelligent interest in performing his duties.

It is acknowledged by all, that if we are to maintain our position in the world's industry, we must improve our methods. The old "Rule of thumb" must inevitably disappear, and be replaced by systematic, scientific, and technical development, which can only be attained by diligent study of the theories and fundamental principles of, and their applications to the process. Technical education is the key-note and the sooner paper-makers do everything possible to have certain employees trained to a good understanding of the principles and theory upon which each contributory department of the mill is based, the sooner will they be able to gain supremacy in qualities, yields, and financial returns.

Paper-makers are not philanthropists, and do not make paper simply for the satisfaction of users. A profit must be obtained. I dare not suggest what percentage increase would arise through improved technical education, because, to my certain knowledge on one occasion paper-makers did not look with favor on prospective profits. The story has been told before, but may be repeated in condensed form: A number of years ago, it was found that a certain waste product could be utilised. Experiments were conducted on a small working scale. Plans for the erection of commercial plant were drawn, and costs calculated. The expert employed to carry out the investigation declared that a large profit could be obtained. The paper-makers, however, with typical caution did not share the same confident outlook. Therefore, the waste material is still a waste in the majority of mills.

It is strange, if we do not care to admit the paradox, that at the same meeting at which the utilisation of waste products was under discussion, Mr. C. F. Cross made the following statement:— "Paper-mills are not run to make paper but to make money."

The scientific and technical education of paper-makers will be the means of ensuring that better papers will be made, the proportion of so-called waste products or more correctly, by-products will be diminished, and, incidentally, paper-makers will make more money. For specific purposes, it may not be desirable to increase technical knowledge, but let us hope that these are the exceptions which will prove the rule.

Practical Men Should Be Technologists.

The following once appeared in the trade press referring to a particular grade of paper:— "No workman at the ..... Mills is allowed to understand more than one stage of the process of manufacture. The paper remains a mechanical mystery."

It is a comparatively simple matter to acquire scientific and technical knowledge, but when one comes to apply such to the manufacturing process, handicaps

become very severe, and numerous difficulties block the way. Fortunately the technologist, by perseverance, clears one obstacle after another, and afterwards shapes a definite course for further progress. The purely practical man is often a good paper-maker, but under the strains and stresses of modern industry, it is advantageous that he should possess a knowledge of technological principles. If he does not desire to gain such information, there is no sound reason why he should be the means of blocking progress by constantly reiterating the old fallacy that theory and practice do not agree. If at any time we find difficulty in reconciling theory and practice, the discrepancy is entirely due to our own inability to devise means to bring them into harmonious concord.

There is a very limited amount of truth in the statement that practice can get along without theory, but it is only movement in a circle and not progression. Practice without theory can never reach the true goal. As theory is the science of practice they are inseparable.

Up to the middle of the nineteenth century, paper-making was an unscientific industry, conducted on empirically established motives, bluntly designated "Rule of thumb." I do not desire to affirm that good papers were not made while paper-making was included among the Arts. Many old papers are really excellent productions and bear evidence of marvellous ingenuity, practice and skill. I may here mention that the late Mr. Alexander Cowan, of Valleyfield Mills, (grandfather of the present generation), on being shown for the first time a sheet of paper made by machine, remarked:— "It is a wonderful imitation."

Paper-making has ceased to be an Art and has become a Science. This does not mean that it has assumed a higher status, but rather that it has changed from an industry of individual skill to one of systematised knowledge arrived at by progressive observation and experiment. By technical education we endeavour to apply Science to the manufacturing processes, seeking to interpret and explain every detail, so that the best results may be obtained.

Many manufacturers have the idea, when the word Science is used in connection with paper-making, that Chemistry is the one and only object of reference. This is by no means correct. Chemistry as one of the Sciences — and not the least important — controls quantities and qualities of all materials used and produced. Physics, with its inexorable laws demands strict obedience and close attention in every stage of the process. The mathematical accuracy of engineering in all its branches bears truthful record of power developed and used, in addition to all questions pertaining to conveyance, transference and economy of energy. The work of the engineer is as truly scientific as that of the chemist.

The practical sciences are contributory to each other, and perform complimentary duties. Conjointly, the application of these is called Technology. Various details require careful scientific study before we can appreciate and fully understand the processes involved in paper manufacture, and when this is accomplished, we shall find that paper can be produced with the minimum of treatment and losses and the maximum of yield and quality.

Technical education does not mean that there is only one way of attaining the best results. The principles are well defined, but the applications may be effected in various ways according to requirements or desire, thus giving limitless scope for individuality and research.

Managers and Foremen Should Have Technical Training.

I would respectfully suggest that all prospective Foremen and Managers should prosecute a course of technical instruction in paper-manufacture. At the present time, it would appear that appointments are frequently made from among the workmen according to no well defined system of selection — and it does not always follow that the best men get promotion. If it was ascertained by examination or other suitable method, that a particular employee possessed a sound knowledge of the technological principles of the process of manufacture, then undoubtedly that man would have definite superiority in qualifications over those who do their work in a routine or mechanical manner, merely as individual links in the chain.

The generally recognised evidence of technical training is the possession of certificates granted by a Technical College curriculums. Technical schools might be advantageously extended to include Physics, Applied Mathematics, Mechanical and Electrical Engineering, insofar as they have relation to the process of paper-manufacture. The object of technical training is not to make paper-makers into Chemists or Engineers, but to give sufficient knowledge of these sciences which will enable them to understand more fully the various stages of the process according to the degree in which they are controlled by, or based upon scientific principles.

Many young men after they have been three or four years in the mill, show a desire to know something more about paper-making than can be gained in the department in which they are employed. It is, however, extremely difficult for them to attend course of lectures on paper-manufacture, especially, if these are held on the evening of one of the five full working days. I believe I am correct in saying that the majority of such students do not tell the foreman, or manager, that they desire to or are attending technical classes. Some time ago, during the course of a conversation with a Managing Director, I mentioned the fact that one of his men had attended technical classes for two years. The Manager remarked: "He is a nice lad, but I did not know he was attending the College."

Let us consider what this meant to the young man. It took him two years to get over the work which should have been done in one session, as he could not attend during the week he was on night shift, and in this he is only one of many. He paid class fees and travelling expenses for two years, when it might have been arranged that attendance during one year would have been much better from the educational point of view. As the full curriculum consists of three complete sessions, the shift worker will take six years to get over the course, and for this he has to pay double expenses. Information gained in this way is intermittent and scrappy; therefore, difficult to assimilate, something like the old lady who, after reading a few pages of the dictionary, said it was very interesting, but she could not get the thread of the story. Technical lectures are not, or should not be, stereotyped, consequently a considerable proportion of the information would be lost to the student. (This problem of the shift worker is one of the most important and most difficult to be met in educational work in classes. This is a fine instance of how many young men appreciate educational opportunities.—Ed.). One way of over-

coming this difficulty is, if a sufficient number of students are in the same position and locality, lectures might be duplicated each week at different hours.

May we consider the question for one moment from the employers' standpoint? As the employer is bound to share very largely in the benefits which are to be derived by certain of his employees attending technical classes, I have no doubt that if he was aware of the fact, he would see to it that every facility would be given to enable them to prosecute their studies.

It cannot be too much emphasized that paper-makers should undergo a thorough and systematic training in the sciences which exert the controlling influences upon the qualities and properties of the finished sheet, and the economies of the mill.

While it is of paramount importance that the twentieth century Managers and Directors should have technical education and experience in addition to the business training which must be undergone, it is none the less desirable that a reasonable number of the employees and all foremen — general and departmental — should have proportional knowledge, and thus ensure that those who control the commercial destinies of the mill shall have the support of employees, who can appreciate and put into intelligent effect those scientific applications which shall raise the standard of quality, increase the output, and diminish waste.

The simple study of the technology of paper-making will not make a student into a paper-maker, unless he can gain the necessary mill experience, thus becoming practically acquainted with the applications of the theory and fundamental principles. The possession of theoretical knowledge without complete practical experience does not justify anyone claiming that he has anything more than a superficial acquaintance with the technology of the subject. Theory and practice are inseparable, and any knowledge of one without the other is very apt to make one dictatorial and dogmatic. The ability to show by example any instructions given will always be of the greatest value. It is not only desirable, but it is also essential that the student of the technology of the process should be able to demonstrate the results of his training in any department of the mill to which he may be appointed. Criticism of methods and processes may be very useful, but the full benefit can only be established by practical demonstration of the principles on which the criticism is based. It is always advantageous both to employer and employee when he is in a position to give practical effect to his instructions.

Value of the Technically Trained Man.

The technically trained man will be able to reveal many wasteful methods at present existing on account of deficiency of technical knowledge and scientifically organised control, even though they had never given rise to suspicions of extravagance or inefficiency. The Technical Section by fostering the claims of scientific education is bringing before the leaders of the paper-making industry, the only true means by which improvements and economies can be effected.

One of our cherished sources of pride, both National and individual, is that we have a praiseworthy history. Records show that our forefathers had the prosperity of future generations always in mind. Their progress was, however, circumscribed by the narrow limits of the technical knowledge at their disposal. In this century we live under vastly different conditions: education, elementary and technical, has opened up to us a limitless field of action, and we are bound to extend our energies far beyond any dream of the paper-makers of past years.

It is no prophecy to say that those paper-makers who do not take advantage of technical training and applied knowledge, but continue to carry on the old empirical methods, will most assuredly by unable to compete with the scientifically controlled and technically organised mills. I feel I cannot be too emphatic in impressing upon you the paramount importance of having your manufacturing processes founded on strict scientific principles, as by so doing you shall be in a position to manufacture the best qualities of your own respective grades, and thus be able to enter into healthy competition, instead of, as is sometimes reported at present, one mill doing its best to cut in under circumstances which may not be conducive either to maintenance or improvement of qualities.

More Recognition of Technical Education Wanted.

In conclusion may I permitted to quote from the last paragraph of the Report of The City and Guilds of London Institute? It stated: "It is generally recognised that, in order to meet the difficult times that lie ahead, everything possible must be done to increase the economic efficiency of the country, and for this purpose to gain the willing co-operation of all classes of workers. But it is still not sufficiently recognised how important a part the technical school can play in this direction by arousing in the student a real interest in his trade. He is brought into touch with perhaps only a small part of it in his daily work, but one of the chief functions of the technical school is to give him a knowledge of the more general principles of science underlying or connected with it.... The hope may, therefore, again be expressed, that manufacturers and employers will give technical colleges and schools in still greater measure, the cordial support which they so well deserve. Apart from any immediate results they may bring by way of increased skill or knowledge, they can give to the young artisan the wider outlook which will interest him more in his work....." There are signs of increased interest in education generally, it is earnestly to be hoped that there will be a fuller recognition of the great importance of technical education."

RIORDON ROUNDS OUT TIMBER HOLDINGS.

Riordon Company, Limited, has recently acquired further timber limits in the Ottawa Valley, thereby rounding out its holdings in that area.

The limits purchased cover 1,100 square miles, and are situated tributary to the Quinze River, northern Quebec, adjacent to limits already owned by the Riordon Company. Purchase of the property, which was formerly owned by M. J. O'Brien, includes a valuable undeveloped water power on the Quinze River capable of development to over 100,000 horse power.

These limits, which are but a few miles east of Lake Temiskaming, are of unusual extent and quantity, containing a fine grade of timber and are admirably situated for delivery at low cost to the Company's pulp mill at Kipawa. Purchase of these limits still further strengthens the Riordon Company's position, placing it in possession of about 12,000 square miles of excellent located and well timbered limits, and increases its ultimate water power capacity to 250,000 horse power.

Belgian Paper Trade Conditions

By Special Correspondence.

The rapidity of Belgium's recovery in the pulp and paper industry is shown by the following table and chart, in which it is seen that both imports and exports for the first seven months in 1920 were greater than for the whole year of 1919, the exports having more than doubled.

IMPORTS.

First Seven Months of the Years 1919 and 1920.

Articles.	1919 Quantity Kg.	1919 Value Fcs.	1920 Quantity Kg.	1920 Value Fcs.
Wood Pulp	18,516,389	11,659,289	68,242,207	77,964,791
Total of the whole year	54,979,061	37,264,444		
Wall Paper	1,176,538	3,269,930	1,306,854	5,270,103
Board	2,561,375	2,402,740	3,000,287	4,472,178
News Paper	4,798,002	4,897,487	3,446,671	6,341,833
Non-denominated Paper	4,249,897	7,389,270	11,050,666	27,445,144
Total	12,785,812	17,959,427	18,804,478	43,529,258
Total of the year	24,866,832	36,857,342		
Printed Matter.				
Books and sheet	495,495	2,289,967	547,160	6,741,488
Books and Bound	137,653	430,791	204,853	1,829,256
Newspapers, periodicals, maps, etc.	1,719,126	3,725,820	1,249,719	2,463,251
Non-denominated	357,053	1,802,241	934,046	6,905,189
Total	2,709,327	8,248,819	2,935,778	17,939,184
Total of the whole year	5,096,039	16,969,711		

Besides non-denominated paper imports for 1920 from "other countries", 6 Kg. came from Argentina, 4 from Australia, 2688 from Denmark, and 1614 from Japan (compared with 10 Kg. in 1919).

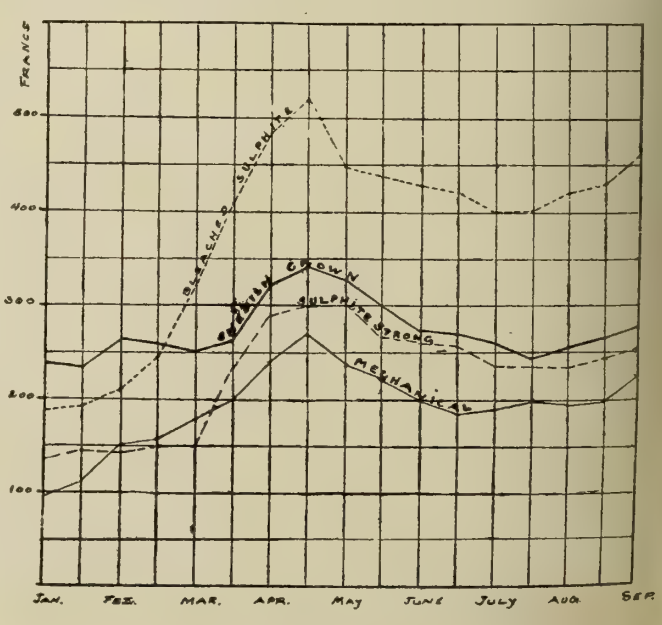
EXPORTS.

First Seven Months of the Years 1919 and 1920.

Articles.	1919 Kg. Quantity Kg.	1919 Value Fcs.	1920 Quantity Kg.	1920 Value Fcs.
Wood Pulp			8,987,933	10,366,967
Total for the whole year	1,437,313	1,406,810		
Wall Paper	4,882	16,905	1,365,953	5,507,286
Board	13,000	6,500	263,082	602,212
News Paper	15,134	19,187	119,931	347,148
Non-denominated Paper	527,886	2,124,668	10,136,036	37,754,857
Total	560,902	2,167,260	11,885,002	44,211,503
Total for the whole year	3,956,442	12,452,005		
Printed Matter.				
Books and Sheet	13,802	79,391	224,399	1,317,925
Books Bound	38,453	216,768	378,803	2,010,913
Newspapers, periodicals, maps, etc.	12,514	53,098	140,175	689,777
Non-denominated	16,230	87,268	149,603	1,235,337
Total	80,999	436,525	892,980	5,253,952
Total of the whole year	417,307	2,279,924		

Orders are scarce. Prices have been slightly decreased by those mills running on fine printing paper, which have been especially affected by the present definiteness. It is said that those mills and also some others working on different grades have cleared up nearly all the business on their books. Scandinavian paper is being offered at present, by middle men and jobbers, at prices considerably under those of the home market, but no transactions are being made, partly because there is some stock and chiefly because most of our wholesalers of papers are bound towards their mills, by orders placed months ago at prices to be fixed about the time of delivery. As wages, coal, and pulp are again advancing it is not likely at all that general decreases may occur and it is not probable that those mills, that have specialties to offer, will devote more and more their efforts to the export trade.

Pulp prices are very firm and have been advancing this fortnight owing to another increase of the rate of exchange. Pulp prices depend in our country chiefly on the rate of exchange as is shown clearly in the following diagram, that, for the first 8 months of this year, indicates the fluctuations of pulp prices as compared with the rate of exchange of the Swedish Crown.



British Trade News

(From Our London Correspondent).

London, 5th Oct. 1920

During the past couple of weeks I have referred to the raising of new capital for pulp and paper propositions mooted in England. It is an encouraging sign that despite the menace of labour stoppage and the dark results of oppressive taxation reflected in revenue returns, many owners of mills have decided to appeal for fresh capital. Apparently the belief prevails that notwithstanding the unsympathetic attitude of workers there is still promising scope for the employment of money in industry. There is also evidence that in spite of the rumors of labor wars against the capitalists and constant alarms, intending investors have great confidence in pulp and paper as being sound for putting their money into.

Caldwell's Paper Mill Issue.

Caldwell's Paper Mill Company, Ltd., Inver Keithing, near Rosyth, in Scotland, offered ordinary shares last week to the extent of 292,993 (of £1 each at par) of which the directors and their friends agreed to apply for 120,000 at par, leaving £172,993 for public subscription. Debentures for £250,000 bearing 8 per cent, have already been raised. The directors of the mill are:— Sir Robert Carlyle, K.C.S.I., (chairman of the Hartlepools Paper Mill), chairman; Lord Norris, vice-chairman; Alexander Smith, the Managing Director, of Echo Bank, Inver Keithing; Alfred William Smith, the Assistant Managing Director; Thomas McCrow, the esparto and pulp merchant, of 19 Stirling Road, Trinity, Leith; Albert Kay, Managing Director of Olives Paper Mill Company; and Colonel Simpson, a director of the Hartlepools Paper Mill and Olives Paper Mill. The mill was established in 1893 as a one machine mill primarily for experimenting in the manufacture of grease-proof papers under a secret process, and ever since the business has progressed and developed. In 1913 the mill was destroyed by fire, but a new structure has arisen since and the present plant consist of three paper-making machines and auxiliary plant, finishing, reeling, cutting and packing machinery. A fourth paper-making machine is shortly to be erected as the company is now turning out, in addition to greaseproofs, white printings, writings, bank papers, tub-sized, linen faced papers, tinted papers, and cover papers. One singular statement appears in a report on the mill. It states: The company's works are within a few yards of Inver Keithing Harbour, near Rosyth, "and occupy an excellent position for the importation of the necessary raw materials from Scandinavia and the Baltic." The present output of the mill is stated to be 130 tons of high-class paper per week, and this is expected to reach 180 when the extra machine is installed. The report on the mill further states:

(1) The British paper-making industry is at the present time in a strong position and the company has ample orders on hand.

(2) The company holds large stocks of raw materials purchased at favorable prices and is exceptionally well placed under contracts for future supplies for the next 12 months.

Turning to the values of the assests of the company I find under the heading (b) stock of pulp, raw materials, stores, work in progress and paper, as certified at 31st. August 1920 (at cost or under) are returned at £102,081—18s. 8d.

"Bridge" Paper Mill.

A company has been formed to take over the lease, with an option to purchase, and to carry on, as a going concern, the "Bridge" Paper Mill, in Staffordshire, which was established 100 years ago. The share capital is £25,000, divided into 23,000 9 per cent participation shares of £1 each and 40,000 ordinary shares of 1s. each. In addition to receiving the fixed dividend, the preference shares are entitled to participate in 25 per cent of the remaining net profits available for dividend after deducting the bond interest and providing for the sinking fund for bond redemption. The mill manufactures mill and straw boards, in addition to leather boards and tissue paper, and a new adjunct in the near future will be the introduction of a new waterproof substitute for leather in boot manufacture. At present the machinery of the mill is not able to cope with the demands on the firm and consequently, new capital is wanted to develop extensions and increase the output. One good point about the mill is that it is situated right in the heart of industry — pottery, boot, and textile manufacturing centres. The present directors are outside the paper industry, with the exception of Mr. Edward Warden, of London, who is manager of a paper mill. Tissues paper is largely used in pottery manufacture in England.

Sir Vezey Strong Dead.

After a long illness Rt. Hon. Sir Thomas Vesey Strong, K.C.V.O., K.B.E., Lord Mayor of London 1910-11 — the year of the King's coronation — died this week. Born in the centre of newspaperdom (Fleet Street), he entered the paper industry at the age of 14 and in 1886 started business for himself in Upper Thames St., ultimately becoming head of the great firm known today as Strong, Hanbury & Co., wholesale paper merchants. Sir Vezey was 63 years of age and he was a typical John Bull, with his clean shaved chin and side whiskers. When dressed in his mayoral robes he looked the ideal Lord Mayor and played his part well. All his life he was a staunch teetotaler and on more than one occasion, he has been described as "John Bull — with the beer left out." The paper industry loses a valuable and valued pioneer.

Severe Slump.

I have just received a copy of the report of the Amalgamated Society of Paper Makers, one of the old and respected bodies, which Mr. W. Dyson brought to so high a level as a workers society. The Secretary "pro tem", is Mr. Arthur Fowler,—Mr. Dryson having left, as reported sometime ago in the "Pulp and Paper Magazine" — and he states that trade is suffering a rather severe slump. This is attributable to unrest in the printing and coal industries. The Society, he adds, has a number of men out of work. Here we get an idea of what the mills are doing. If the mills are busy they cannot afford to keep out skilled men. Therefore, we must assume that when skilled labor is out there is a slump.

Pulp and Paper Markets.

Quietude continues just now in the British paper industry. One could not expect anything else with a serious coal crisis overhanging mills and the uncertainty of labor contentions. Newsprint is finding a good outlet and the demand is as keen as ever. One London daily paper, which favors American journalism, states this week that newsprint will very soon go down in price. Foreign stuff may, but it is quite certain British made will not, owing to the cost of raw materials. Of course,

it is another attempt to drive down prices. Indeed, half the newspapers in England today want their newsprint for little or nothing from the mill or agent. In Scandinavian circles the paper market is also dull as regards new business. For good grade papers they have plenty of work on hand.

The pulp market continues unchanged. If the rate of exchange was more evenly balanced all round, the business outlook would be much brighter. Norway showed a change in her rate recently and orders poured in to the pulp mills, but the Norwegians stuck to their prices and would not sell at a reduction. Recently some good supplies of chemical pulps have reached England from Canada. English and Scottish mills are well supplied with pulps for the present.

Price of pulps have not changed in the last week.

Notelets.

John Dickinson & Co., Ltd., the Hertfordshire paper mill owners, announce an interim dividend of 5 per cent, less tax, on the ordinary shares, payable October 1st.

"Recent Researches in Cellulose Industry"—being lectures by Mr. C. F. Cross—are being printed in the Royal Society of Arts Journal, London.

Spasmodic outbreaks, arising from unrest, are occurring in British mills among the workers. At Aberdeen some workers were charged with "throwing divots, cursing, swearing and shouting 'Blacklegs', etc., etc." No doubt the Scotch blood was up.—But Scotland is going "dry" we are told. Pussyfoot Johnston has visited it.

Scotland is not going "dry" in regard to tobacco, because the Union of Wrapping Papermakers (Cap Section) have presented Mr. John Dobson, of Charles Marsden and Sons, Ltd. — one of the fine firm of mill owners — with a cigarette case as a token of great esteem, when he left England to retire to Scotland.

SUITABILITY OF SOUTHERN WOODS FOR PULP AND PAPER MANUFACTURE.

The U. S. Forest Products Laboratory at Madison, Wis., has frequent requests for information concerning the suitability of various southern woods for the manufacture of pulp and paper. In the South there are large stands of various species of pines including longleaf and short leaf yellow pine, scrub, pitch ,loblolly, etc. These woods are characterized by having a good fibre length. However, on account of their pitch content it is not believed that they can be reduced by either the sulphite or ground wood processes of pulping to a grade of pulp to compete commercially with that made from northern non-resinous, long fibred, coniferous woods, such as spruce, balsam, or hemlock.

The various species of southern pines can best be reduced by the sulphate, or kraft, process of pulping, and the resulting pulp utilized for the manufacture of kraft wrapping paper or high test container board. These pines can also be reduced by the soda process and the resulting pulp utilized in the manufacture of grades of paper in which sulphate pulp is ordinarily used. It is possible that further work will demonstrate the feasibility of pulping these pines by the sulphate process, bleaching the pulp to a satisfactory degree of white and mixing it with short-fibred sulphate or soda pulp made from other southern woods, such as the gum woods, for the production of magazine, book, envelope, or lithograph papers. The yield of pulp by the soda and sulphate processes is less than 45 per cent.

The large stands of hardwoods occurring in the South consists in part of the various species of gum wood, cotton wood, sycamore, basswood, magnolia, willow, etc. All of these woods are short fibred and, according to laboratory experience, can be most satisfactorily reduced by the soda and sulphate processes of pulping. This pulp after admixture with a longer —and stronger-fibred stock, such as bleached spruce sulphite, or pine sulphate pulp can be used for the production of book, envelope, or lithograph paper.

In view of the present abnormal situation no definite estimate can be given as to the cost of a balanced pulp and paper mill as all cost figures available at the laboratory are based on pre-war conditions. It is the opinion of the laboratory men, however, that a balanced pulp and paper mill can not be erected at a cost of less than $45,000 to $50,000 per ton capacity per day. Further, before a mill of this type is erected a careful survey should be made of the economic factors, such as freight rates, markets, labor and living conditions, fuel, power and other factors upon which the financial success of the proposed undertaking depends.

AMERICAN CONDITIONS DEEMED UNSUITABLE FOR PLANT FIBRE PAPER.

The U. S. Forest Products Laboratory at Madison, Wis., receives frequent requests for information regarding the possible use of plant fibres, such as sugar cane, bagasse, corn stalks, cotton stalks, the various straws, etc., for pulp and paper manufacture.

The laboratory is restricted in its investigations to a study of the best means of utilizing our forests and forest products, so that little work has been done on the pulping of these plant fibres. From general experience, however, it is believed that these various fibres are not economical for pulping under present American conditions, as they offer the following difficulties in handling :

1.—Plant stalks, straws, grasses, etc., usually contain a large percentage of pitch, giving pulps low in fibre content and requiring high chemical consumption.

2.—Material of this type represents seasonal crops, so that facilities must be provded for the storage of a large volume of the stock in order to permit the paper mill to operate throughout the year. The susceptibility of such material to decay adds greatly to the costs and difficulties of storage.

3.—Due to the bulkiness of these materials, the digester charge is reduced, thereby reducing the yield and increasing overhead costs proportionately.

Some of these fibres, such as the straws, are being pulped at the present time for use in the manufacture of corrugated board and cheaper board products. Pulp of this nature, however, does not compare with a refined pulp such as sulphite or rag stock; it can be used only for special purposes and not in the manufacture of news-print or high-grade paper. Plant fibres of this nature are being reduced commercially in Europe where economic conditions and the scarcity of wood permit their utilization. But under present American conditions, it is believed that such fibres can not compete commercially with wood pulp.

PULP AND PAPER NEWS

The weekly newspaper publishers and job printers of Oxford County and district have organized what will be known as the Oxford District Press Association, with H. S. Johnston of Tillsonburg as President.

The Waterous Engine Works Co., Limited, of Brantford, Ont., have received an order from the J. R. Booth Company for one of the company's standard barking drums which will shortly be installed.

The Ontario Newspapers Corporation, Limited, has been organized and granted incorporation by the Ontario Government. The charter authorizes the company to carry on the business of newspaper proprietors with an authorized capital of $300,000 and head office Toronto. The provisional directors are R. W. Hart, C. H. C. Leggott and E. Fitzsimmons.

Mr. George Carruthers, President of the Interlake Tissue Mills, Limited, Toronto, was one of the speakers at the annual plant dinner of the Abitibi Power and Paper Co., Limited, at Iroquois Falls, on Oct. 9th last. Mr. Carruthers spoke on the financial aspect of education as a reason why a man should increase his earning power and why he should fit in with, and cooperate in, the administration of a mill. The gathering, which has largely attended, was an enjoyable one and the addresses given were instructive and entertaining.

Paper circles in Ontario regretted to learn this week of the death of Mr. Charles E. Warwick, secretary-treasurer of the wholesale stationery manufacturing firm of Messrs. Warwick Bros. & Rutter, Toronto. For the past five years the late Mr. Warwick had been suffering from Bright's disease and two years ago he was compelled to abandon a hitherto active business career. Born in Woodstock, Ont., 56 years ago, Mr. Warwick entered the wholesale stationery business when his father founded the firm bearing his name. He had for many years been prominent in mercantile circles in Toronto. A widow, three sons and one daughter survive.

The current number of the Canada Gazette contains notice of the incorporation of the Dryden Paper Company, Limited, with a capital stock of not less than $500,000 and chief place of business Montreal. The company is authorized to carry on in all its branches a lumber, pulpwood and paper business and the incorporators are E. Languedoc, C. Sinclair, S. G. Dixon, R. E. Allan and William Taylor, all of Montreal.

Mr. John G. Sutherland, President, and Mr. W. L. Bird, General Manager of the Fort William Paper Co. were in Toronto this week conferring with Lieut. Col. Gibson. Mr. Sutherland reported that construction work was proceeding satisfactorily on the ground wood mill but that labor conditions were not all that could be desired.

Mr. R. T. Houck, sales manager of the George H. Mead Co., Limited, Dayton, Ohio, was a visitor at the Toronto office of the company this week.

Mr. George Brian, representing the Paper Makers' Chemical Company, of Easton, Penn., was calling on the Toronto trade during the past week.

The work of installing the 140 inch trim machine in the Interlake Tissue Mills at Thorold is proceeding satisfactorily. When completed the machine will be the largest of the kind in the world. The company will manufacture flat tissue towels along with their other specialties and a cheaper grade of toilet paper will also be turned out to meet competition in a similar line from across the border.

The ratepayers of Fort William were very nearly unanimous this week in passing the by-law granting special privileges to the Fort William Paper Company which is erecting a pulp and paper mill in that city.

With the opening of a branch factory at Kingston, Ont., for the manufacture of paper boxes and confectioners' paper goods, the F. W. Fisher Company, Limited, has added another healthy industry to that city, giving employment to a large number of men and young women. The company's parent plant in Toronto is working to capacity.

After over 39 years service with the Toronto Globe, Mr. W. Pitman Morse, Treasurer of the newspaper, has resigned to enjoy a rest. On the occasion of his retirement the staff presented Mr. Morse with a sterling silver table set and officials of the staff testified to his long and faithful service with the company. Mr. Morse joined the business staff of the Globe in 1881 shortly after the assassination of Hon. George Brown and has been in the service of the company almost continuously since that time.

THREE RIVERS PULP AND PAPER CO.

Having successfully mined gold in Ontario, the Hollinger Gold Mines shareholders are entering the pulp and paper field through the organization of the Three Rivers Pulp & Paper Co. Ltd., whose shares are first offered to holders of the mining stock. Noah A. Timmins is president of both companies.

With the preferred, which carries a dividend of 8 per cent and is both accumulative and participating, there goes a bonus of common stock, share for share. If there is any balance of the $4,000,000 of preferred shares that are not taken up by the shareholders of the mining company, there will be a public offering.

Backing up the mill proposition, the company has secured timber limits of 787 square miles, containing some 4,000,000 cords of spruce and balsam pulpwood. These limits are considered ample for a fifty-year supply for a mill of double the initial capacity of this, that is, 100 tons a day or 30,000 tons per annum.

Associated with the Hollinger group in this new concern are the lumber interests of John Breakey, Limited, the president of which, Denaston Breakey states that the estimates of lumber and pulpwood are correct and conservative, and that in his opinion the operations of this company will be equally as successful as those of other operating companies. A group of British capitalists interested in the paper industry have subscribed for $400,000 of the preferred shares, and are negotiating for a contract covering their entire requirements of pulp, some 40 tons a day, at prevailing

market prices, subject to monthly revisions. These, later, may erect a paper mill on the same site.

In figuring out the element of profits the company has taken as a basis of price $80 a ton, allowing for a readjustment from the present price that runs around $130 a ton. On this basis the profits for a year would be about $1,500,000 on the output of 30,000 tons, or over four times the requirements of the preferred dividends of $320,000, leaving a substantial amount available for common stock.

This is much more conservative than some recent predictions of new company profits and apparently places manufacturing costs at $30 a ton, which is probably not far off.

It is recalled that the Breakey people were recently reported as intending to manufacture pulp.

The directors and officials are well known mining, lumber and steel men and the superintendent of construction and operation is J. J. O'Sullivan, formerly with Geo. F. Hardy, the Northcliffe Mills and the Laurentide Company.

RIORDONS HONOR STEVENSON.



T. J. STEVENSON.

On the occasion of his return from an extensive European business trip, T. J. Stevenson, manager of the Riordon Sales Company, Limited, was the guest of honor at a dinner given in the Old Colony Club, Windsor Hotel, by his associates in the Riordon Company.

Carl Riordon, Geo. E. Challes and other executives of the company, as well as the entire staff directly associated with Mr. Stevenson, joined in the reunion.

During his travels, Mr. Stevenson has visited the United Kingdom, France, Belgium, Switzerland, Holland, Spain, Italy, Germany, Norway and Sweden, and he spoke in a most interesting way of present European conditions, with which his recent experiences have made him thoroughly familiar.

"The man who had his arm broken in two places, should stay away from those places," says the Safety League.

TO MAKE PAPER MACHINES AT PORT ARTHUR.

Mr. P. G. Chace, vice president of the Port Arthur Shipbuilding Company, announced last week the new policy of the Company in connection with the manufacture of pulp and paper machinery.

The Company will go into the manufacture of all classes of grinders, wet-machines, chippers, digesters and heavy paper making machines. The Reliance Mill and Trading Company, of New York, will handle the sales for the Company.

Mr. Chace made the following statement to the Port-Arthur News-Chronicle:

"In view of the pulp and paper business making such favorable progress at the Head of the Lakes, and with the resources in the way of wood behind this production, we believe that the time is now opportune to enter into the manufacture of pulp and paper making machinery.

"In arriving at this decision, we have been prompted and guided by some of the most successful leaders in the pulp and paper industry, and through their assistance, we were able to secure the services of probably the best known and ablest engineers and designers in North America.

"The acreage, floor space in our shops, and facilities in the way of equipment, as contained in our plant, are most favorable for the manufacture of the heavy and complicated types of machinery and equipment necessary for the successful manufacture of pulp and paper. In addition to our present foundry facilities, which include the casting of iron and brass, we have now under consideration and hope soon to start the installation of an electric steel furnace of ample capacity to not only supply our own needs, but the requirements of the surrounding country as well.

"With the opportunity at hand and the amount of business already assured us, our organization will be increased six hundred to a thousand men within a year's time. The type of labor required for this work is of the highest skilled class.

"A similar instance of just such a condition as ours is recalled by reference to one of the largest shipbuilding companies on the Atlantic coast, located in the United States, who, a number of years ago, decided to enter into the manufacture of pulp and paper machinery as a side issue to their enormous shipbuilding program, and this company today is probably the best known and largest manufacturer of high grade paper machinery in the world. The organization required on that work has doubled that required for the shipbuilding industry in their plant within a few short years.

THE WISCONSIN STATE BOARD OF HEALTH SAYS:

The venereal diseases, primarily, are due to a double standard of morals. No man should demand more of a woman than he is willing to give in return.

"If very man were straight, there would be no such thing as prostitution; there would be no loose women if there were no loose men."

"If every man were straight, very few children would be born blind."

"If every man were straight, there would be fewer children born diseased."

"If every man were straight, there would not be nearly so many babies born dead."

"If every man were straight, there would be fewer childless homes."

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Oct. 16.—Although there has been a distinct falling off in the demand for some lines of paper in sympathy with the skidding of prices in other commodities the Canadian paper trade stands out as the one line of commercial activity in which entire confidence is expressed for the future. Prices have not only remained firm in practically all lines but there are those who predict that the upward trend has not yet ceased. Newsprint, for instance, is expected to go to 7½c. in the first quarter of the new year and there may be increases in other lines which may well be said to have reached their peak. The lessened demand for paper is found only in the consuming end of the trade an dthere is a noticeable hesitancy on the part of the printer to stock up. But the jobbers are still out after all the paper they can get and in most lines, notably book, they are unable to get their full wants supplied from the mills, which are still months behind with orders. The opinion is freely expressed in the trade that history is going to repeat itself in the paper industry and that the present period of hesitancy in buying on the part of the consuming public will be followed by a revival when it is discovered that stocks are low and under-production still exists. It will be recalled that early in 1919 trade was bad and paper jobbers had great difficulty in disposing of their stocks. Consumers held off buying on the falling market until they found themselves without supplies. Buying on a bigger scale than ever quickly set in and the trade came back to normal, to be followed by an unprecedented prosperity which has existed up to the present time. The situation at the moment is that while the printers are not stocking up, the jobbers have comparatively little coming along and there are enough orders on the books at the mills to keep the machines running for months yet. Taken all in all the paper trade does not appear to give any cause for worry as to its future.

BOOK PAPERS.—Jobbers report that while shipments are not coming through any more freely from the mills, there is a distinct falling off in enquiries for stock. There is a disposition on the part of the printer to hold back and not endeavor to stock up. Heretofore the printer would buy anything in the paper line he could get his hands on, and particularly book paper. His attitude, however, has changed within the past week or two and he is now buying little more than will meet his immediate requirements. Nevertheless there appears to be little slackening off in the general demand for book papers and distributors report that business is good. None of them have any stocks to speak of on hand and with the mills booked ahead until the first of the year and after, there does not appear to be any prospect of a flooded book paper market for some time to come. A big under-production is still observable in the book paper market notwithstanding the fact that travellers are finding it a little harder to place orders, due, no doubt, to the psychological effect of tumbling prices in certain other commodities. Although a falling market in a number of other lines has characterized Canadian commerce, the only mark it has left on the paper trade is a slight hesitancy in buying, which is considered not an unmixed evil. Prices of book paper are keeping up, along with other paper lines, and it is not anticipated that they are coming down. A spirit of optimism pervades the book paper trade and jobbers do not anticipate a slump of any kind.

WRAPPING PAPERS.—Freer deliveries characterize the wrapping paper trade and although dealers could handle more stock if they could get it, the shortage of stock cry is not so insistent. Shipments are decidedly more liberal and the mills are beginning to advise the jobbers that if they don't want the tonnage promised they will dispose of it elsewhere. The demands on the jobbers' stocks have lessened somewhat and orders for ton lots have been replaced to some extent by half ton lots. There is no let-up, however, in the volume of business, and the trade is as prosperous as any in the paper trade. Prices remain firm and unchanged.

GLASSINE and GREASE PROOF.—The market in these commodities is firm and there is a well sustained demand for the products. The jobbers' price for glassine is 30c per pound for unbleached and 35c for bleached. Grease-proof is selling at 22c per pound for unbleached and 25c for bleached.

TISSUES AND TOILETS.—Difficulties in securing raw stock and the high prices thereof continue to hamper the tissue and toilet paper manufacturers although the market is firm and the prices unchanged. Canadian makers of toilet papers are beginning to be up against some slight competition from American makers who are sending in some lower priced toilet paper of an inferior quality, although the buyer is getting no better value for his money and the American competition that has so far developed is not considered formidable. The demand for all light-weight papers is well sustained but manufacturers report a great shortage of bleached sulphite pulp which is almost impossible to get.

KRAFT PAPER AND MANILAS.—Kraft mills, while still three months behind, report a slight falling off in demand, although they are still experiencing considerable difficulty in filling orders owing to the calls for tonnage which cannot be supplied in satisfying quantities. The lessening in demand, so far, is only on the part of the consumer and as yet has not affected the manufacturer. Whether this condition will eventually react on the mills it is not safe to predict in these days of falling prices, but at the present moment there appears to be no cause for uneasiness. Under-production is still very marked and there are no signs of future price-reductions. At the present time there is no manila on the market and if there were it would be valued higher than kraft which is now 13c a pound. Kraft pulp is quoted at from $150 to $155 a ton.

RAG AND PAPER STOCK.—The rag and paper stock market is extremely dull. The market in all the lower grades of paper is purely nominal and it is one in which only the buyers figure. The only hope of any immediate change for the better in prices is a

favorable settlement of the strike among the sorters in New York. Shavings and white papers are firm but there is no demand for books and the white paper market is in a moribund condition. New cotton cuttings are keeping up with a tendency to lower prices and old rags are following along the line of old papers. As one of the Toronto dealers put it. "The mills are now coming into their own."

Following are quotations on rag and paper stock :

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$23.00—$24.00
No. 1 unbleached cotton cuttings	$17.50—$18.00
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$13.50—$14.00
City thirds and blues (repacked)	$3.75—$4.00
Flocks and satinettes	$1.75—$2.00
Tailor rags	$1.50—$1.65
Gunny bagging	$1.75—$2.00
Manila rope	$5.25—$5.50
No. 1 white envelope cuttings	$8.50—$9.00
No. 1 soft white shavings	$7.50—$8.00
White blanks	$5.50—$6.00
Heavy ledger stock	$3.75—$4.00
No. 1 magazine	$3.00—$3.10
No. 1 book stock	$2.65—$2.75
No. 1 manila cuttings	$5.50—$5.75
No. 1 print manila	$2.40—$2.50
Folded news	$2.24—$2.30
Over issue, news	$2.50—$2.75
Kraft	$5.50—$6.00
No. 1 clean and mixed papers	$1.75—$1.90

NEW YORK MARKETS.

New York, October 16—(Special Correspondence)—There is little change to report in the paper market and no feature of prominence. Demand continues narrow in comparison with that existing not long ago, consumers at present limiting their buying almost solely to supplies immediately needed. The market has not weakened further, however, as regards prices. Manufacturers as a general thing still have a large volume of unfilled orders on file and are running their plants at maximum or close to full capacity in completing these commitments. No one is cutting prices to any material extent. There are cases that crop up from time to time where this or that manufacturer or jobber has reduced quotations a bit to move a certain lot of paper, but prices on the whole are being maintained at pretty firm levels. Buyers are not operating in the paper market for the same reasons they are keeping out of other commodities; namely, that they have come to the conclusion that a period of slow operations will make for better business conditions in general and act to stabilize values on proper levels.

Developments have effected a decided change in one end of the paper industry, and that is in raw material. Paper manufacturers are pursuing very much the same policy in their buying of raw stock as are consumers of finished paper in their current buying of the product of the paper mill. Demand for all kinds of papermaking material has continued to ease until it is very close to a standstill now. Papermakers apparently are making sure that in the event of a decline in paper prices they will not be obliged to suffer heavy losses on large stocks of raw material. The policy followed by the average paper manufacturer at present is to use up such raw material as he has on hand, liquidating stocks to as low levels as it is wise to do so and to keep from purchasing fresh supplies until the need for them is pressing. This has resulted in most mills remaining very much out of the market for wood pulp, rags, old papers, rope, bagging, etc., and the markets for these commodities have developed an exceedingly quiet tone. That mills will soon appear again as buyers goes without saying, for reserve stocks of raw material cannot last indefinitely, but at the moment there is but a slight call emanating from consuming quarters and those few buyers actually operating are managing to get supplies at attractive prices—prices which in numerous instances represent sharp recessions from the levels prevailing only a short time ago.

The newsprint market retains its steady tone with no change in quotations noted. Spot lots of print paper in standard rolls are selling at from 10 cents a pound upward, with occasionally a purchase reported by some publisher at 9.75 cents. The contract basis is maintained at 6.50 cents, but there is talk in the trade concerning pending important developments in this connection in the near future. What these developments are to be is a question regarding which no one will commit himself, but according to the gossip, it is probable a reduction in price by some of the leading producers will be made.

Book papers are firm in price and are moving into consuming channels in a consistent way. There is no semblance of easiness in quotations, and available supplies show no signs of becoming larger. In fact, buyers seeking extra tonnages of book papers are meeting with little success; mills in general being sold up for some time and having but odd lots of paper to dispose of. The coarse paper market rules steady although demand is a good deal slower than it has been in a long time. Consumers of wrapping and tissue papers evidently are making their contract supplies do them at present without the necessity of placing additional orders.

The board market is a little easier. Due to a sharp decline in waste paper costs, some mills are accepting orders for board at slightly lower prices, sales of news board at $115 a ton and of plain chip board at $105 having been recorded. There are no indications of any severe break in board values, however, and the probabilities of such a happening seem slim while mills still have the amount of unfilled business on their books that they now have.

GROUND WOOD—The ground wood market is moving along in an even and peaceful state without much occurring to disturb its surface. Demand is largely confined to spot tonnages of pulp needed by consumers for immediate use, and yet there is sufficient buying to sustain prices at a quotable range of $125 to $130 per ton at producing mills for spruce ground wood of prime quality. There are no signs of available supplies increasing and mills are said to have little output to reserve for winter use, thus indicating that consumers are taking the great bulk of the present production. Everyone is bullish con-



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cerning ground wood, at least everyone on the selling end of the commodity. It is generally felt that with grinders having little surplus stored up that the winter will see higher pdices unless the paper situation reaches a point where the consumption of mechanical pulp drops far below prevailing tonnages.

CHEMICAL PULP—About the only feature in chemical wood pulp is the continued arrival of fairly large supplies from Scandinavia. Several heavy shipments have reached New York this week, and it can be said there is more imported pulp being offered in the market than in a long time. Prices in general are holding moderately steady. Sulphite shows no recession and is at best difficult to procure in sizable amounts, which also holds true of soda pulp. Kraft is the easiest grade and is being offered at reduced prices, Scandinavian kraft of good quality being available at 7.25 cents a pound and less and domestic kraft at 6.50 cents.

Arrivals of foreign pulp at the port of New York this week included 15,178 bales from Sundsvall, 850 bales from Gothenburg, 596 bales from Osaka, and 700 tons from Haugesund.

RAGS—There is little life to the rag market and prices on old rags continue to sag. Sales of roofing rags have been recorded at as low as 1.70 cents a pound at shipping points, and reports have averred that some mills have bought at even lower figures. Old thirds and blues are offered at 4.25 to 4.50 cents for repacked stock and old whites at 13 cents for No. 1 repacked material. New cuttings are holding their own and buyers find it necessary to meet quoted prices to obtain such grades. A threatened strike of clothing makers is a sustaining factor in the new rag market, dealers being hesitant to sell for cheaper figures in the fear that production will be drastically curtailed by the strike of cutters.

Imports of foreign rags at New York during the current week included 453 bales from Rotterdam, 218 bales from London, and 250 bales from Oran.

PAPER STOCK—The market for old papers is in a very unsettled condition. Consuming mills for the most part have retired as buyers and are keeping almost entirely out of the market and prices are dropping with marked rapidity. Coupled with this, a strike has been instituted by collectors and handlers of old paper in New York City, who claim they are unable to operate at a profit under prevailing market prices and who therefore have stopped producing stock, presumably with a view of advancing prices. It is next to impossible to quote accurate prices. There is not enough business passing to establish values and about the only quotations obtainable are those named by dealers as asking figures from mills. Folded newspapers are to be had at 1.60 to 1.70 cents per pound f.o.b. New York and No. 1 mixed papers at 1.35 to 1.45 cents. Few mills evince a desire to buy even at these figures, however, and the probabilities are purchases can be effected at cheaper prices. Old books and magazines are going abegging at 2.75 cents at shipping points, while No. 1 old kraft paper is freely offered at 5.50 cents and white blank news cuttings at 5.75 cents.

OLD ROPE AND BAGGING—The market for old bagging is dormant and prices are mainly nominal at around 2.25 cents for No. 1 scrap bagging, 1.15 to 1.25 cents for roofing bagging and 2.75 cents for gunny. Old rope is steady and moving in fair quantity at 6 cents per pound at shipping points.

Receipts of foreign rope at New York this week included 49 bales from Rotterdam, 143 coils from Christiania, and 198 coils from Hull. There were no imports of bagging.

SAFETY WORK AND INDUSTRY.

To-day, accident prevention is the one non-controversial subject in industry as both employer and employee are interested in preventing accidents. Compensation costs are a big item in modern industry and yet both employer and employee would be better off if there were no accidents. Compensation at its best can never replace a limb lost nor can it bring back a life lost in industry. Manufacturers in England and the United States have come to realize the importance of accident prevention and are getting very substantial results by placing this feature of their work on a strictly economic basis.

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-:- EDITORIAL -:-

OUR FAMILY THANKSGIVING DINNER.

The Industrial and Educational Publishing Company, publishers of the Pulp & Paper Magazine and other technical journals moved from Montreal to Ste. Anne de Bellevue two years ago and established the Garden City Press. One of the fundamental ideals of the concern is to develop an organization that is an institution rather than a business. In harmony with this desire the company has bought land surrounding the new printing establishment and is developing what will one day be really a garden city. Comfortable cottages are being erected as rapidly as conditions permit and in company with the growing personnel of the plant.

Last year the President and General Manager, Mr. J. J. Harpell, conceived the idea of gathering the employees and some local friends of the company about the banquet table for a Thanksgiving Dinner. The event was such a success that it was repeated this year on a slightly larger scale and the staff from the branch plant at Toronto were invited to come down. Altogether about seventy partook of the menu and enjoyed the brief, earnest speeches.

The most striking one was the talk of the Hon. W. S. Fielding who responded to the toast to "Our Country". After dwelling on the fact that Canada is enjoying comparatively peaceful conditions while there is unfortunately so much distress and unrest throughout other parts of the world, he outlined some of the reasons for this happy state of affairs in the Dominion. Mr. Fielding's particular plea was for a greater realization of individual responsibility for maintaining our government, especially on the part of the young people who will soon be required to carry the burdens of their fathers. It is a time for serious thought and consideration as to whether there is the same sense of responsibility among the young people of today that the older generation, now passing, speak of as rather common in days gone by. Certain it is that the happy conditions that we enjoy today are in no small part due to the unselfish efforts of the public men who have so far guided the affairs of provincial and dominion governments.

It would be difficult, if it were possible, to find in Canada a man today who is better qualified to make such an appeal to the young people than is Mr. Fielding. For thirteen years the Premier of Nova Scotia, for fifteen years Finance Minister of the Dominion and latterly a prominent figure in the Dominion Parliament, his forty-three years of clean and self-sacrificing service to the people of Canada is an object lesson that would be difficult to duplicate in the world today. The publishers of the Pulp & Paper Magazine are proud of their association with Mr. Fielding who is editor of the Journal of Commerce which is also printed at the Garden City Press. His example should be an inspiration to all of those who have a desire to take an active part in parliamentary affairs as well as to us all, who should feel a greater sense of obligation and responsibility as to how we discharge the privileges of residence and citizenship in the Dominion.

EDUCATING PAPERMAKERS IN ENGLAND.

At the convention of the Technical Section of the British Papermakers Association which has just been held in England, Major J. E. Aitken read a paper on Technical Education in Paper Making which vigourously supports the work so extensively and courageously undertaken on this side by the Technical Section of the Canadian Pulp & Paper Association and our confrères across the line. Major Aitken cites an instance of a young man who was so desirous of improving his knowledge of the industry that he was willing to take two years in order to cover a single session course because he was employed on shift work and could attend classes only every other week. Ambition of that kind we believe is not exceedingly rare nor confined to England. There is a thirst for knowledge among papermakers as there is among those engaged in other industries. There is a realization on the part of many who are engaged in this industry that they have missed something. There may be a bit of jealousy, but we believe it is rather a feeling of disappointment in the minds and hearts of many that they were obliged to leave school or voluntarily left school at an age when others continued their studies and in later years find themselves handicapped by a lack of knowledge, often of a simple and elementary character. The editor realizes the position of the young man mentioned by Major Aitken as he one time found it necessary to attend a certain class and could attend only every other week (mornings after the night tour), because of the same reason, being engaged on shift work. This is a serious problem in educating the papermaker and one that affects relatively few industries.

Major Aitken suggests one method of overcoming the difficulty, by repeating the same lecture immediately. A Canadian mill is planning to accomplish the same

result by repeating the lesson two weeks in succession so that all who wish may get the full course. In addition to those who can attend such classes there are also a number who cannot do so and who are best provided for with regard to educational opportunities by providing correspondence courses. England already has some opportunities of this character and correspondence courses are well known in the United States and Canada.

One of the principal factors in the success of any educational work intended to benefit those employed in industry is the co-operation of the employer with the employee and the educational agency. Undoubtedly there is just a smuch ambition among our pulp and paper makers on this side for a better education as there is among British mills, even though some people think that the present day workman is interested only in the mill whistle and the pay envelope. There are unfortunately a large number of such employees and there always will be but we believe that as educational opportunities increase there will be fewer clock watchers and more quality watchers. It is gratifying that the Technical Section in the Old Country is interested in this coming problem which has engaged so much attention from the Technical Section in Canada.

THE SHAWINIGAN REVIEW.

Like the seed of corn that is planted, the Belgo-Bulletin has died that something bigger might come to life. So it happens that we have the Shawinigan Review, a weekly paper serving the social, industrial and civic interests of the people of Shawinigan Falls, P. Q. It is printed in French and English and covers the events of the city and its many industries. The old Bulletin served the one industry, the Belgo-Canadian Company, probably better than the Review, but there is a community spirit at the Falls and the new publication will be a big factor in uniting and promoting the interests of the people there. Besides items about the various plants, subjects of civil and social interest are included.

COBWEBS.

One of the most striking comparisons in the recent report on the exports of pulp and paper is the item relating to groundwood. In the month of August, 1919, the value of this item of export was a little over $475,750. During the same month in 1920 the value had risen to $2,800,000 or almost exactly six times. This increase in value was very largely due to a considerable increase in price but the quantity during the same period increased from 387,000 cwt. to 816,000 or a little more than double. The price is still well maintained and with new production coming on the market there is likely to be a continual increase in the value of this product even though there be some slight recession in the price per ton.

We understand that by using paper clothes one may have a new suit every week. From some things we hear, it looks as if one would have to.

Where provision has not already been made for the winter's coal supply, there is likely to be some scrambling before January. These brisk autumn days, with a touch of frost in the morning remind us of what is to come.

One frequently hears a man say that the world owes him a living. This is not so. The only thing the world owes a man or is under obligation to give him is an opportunity to earn a living. This means that industries are under obligation either to furnish continual employment with at least a living wage or to pay such wages for seasonal employment as will provide a fair average income for the whole year. The former is by far the better because of the moral effect of having continuous employment and a permanent residence Pulp and paper companies are constantly striving to organize in such way as to provide this type of employment. One of these days an employer will be required by law to do something of this kind.

IS YOUR OWN HOME SAFE?

Every year there are hundreds of citizens badly scalded by boiling water and year by year by the appalling total of children scalded to death grows. **Put all hot liquids out of reach of the babies.**

Gasoline fumes will explode when exposed to flames. Coal oil poured on a burning fire has wrecked many homes. Gasoline should not be kept in the house and always keep it away from fire. If you think you must use a small cup and stand clear of the rush of flame.

Matches have a horrible fascination for children. Hundreds of fires have resulted from children playing with matches and many young lives have been suddenly snuffed out—because someone was careless with matches.

Someone has said "An upturned nail is a prong of evil." Keep your house and property free from broken glass and boards with nails in them. Blood poisoning and serious infections are often the result of stepping on nails or broken glass.

Keep all poisons out of reach of the children. Put a piece of tin in the cork of the bottle so you will know a poison bottle even in the dark. If you can, do not keep any poisons in the house.

Figures show that falls are responsible for more accidents and deaths than any other cause in the home. Keep your stairs, especially the cellar steps, clear of boxes, bottles and other material. Keep the steps in good repair. Keep dark halls free from obstructions that might trip someone. Train the children to put toys away instead of leaving them lying on the floor.

Nearly all of the cases of infection and blood-poisoning are caused by the neglect of small injuries. If you scratch or cut yourself use iodine to kill any possible infection. Iodine is cheap and efficient.

The children of the community are the responsibility of the fathers and mothers. Parents are morally obligated to make their homes safe and to teach safety to the children.

The Consumption of Power in Beating

By W. B. Campbell, Process Engineers, Limited, Montreal

The economical use of power in the beating process is a subject which has received slight attention in American paper mills. Very few plants are equipped so as to be able to measure accurately the power consumed under various conditions. In the majority of cases power is provided for maximum requirements and the beater is operated to produce the result desired, regardless of whether this is obtained with a large or a small expenditure of horsepower-hours. The facility with which the action of the beater may be modified to produce different results and the skill which an experienced beater man displays in adapting his procedure to the pulps provided for him and to the product desired, also tend to discourage any accurate study of the reactions. Whether to work with a light furnish and high circulation speed or with a heavy furnish and correspondingly low circulation speed are matters usually decided by the beater man in the light of his particular experience, rather than by an exact knowledge of the power consumption in the various alternatives. With the present lack of data this condition is likely to persist for some time, since no hard and fast rules should be laid down before they are proved. This, however, should not be a bar to utilizing the information actually at hand.

Up the present, progress in beater design has been slow on account of this lack of knowledge of the fundamental factors involved. Such progress as has been made is due largely to the instinctive feelings for what is right rather than to calculate improvements. Naturally many of the changes brought about in this way have proved by experience to be of no advantage and in such cases they have disappeared in the course of time. When the changes showed good results they have been retained. It is out of the accumulated experience of these things which have been tried and have been proved or disproved by practical working that there has come to be a certain general conception of what is desirable in a beater. Rapid circulation and heavy furnishes are generally considered advantageous although it is doubtful whether many papermen could back up their opinion by logical arguments. In the same way the circumferential speed of beater rolls has become practically standardized at from 2000 feet to 2300 feet per minute. Although these things are difficult to prove they are nevertheless the result of sound experience accumulated over many years, and at the cost of many experiments and mistakes.

While the fact is recorded in several places in the literature, it is probable that many paper makers will be surprised to learn that, other things being equal, **the power required by a beater is greater when filled with water only or with a light furnish than it is with with a heavier furnish.** Even so experienced and able an investigator as Beadle was surprised at this and notes it as very curious though without finding adequate explanation. As will be seen later, however, the reason is quite simple and like many other mysteries, it is a mystery only so long as some of the factors are unknown.

Let us consider where the power for the beater is used. In the first place, a portion of it is necessarily absorbed by friction in the bearings. The next and the greatest portion of the power is absorbed between the beater roll and the bed-plate or perhaps it would be more correct to say between the beater roll and the stock passing under it, since, unless the roll is down extremely hard, it does not really touch the bed-plate; otherwise there would be no rubbing action on the fibres. It is this part of the power which does the real productive work in the beater. The third portion of the power is used in accelerating the stock and water from the very low velocity with which it moves in the tub to the circumferential velocity of the roll. This portion of the power has received little attention from most investigators and, indeed so far as articles published in America are concerned, only those by Schlick mention it at all. In addition to these three main uses, power is also wasted, to some extent, in the churning of the stock in the immediate neighborhood of the roll and also in elevating it from the level in front of the roll to the level behind the roll. Comparatively speaking, however, the power consumed in these latter ways is very small and, until greater refinements are reached in our other calculations, it may be neglected.

Since the power consumed in journal friction is a matter of mechanical engineering only, we may leave it out of consideration in this paper and devote our attention entirely to the uses of power in the beater itself.

With regard to the power consumed between the roll and the stock and between the stock and the bed plate it may seem at first that this power will increase as the consistency of the stock increases. It is doubtful whether this is a fact, at least within certain limits. In all cases where power is absorbed in friction the amount of power consumed varies directly with the pressure between the two surfaces in sliding contact. For every two surfaces there is a co-efficient of friction by which this pressure must be multiplied to obtain the measure of the force which opposes motion. If the roll is rubbing against a layer of fibres, which in turn are rubbing against the bedplate, it will be seen, therefore, that the actual resistance produced here is dependent only on the nature and condition of the fibres and the pressure of the roll against them. It must be remembered, however, that in the case of a very thick furnish the pressure of the roll may be increased when the thickness of the furnish is increased, since a large amount of solid material will be drawn in between the roll and the bedplate, thus furnishing pressure which tends to raise the roll. On the other hand, the thick furnish, by providing more fibres to support the actual weight of the roll, decreases the amount of pressure on each fibre though leaving the total resistance unchanged. So far as the writer is aware no experiments have been made to determine the actual co-efficient of friction between different fibres, and the material of beater rolls and bedplates. Assumptions have been made by various experts but it is doubtful whether there is much authority for them. Until scientific data is accumulated on this point, we must content ourselves with the knowledge that the power in this portion of the beating is proportional to the circumferential speed of the roll and to the pressure between roll and bed-plate, multiplied by some co-efficient of friction, at present undetermined, but which is in the neighborhood of 0. 1.

We next come to the third portion of the power—that used in accelerating. As the stock approaches the roll it has a velocity of say 15 feet per minute or 0.25 feet per second. It has, therefore, stored up in it energy amounting to

$$(0.25)^2 \div 64 = 0.001 \text{ foot pounds}$$

for each pound of material, including both stock and water. As it leaves the roll it has the velocity of the roll face or about 35 feet per second. The energy stored in it per pound of material is then $(35)^2 \div 64 = 19.14$ foot pounds. The first figure is so low that it may be neglected without serious error and we may consider that for each pound of material passing the roll 19.14 foot pounds of energy must be added. In a beater having a tub at 15 square feet cross section area and a velocity of circulation of 15 feet per minute, the amount of material passing the roll per second is $15 \times 15 \div 60 \times 62.5 = 234.4$ lb.*. The H. P. required for this is $234.4 \times 19.14 \div 550 = 8.15$ H.P.

If the speed of circulation is doubled by reducing the consistency or by other means, this power is also doubled since the amount of material to be accelerated per second is increased to twice the quantity. The power required for the acceleration becomes then 16.3 H.P. It will be seen that this is the explanation of the fact mentioned above, that a beater full of water or with a charge of low consistency consumes more power than one with a heavy furnish since the circulation speed is much greater. This phenomenon is much more marked when the beater is on a light brush than when the roll is down hard. When the beater is on a light brush nearly all the power is consumed in this acceleration, whereas when the roll is down hard a great deal of power is used between the roll and the bedplate and the difference due to acceleration, although the same as before in actual H. P. is a much smaller proportion of the total power supplied to the beater.

The actual beating effect is due almost entirely to the action under the roll and, with the same consistency, when the circulation is doubled naturally the beating time will be cut in two since there is double the quantity of material passing under the roll per minute. From this it will be evident that any change in beater design which enables the circulation to be doubled, will cut the beating time in two at a cost of power equal to that originally used for acceleration alone. If the total power supplied to the beater in the first place amounted to 50 H.P., of which 10 H.P. was used in acceleration and the beating time consumed four hours, the total H. P. hours for a charge would amount to 200. With four times the circulation speed the power required would be 90 H.P., and the beating time would be 1 hour. The total consumption of power for a charge would then be 90 H.P. hours, a saving in power of 55 per cent. due entirely to improved beater design.

If the assumptions made in connection with the power absorbed between the roll and the bedplate are correct it is immaterial what consistency of stock is fed to the beater and the power required for this portion of the work will depend only on the pressure between the roll and the bedplate. This pressure, of course, may be greater if the consistency is very high, on account of the fact that much solid material will be passing under it and will tend to press the roll upward. High consistency brings with it another factor which is important although not at present susceptible of mathematical treatment. When stock of high consistency is agitated, even without any roll and bedplate, it becomes hydrated by the friction of the fibres on each other and we have then a certain amount of beating which takes place along the entire trough. This fact has been realized by beater men for a long time and is really the basis for their practise of running a beater at as high a consistency as possible, especially when making greaseproof and other papers where hydration is important. Moreover, if circulation speed is constant and consistency is doubled the capacity of the beater is also doubled.

It will be noted that the above conclusions take no account of the particular kind of beating desired. It is immaterial whether the stock is to be beaten in such a way as simply to cut the fibres or both to cut and hydrate or simply to hydrate. The considerations apply to all cases and lead to the conclusion that in the design of a beater from the point of view of power efficiency the shaping of the tub so as to secure as great a circulation as possible is of greatest importance. Designing the beater for use on a particular stock is another matter and is concerned chiefly with the material and proportion of the beating surface. For instance, if blotting paper is to be made, the beater bars and bedplate should be sharp, with as small a surface as is consistent with strength. If more rubbing action is desired, so as to increase the proportion of hydration effect, the bars should have more surface and should be dull. If the rubbing action is to be carried to an extreme, a wide rough surface such as is provided by basalt lava should be used.

For the most part very little attention has been paid to the design of the beater tubs in America and it is not out of place to suggest briefly the lines along which improvements can be effected. In the ordinary beater tub the circulation is secured by the roll raising stock to the height of the backfall in order to provide a head which in turn causes the stock to flow around the tub. In most cases this head amounts to approximately half the diameter of the roll. By carrying stock higher up and delivering it over the top of the roll, as is done in the old Horne beater and the new Rabus beater, the head is doubled and moreover the velocity which has been added to the stock, at the cost of acceleration horse power, is turned in the direction in which the stock is intended to flow. Again, in ordinary beater tubs the stock flows down one side of the beater, makes a sharp turn at the end and flows back on the opposite side. The frictional resistance of the trough in this case is extremely high, not only because the cross section is of a shape poorly designed for the easy flow of the liquid, but the sharp turn at the end impedes the flow tremendously.

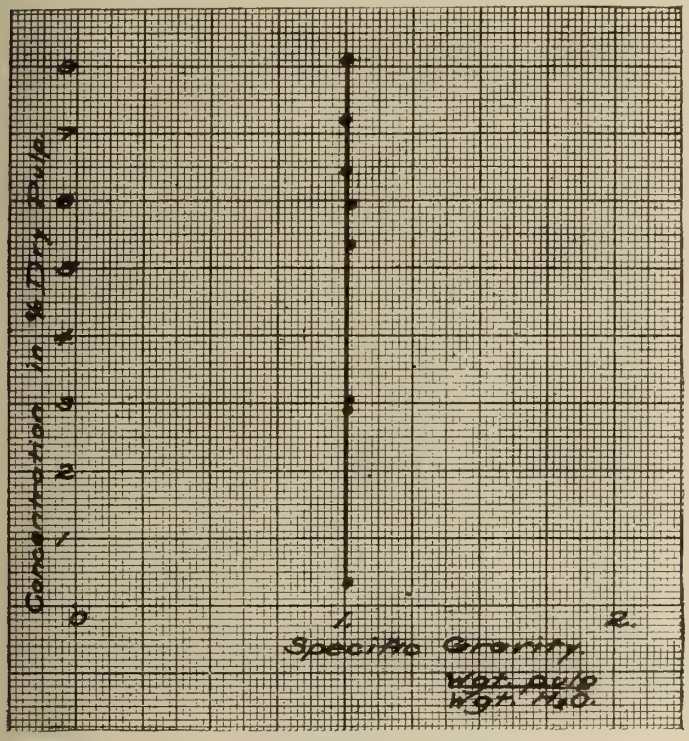
By making a trough with a cross section more nearly approaching a semi-circle and of an outline with easy curves we may expect a vast increase in the speed with which the stock circulates and a corresponding increase in the all round power efficiency of the beater.

* See note in next column showing relations of weight and concentrations.—Ed.

THE SPECIFIC GRAVITY OF PAPER PULP.

About six years ago the Editor read a statement in a magazine wihch intimated that a cubic foot of stock in the beater weighs 50 pounds. Landolt and Bornstein tables give most fibres a specific gravity of about 1.5. The two statements do not agree. With the assistance of Mr. A. O. Bragg, then a senior student at the University of Maine, a simple investigation was carried out. A 2-liter Erlenmeyer flask was filled with bleached sul-

phite pulp which had been slightly beaten, and from which some water had been squeezed out in the hand. Air bubbles were eliminated as far as possible with a stirring rod. The net weight was found and the specific gravity calculated from the weight of an equal volume of water, both pulp and water being of the same temperature. The percentage of bone-dry fibre was determined by placing a small sample of the stock in flask, about 20 cc, in a small beaker, weighing carefully, drying thoroughly, and again weighing. About half the stock in the flask was then discarded, the volume made up with water, and the process repeated. This was done several times and the results plotted to show specific gravity as related to content of bone-dry fibre, which the chart will show.



The airing of this bit of work is suggested by the fact that W. B. campbell, in his interesting article on the power used in beating, uses 62.5 lb. as the weight of a cubic foot of stock. This we agree with for straight pulp, but believe it would be different, may be 65 lbs. or more, if the paper is sized and loaded or if very thick stock is beaten till all air is removed. Perhaps some readers have other data or opinions on these matters.

CHANCE FOR CANADA IN INDIA.

Mr. F. P. Scharsmidt, Canadian Trade Commissioner to India and Ceylon, says, in the Weekly Bulletin, of the Department:

There is a pressing need in India for paper and fibre boxes, and at the present time Japan enjoys almost a monopoly. Prices of boxes have increased from 300 to 400 per cent and Canadian manufacturers would do well to look into the possibilities of this market.

Owing to the conditions above described in connection with tea and rubber boxes, I can see no reason why the introduction of wood fibre boxes into India would not prove successful. Manufacturers contemplating the introduction of fibre products into India for the tea packers must bear in mind that the same must be odorless, but this does not apply to rubber containers.

United States Notes

Mr. H. W. Welsh, former manager in Sherbrooke, Que. for the E. & T. Fairbanks & Co. Limited, and latterly manager of the Scale Department of the Canandian Fairbanks Morse Co. Limited, Montreal, Que., has joined the organization of the MacKinnon Steel Co. Limited, Sherbrooke, Que., as Manager, and has already assumed his duties.

The McKinnon Steel Co., Limited, of Sherbrooke, Que., have been awarded contracts for structural steelwork in connection with the large extensions which the Brompton Pulp & Paper Co., of East Angus, Que., are making to their plant, and at present are busily engaged in the fabrication of steelwork for Grinder Room, New Boiler House Extension, Sulphite Mill Boiler House, etc.

The office of the Technical Association of the Pulp & Paper Industry has been moved from 18 East 41st Street, New York City, to 542 Fifth Avenue.

After spending about 18 months with the Federal Trade Commission, at Washington, D.C., M. L. Smith has just become associated with the News Print Service Bureau, with headquarters in New York City.

The Penobscot Chemical Fibre Company is planning some extensive improvements at its Great Works, Me. mill. Among them are a new digester house and blow pit room. It is estimated that this addition will cost in the neighborhood of $100,000.

A news report from the New York State College of Forestry at Syracuse states that the course in paper making has become so popular that it has been found necessary to limit it to the sophomore and higher classes.

The work new sulphite mill and wood room of the Consolidated Water Power and Paper Company, which was started the early part of this year, is nearing completion. The engineering department of the company has announced that operations on both will begin the first part of November.

According to a news dispatch from Appleton, Wis., the Fox River Paper Company is making many improvements to the mill at Telulah, which was purchased from the Kimberly-Clark company recently. It is planned to have the mill in good running order for the manufacture of writing papers by the first of the year, when it will be formerly transferred to the new owners.

The Giant Paper Products Corporation has just been chartered at Wilmington, Del. The company has a capital of $1,500,000 and will engage in the manufacture of paper and paper products.

Another incorporation recorded during the interval is that of the West Dudley Paper Company at Pawtucket, R. I. This concern has a capital of $500,000 and will engage in a general paper and pulp business. The incorporators are: L. P. Emerson, Lowell Emerson and J. C. Knowles.

The meeting of the American Paper and Pulp Association, scheduled for November 12, at the Congress Hotel, Chicago is creating considerable interest among the wood pulp members, as it will deal in part with the logging methods, reforestation, purchase of pulp wood lands and taxation of same.

Plan great things if you would be successful, but remember that mere planning accomplishes little. It is the action that produces results.

THE ONLY PRACTICAL REMEDY FOR OUR DISAPPEARING FORESTS.

Editor Pulp and Paper Magazine.

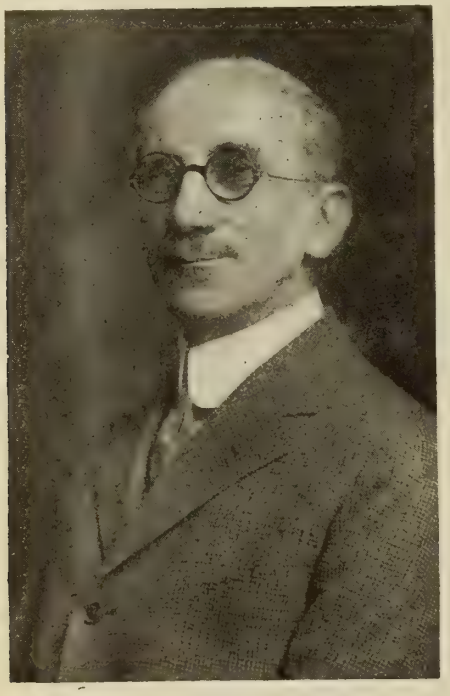
The International Paper Company, in a recent advertisement in the "American Forestry", states:—"If the Canadian forests held by leases which convey all rights of property to the timber, could now be regulated, and scientifically protected and operated as are the company's forests in the United States, there is ample authority for an annual increment of at least four per cent."

In the first place it would be interesting to know of any lands in the United States or Canada, either owned by the International Paper Company or any one else, that are producing a net annual increment of four per cent.

Secondly, if the International Paper Company is practising scientific forestry methods on its lands in the United States, it also would be interesting to know where.

The only practical forestry and the only way we can save the remnants of the once magnificent forests that covered this continent, is:

(1) By immediately reducing the present cut at least one-half.
(2) By greatly increased fire protection.
(3) By improved and less wasteful logging methods.
(4) By planting at least six seedlings for every tree



FRANK J. D. BARNJUM.

cut or otherwise destroyed (as not more than one tree out of six planted ever reaches maturity).

To show the fallacy of the statement of the International Paper Company, it is clear that if there had been a net annual increment of even one-half of one per cent, on this continent (instead of an annual growth of four per cent, as claimed) there would be more timber standing to-day than there was one hundred years ago.

It must be borne in mind that even if we reduced the present volume of the cut one-half and began planting, not millions but billions of seedlings, it would entail a wait of at least fifty to seventy-five years for the maturity of the crop, while the best authorities we have in the country state that the present supply of timber in the East will be exhausted within a period of twenty-five years.

Therefore, all this idle talk about supplying our mills in perpetuity by improved forestry methods is simply pure bunkum, unless we reduce our cut, at once, at least to one-half the present amount.

This applies with double force to Canada, due to the fact that fire has done and is doing a far greater damage than in the United States, and from the added fact that a large portion of our wood growth is so far north that it is too small, too scrubby and too inaccessible to be available as a pulp wood supply, and also from the fact that it is acknowledged that the standing supply of timber in Canada is only about one-fourth of the amount still remaining in the United States, small as their supply now is.

The thought which I wish to bring out prominently is that, even if we, at once, begin planting six trees for every tree cut or destroyed, it will take fifty to seventy-five years for the new crop. Hence, it is necessary, immediately, to reduce our cut, at least one-half in order to make our remaining supply hold out till the new crop matures.

The above conclusion is based on the claim of the best authorities that we have a twenty-five year supply in the East. On the other hand, if my own opinion is correct that this supply will last not more than fifteen years, then the gap between the end of the present supply and the maturity of the new crop will be correspondingly greater.

In addition to the fire loss, the loss that is being caused through the ravages of the Spruce Bud Worm and other enemies of our forests, is simply appalling; in fact at the present time, and during the last three of four years, it has amounted to more than our loss from fire and wind.

The International Paper Company states in their advertisement that they have holdings amounting to 4,500,000 acres that will average five cords per acre; but they fail to state the fact that of these holdings only in the vicinity of 750,000 acres are in the United States, and even conceding their own figure of five cords per acre, and their consumption of 700,000 cords per year, this would only give them sufficient to supply their American mills for a period of five years.

Small wonder there was frantic appeal for the passage of the Underwood Resolutions.

FRANK J. D. BARNJUM,

Annapolis Royal, N.S., Oct. 9, 1920.

Editor's note:—It is very gratifying to learn that American paper companies are making efforts to make their forests productive as mentioned here. The International will soon be making pulp and paper in Canada from Canadian wood and their good exemple in scientific forestry and lumbering will be a great help in forwarding the cause on this side of the line.

TO CARRY PULPWOOD

It is announced by the St. John, N.B. office of the Canadian Government Merchant Marine that the steamer Canadian Sailor will be put on a regular service between this city and Portland, Me., carrying pulpwood. It was said that the Canadian pulpwood cannot be sent into the United States in Canadian cars and foreign cars cannot be obtained, so recourse is had to the water route. It is expected that large shipmets will be made from this port.

Some Economic Aspects of Welfare Work*

By H. P. CARRUTH, General Manager, Mead Paper and Pulp Company, Chillicothe, Ohio.

I have been asked to present to you the economic aspect of safety work and similar measures sometimes grouped under the general heading of Welfare Work.

Welfare work has been somewhat criticised of late as smacking too much of paternalism in these days of rampant democracy and as no doubt it carries to the minds of many of us a rather smug odor of sanctity or rather of sanctimoniousness. It associates itself with "Scientific Management", "Efficiency" and other words and phrases that have been overused or misused until one hardly dares use them at all for fear of creating an unfavorable effect upon the audience.

To clear the air, therefore, let me say at once that I believe in Welfare Work, not as it has been practised very frequently as a sort of general specific for all the industrial ills, but as part of a general industrial policy which is in line with the trend of the times and in sympathy with the modern idea that workmen are regular human beings, thinking and reacting like the normal man in any walk of life.

Safety work in general appears to me as one aspect of a general program looking toward industrial progress. No doubt there will be others here today who will be able to give you facts and figures showing how many dollars each type of accident costs the employer, the employee and the community. I believe such data is well worth while but I do not propose to use any in this paper, but rather to present the subject in a more general way.

My subject then is to try to show that under proper conditions efforts to improve the living and working conditions of men and women employed in industrial plants are a proper activity for manufacturing plants to consider because they can show a profit on the year's operations which is the legitimate field of industry.

You will notice that I said "under proper conditions". The importance of this cannot be over emphasized. All of the welfare work conceivable will be a most dismal failure if the general conditions of the plant are not sound before such work is begun. The employer who uses welfare work on a substitute for proper wages or working conditions is inviting trouble.

Assuming that conditions are sound, which means good wages, (not only in the sight of the employee, but so admitted by the organization as a whole), a clean and well kept plant, foremen who are fair and straightforward in dealing with their men, a sound business policy and efficient management which protects its men against unemployment to the maximum degree and a generous dash of the Golden Rule, we have then the foundation upon which profitable welfare work can be built.

It is almost inconceivable that a plant which conforms to the above specification could be doing no welfare work, but frequently it is quite unorganized and hit or miss. When unorganized, it is likely to be unfair or unjust. To illustrate : two men become incapacitated by serious illness. The first man has lived up to his income, the second is more thrifty and has laid by a bit against the rainy day. Our first man and his family soon become in abject need and sooner or later help is forthcoming, either from his fellow workmen or as a loan or gift from the company. The second man is known to be able to stand the strain for a while so no help is given. In other words the man who has been thrifty is given less consideration than his less valuable fellow workmen, assuming that thrifty workmen are better and more valuable in our mills than the shiftless. This is not a square deal.

My illustration might be given to show that unorganized benevolence to employees tends to create the exact opposite of the spirit which is desired, and of necessity it must be of the most paternal character except perhaps in very small organizations.

On the other hand organized benevolence in industry is likely to be a cold-blooded matter-of-fact thing which has no advantage to the company and very little to the employee.

The proper basis seems to me to be to put all such efforts squarely before the men as co-operative methods which repay the man and the company mutually, although perhaps not in the same coin. The average workman is suspicious of his employer and if you do not show him what gain you expect to make he will be likely to suspect a sinister reason.

To sell safety ideas to workmen you must convince them that care is a sound investment which they should make for themselves and their families and also show the advantages to the company. Don't try to force rules and regulations down their throats by means of signs and threats of discharge or punishment. Such means are no longer effective, in fact, they never were really of value.

To sell recreation to workmen it should be frankly stated that good health is an asset not only to the man himself, but to his employer also, because a healthy man is a better and more efficient member of the organization.

To sell insurance, whether it be wholly or partly paid for by the company, should be shown to be worth while to the company because it helps the men to stop worrying and so adds to their effectiveness on the job.

The same ideas hold in regard to all types of welfare work such as free medical and dental attention, visiting nurses, restaurants, etc. You cannot fool your men on these matters and you know you wouldn't do it if it didn't pay. At least you wouldn't do it except as individuals rather than as a company policy.

Now let us see just how these various types of welfare work do pay the employer. Like any other investment it is quite easy to put in more money than can be taken out. Unfortunately, when dealing with the human machine, it is very difficult to place exact figures on the improvements which result from any policy and again these values are constantly varying with location. with time and with general conditions. They are very difficult in different industries and change with the seasons. Nevertheless, every employer has a pretty clear idea what such factors as labor turn-over, good morals, health quick learning, care, etc., have in his own business and can best interpret values for his special conditions.

* Delivered before the Paper and Pulp Section at the Ninth Annual Safety Congress of the National Safety Council at Milwaukee, Wisconsin, September 30, 1920.

Sport organized by industry is perhaps the most widely used type of welfare work. This may be handled in many different ways, but has has its chief value to the employer in its effect on morale and secondarily on health. In most plants the health factor is of small importance as relatively a small percent of employees take active part in such activities, the effect on morale is such greater but varies much in degree. Some companies strive to get results by producing a winning team at all costs, even to the hiring of professionals, while others bring into play the idea of true sportsmanship. The first idea is dangerous because in any league there can be but one winner and the losing team may have a bad effect on the organization from which they are chosen. On the whole, in my opinion, sport is one of the least profitable forms of welfare work.

Safety probably comes next in general use. The effect on profits of safety work is fairly clear. First, we have the direct losses when men are hurt which must be paid in insurance premiums which such work eliminates to a greater or less extent. Second, we find that safety work is frequently one of the best contact points between management and men out of which grow various benefits to the bank account. Then again, it has its effect on labor turnover and general morale.

Insurance of various kinds, whether life, accident or health, is valuable in its effect on turnover and helps to secure good men to fill vacancies. Its appeal is quite as much to the wife at home as to the man on the job. It also keeps the force as a whole in a proper mental condition by minimizing worry, and is especially valuable when a man returns from a siege of illness or incapacity due to injury.

Vacations are very highly regarded by the men, perhaps more highly than any other one thing. We all like to sit by the fire and plan our little outings for the coming summer and the workman is no exception to the rule. Idleness is a goal which always attracts in prospect, although seldom justifying itself in the present. For these reasons vacations are a very powerful stimulus to hold men to their work if used as a special reward for continuous service. The value lies in their effect which is considerable on turnover, especially with employees of long service, and on general morale; they also have an undoubted effect on health, although this is more mental than physical.

Outings are of little value in developing morale, although frequently used for that purpose. When morale is already good they may be a stimulus, however, but it is doubtful if they are worth the cost which they frequently run into unless engineered by the employees themselves.

Free medical and dental service has a very definite effect on morale, turnover and production. Its value is naturally greater in those industries particularly liable to occupational disease, but is considerable in all cases. Many men will consult a company doctor, who makes no charge, long before they would spend the money to see their regular physician. This means the checking of contagious disease and in extreme cases might save a shut down.

House organs are almost a necessity in a well run plant as a means of selling the ideas of the management and increasing morale and loyalty. They form a connecting link between the plant and the homes of the men which is of the greatest value. They should, however, be something more than a collection of trite phrases or collected sermons to make a profitable investment.

Co-operative purchasing is frequently a worth while addition to the best of welfare activities, but should only be undertaken after due consideration as there are many pitfalls for the unwary.

Housing is more often a necessary adjunct to operation than a real welfare effort. When necessary to consider, it should, however, be placed upon such a basis that it is something more than an expedient.

These are only a few of the great number of activities possible to the welfare department. All are good, all are potentially profitable but only as conditions warrant. The field for such efforts will vary with your own conditions as stated earlier. Look over your own problems, talk to your men and the profitable series of activities will not be hard to find.

In closing let me add one word which, although not on welfare or safety work, still lies at the root of all such work. It is my firm conviction that a workman reacts to the same influence as any other human being. This "psychology of the workman" of which we hear is a myth except as it is the psychology of human nature. Most of our mistakes in the past have been due to a tendency to think of workmen as a class or species differing from ourselves in important respects. This I believe to be an error which has been very costly to industry and to civilisation.

Assuming that your employees are just normal human beings and that you yourself are normal, then it becomes very easy to predict what reaction will result from any labor policy, for by projecting yourself into the position of the workman your own reaction to the surrounding conditions may be expected to be the same as that of the great majority of your employees. There will be differences in degree, but not in kind. In brief, the Golden Rule is a practical and workable business policy.

ANOTHER PORT ARTHUR PULP PROJECT.

A delegation consisting of Mayor Matthews, T. N. Andrew, president of the Board of Health; E. T. Ross, representing the local branch of the U.F.O.; Alderman L. J. B. Bolduc and William Scott, of the Pidgeon River Lumber Company, went to Toronto, recently to interview members of the Government in regard to the purchase of a timber limit for the Pidgeon River Lumber Company. The company, if it can secure a limit, has promised to erect a pulp and paper mill in Port Arthur.

PRESENTATION TO MR. D. W. SHERMAN, OF THE CANADIAN EXPORT PAPER COMPANY.

On behalf of the staff of the Canadian Export Paper Company, Mr. G. F. Steele, General Manager, presented, October 13th, a very fine travelling bag, containing a number of useful toilet articles, to Mr. D. W. Sherman, Manager of the Pulpboard Division, who, with his family, is leaving by the SS. "Megantic" this week to take up his residence in England, where he will represent several Canadian pulp and paper interests. Mr. Sherman, who is very well known, spent five years in the Sales Department of the Laurentide Company at Grand'Mere and Montreal, was two years at the Front and leaves Canada with the very best wishes of the Pulp and Paper Industry. He has taken an office in Blackfriars House, 20 New Bridge St., London.—E.C.4.

TECHNICAL EDUCATION IN PAPER-MAKING.

By Major J. EDINGTON AITKEN, Inveresk Paper Mill, Scotland.

(Reported by Our London Correspondent).

The members of the Technical Section of the British Paper-Makers Association held a conference the first week in October, at Manchester. Some very interesting papers were read and a predominant note throughout the proceedings was the advocating of methods based on modern principles and particularly a technical training for those engaged in the paper mill from the highest director to the youngest workman. Practical men, it was adduced, should have technical principles, as paper-making in the mill had ceased to be an Art, and, instead, had become a Science.

One of the most interesting papers read was on "Technical Education in Paper-Making", by Major J. Edington Aitken, (vice-chairman of the British Technical Section) of the Inveresk Paper Mill, in Scotland, who, as a sound technoligist, gave some valuable advice. He said, in the course of his address:

Technical education is for the purpose of enabling those employed in an industry to acquire knowledge of the theory, principles, and fundamental methods involved in the various stages of the manufacturing process in which they are directly interested. The man whose training has been obtained in the works, without having acquired any knowledge of the broader principles upon which the industry is built, is generally satisfied with empirical methods, and often fails to appreciate any possible value in variations of procedure. He becomes imbued with the idea that there is only one way of conducting his part of the process, namely, that by which it had always been done by his predecessors and himself. It is difficult for him to comprehend that other methods based upon defined principles may yield a better result at less cost, and with greater efficiency.

The technical expert who, in the course of his training, or, by experience, has acquired a certain amount of business knowledge, and the Manager or Director whose business training has been augmented by technical knowledge, are each in a position to appreciate and discuss the aims and objects of technical suggestions of possible improvements, not only from the standpoint of their effect upon the manufacturing process, but also the bearing which they will have upon the output and returns. Commercial success and manufacturing economies will receive due share of consideration. Conversely, the paper-maker without technical training, and the technologist without business knowledge, very seldom appreciate each other, with the result that technical advancement and scientific control are much retarded.

Benefits Derived From Technical Training.

Paper-making occupies a somewhat anomalous position in British manufactures. Many employees can trace their ancestry back for generations and methods of conducting various operations have been handed down from father to son. In consequence of this conservatism, it is difficult to induce workmen, and frequently managers, to believe that more economical applications can be effected. Technical education must inevitably bring its influence to bear upon the industry if we are to make progress. The Paper-Makers' Association of Great Britain and Ireland has shown appreciation of its importance in the formation of the Technical Section. The second clause of the Association's constitution states as one of the objects:— "To promote scientific and technical education of those who enter the industry." On level ground one mill will not benefit more than another; but those employers who do all they can to ensure that their employees will have opportunities of studying the technology of the process will undoubtedly derive the maximum of good results. Qualities will be improved; economies will be safeguarded; less time will be spent in endeavouring to make adjustments, because, instead of guessing the probable cause of anything getting out or harmony, reasoning and deduction will become effective and greatest of all, the workman will take a more intelligent interest in performing his duties.

It is acknowledged by all, that if we are to maintain our position in the world's industry, we must improve our methods. The old "Rule of thumb" must inevitably disappear, and be replaced by systematic, scientific, and technical development, which can only be attained by diligent study of the theories and fundamental principles of, and their applications to the process. Technical education is the key-note and the sooner paper-makers do everything possible to have certain employees trained to a good understanding of the principles and theory upon which each contributory department of the mill is based, the sooner will they be able to gain supremacy in qualities, yields, and financial returns.

Paper-makers are not philanthropists, and do not make paper simply for the satisfaction of users. A profit must be obtained. I dare not suggest what percentage increase would arise through improved technical education, because, to my certain knowledge on one occasion paper-makers did not look with favor on prospective profits. The story has been told before, but may be repeated in condensed form: A number of years ago, it was found that a certain waste product could be utilised. Experiments were conducted on a small working scale. Plans for the erection of commercial plant were drawn, and costs calculated. The expert employed to carry out the investigation declared that a large profit could be obtained. The paper-makers, however, with typical caution did not share the same confident outlook. Therefore, the waste material is still a waste in the majority of mills.

It is strange, if we do not care to admit the paradox, that at the same meeting at which the utilisation of waste products was under discussion, Mr. C. F. Cross made the following statement:— "Paper-mills are not run to make paper but to make money."

The scientific and technical education of paper-makers will be the means of ensuring that better papers will be made, the proportion of so-called waste products or more correctly, by-products will be diminished, and, incidentally, paper-makers will make more money. For specific purposes, it may not be desirable to increase technical knowledge, but let us hope that these are the exceptions which will prove the rule.

Practical Men Should Be Technologists.

The following once appeared in the trade press referring to a particular grade of paper:— "No workman at the ..... Mills is allowed to understand more than one stage of the process of manufacture. The paper remains a mechanical mystery."

It is a comparatively simple matter to acquire scientific and technical knowledge, but when one comes to apply such to the manufacturing process, handicaps

become very severe, and numerous difficulties block the way. Fortunately the technologist, by perseverance, clears one obstacle after another, and afterwards shapes a definite course for further progress. The purely practical man is often a good paper-maker, but under the strains and stresses of modern industry, it is advantageous that he should possess a knowledge of technological principles. If he does not desire to gain such information, there is no sound reason why he should be the means of blocking progress by constantly reiterating the old fallacy that theory and practice do not agree. If at any time we find difficulty in reconciling theory and practice, the discrepancy is entirely due to our own inability to devise means to bring them into harmonious concord.

There is a very limited amount of truth in the statement that practice can get along without theory, but it is only movement in a circle and not progression. Practice without theory can never reach the true goal. As theory is the science of practice they are inseparable.

Up to the middle of the nineteenth century, paper-making was an unscientific industry, conducted on empirically established motives, bluntly designated "Rule of thumb." I do not desire to affirm that good papers were not made while paper-making was included among the Arts. Many old papers are really excellent productions and bear evidence of marvellous ingenuity, practice and skill. I may here mention that the late Mr. Alexander Cowan, of Valleyfield Mills, (grandfather of the present generation), on being shown for the first time a sheet of paper made by machine, remarked:— "It is a wonderful imitation."

Paper-making has ceased to be an Art and has become a Science. This does not mean that it has assumed a higher status, but rather that it has changed from an industry of individual skill to one of systematised knowledge arrived at by progressive observation and experiment. By technical education we endeavour to apply Science to the manufacturing processes, seeking to interpret and explain every detail, so that the best results may be obtained.

Many manufacturers have the idea, when the word Science is used in connection with paper-making, that Chemistry is the one and only object of reference. This is by no means correct. Chemistry as one of the Sciences — and not the least important — controls quantities and qualities of all materials used and produced. Physics, with its inexorable laws demands strict obedience and close attention in every stage of the process. The mathematical accuracy of engineering in all its branches bears truthful record of power developed and used, in addition to all questions pertaining to conveyance, transference and economy of energy. The work of the engineer is as truly scientific as that of the chemist.

The practical sciences are contributory to each other, and perform complimentary duties. Conjointly, the application of these is called Technology. Various details require careful scientific study before we can appreciate and fully understand the processes involved in paper manufacture, and when this is accomplished, we shall find that paper can be produced with the minimum of treatment and losses and the maximum of yield and quality.

Technical education does not mean that there is only one way of attaining the best results. The principles are well defined, but the applications may be effected in various ways according to requirements or desire, thus giving limitless scope for individuality and research.

Managers and Foremen Should Have Technical Training.

I would respectfully suggest that all prospective Foremen and Managers should prosecute a course of technical instruction in paper-manufacture. At the present time, it would appear that appointments are frequently made from among the workmen according to no well defined system of selection — and it does not always follow that the best men get promotion. If it was ascertained by examination or other suitable method, that a particular employee possessed a sound knowledge of the technological principles of the process of manufacture, then undoubtedly that man would have definite superiority in qualifications over those who do their work in a routine or mechanical manner, merely as individual links in the chain.

The generally recognised evidence of technical training is the possession of certificates granted by a Technical College curriculums. Technical schools might be advantageously extended to include Physics, Applied Mathematics, Mechanical and Electrical Engineering, insofar as they have relation to the process of paper-manufacture. The object of technical training is not to make paper-makers into Chemists or Engineers, but to give sufficient knowledge of these sciences which will enable them to understand more fully the various stages of the process according to the degree in which they are controlled by, or based upon scientific principles.

Many young men after they have been three or four years in the mill, show a desire to know something more about paper-making than can be gained in the department in which they are employed. It is, however, extremely difficult for them to attend course of lectures on paper-manufacture, especially, if these are held on the evening of one of the five full working days. I believe I am correct in saying that the majority of such students do not tell the foreman, or manager, that they desire to or are attending technical classes. Some time ago, during the course of a conversation with a Managing Director, I mentioned the fact that one of his men had attended technical classes for two years. The Manager remarked: "He is a nice lad, but I did not know he was attending the College."

Let us consider what this meant to the young man. It took him two years to get over the work which should have been done in one session, as he could not attend during the week he was on night shift, and in this he is only one of many. He paid class fees and travelling expenses for two years, when it might have been arranged that attendance during one year would have been much better from the educational point of view. As the full curriculum consists of three complete sessions, the shift worker will take six years to get over the course, and for this he has to pay double expenses. Information gained in this way is intermittent and scrappy; therefore, difficult to assimilate, something like the old lady who, after reading a few pages of the dictionary, said it was very interesting, but she could not get the thread of the story. Technical lectures are not, or should not be, stereotyped, consequently a considerable proportion of the information would be lost to the student. (This problem of the shift worker is one of the most important and most difficult to be met in educational work in classes. This is a fine instance of how many young men appreciate educational opportunities.—Ed.). One way of over-

coming this difficulty is, if a sufficient number of students are in the same position and locality, lectures might be duplicated each week at different hours.

May we consider the question for one moment from the employers' standpoint? As the employer is bound to share very largely in the benefits which are to be derived by certain of his employees attending technical classes, I have no doubt that if he was aware of the fact, he would see to it that every facility would be given to enable them to prosecute their studies.

It cannot be too much emphasized that paper-makers should undergo a thorough and systematic training in the sciences which exert the controlling influences upon the qualities and properties of the finished sheet, and the economies of the mill.

While it is of paramount importance that the twentieth century Managers and Directors should have technical education and experience in addition to the business training which must be undergone, it is none the less desirable that a reasonable number of the employees and all foremen — general and departmental — should have proportional knowledge, and thus ensure that those who control the commercial destinies of the mill shall have the support of employees, who can appreciate and put into intelligent effect those scientific applications which shall raise the standard of quality, increase the output, and diminish waste.

The simple study of the technology of paper-making will not make a student into a paper-maker, unless he can gain the necessary mill experience, thus becoming practically acquainted with the applications of the theory and fundamental principles. The possession of theoretical knowledge without complete practical experience does not justify anyone claiming that he has anything more than a superficial acquaintance with the technology of the subject. Theory and practice are inseparable, and any knowledge of one without the other is very apt to make one dictatorial and dogmatic. The ability to show by example any instructions given will always be of the greatest value. It is not only desirable, but it is also essential that the student of the technology of the process should be able to demonstrate the results of his training in any department of the mill to which he may be appointed. Criticism of methods and processes may be very useful, but the full benefit can only be established by practical demonstration of the principles on which the criticism is based. It is always advantageous both to employer and employee when he is in a position to give practical effect to his instructions.

Value of the Technically Trained Man.

The technically trained man will be able to reveal many wasteful methods at present existing on account of deficiency of technical knowledge and scientifically organised control, even though they had never given rise to suspicions of extravagance or inefficiency. The Technical Section by fostering the claims of scientific education is bringing before the leaders of the paper-making industry, the only true means by which improvements and economies can be effected.

One of our cherished sources of pride, both National and individual, is that we have a praiseworthy history. Records show that our forefathers had the prosperity of future generations always in mind. Their progress was, however, circumscribed by the narrow limits of the technical knowledge at their disposal. In this century we live under vastly different conditions: education, elementary and technical, has opened up to us a limitless field of action, and we are bound to extend our energies far beyond any dream of the paper-makers of past years.

It is no prophecy to say that those paper-makers who do not take advantage of technical training and applied knowledge, but continue to carry on the old empirical methods, will most assuredly by unable to compete with the scientifically controlled and technically organised mills. I feel I cannot be too emphatic in impressing upon you the paramount importance of having your manufacturing processes founded on strict scientific principles, as by so doing you shall be in a position to manufacture the best qualities of your own respective grades, and thus be able to enter into healthy competition, instead of, as is sometimes reported at present, one mill doing its best to cut in under circumstances which may not be conducive either to maintenance or improvement of qualities.

More Recognition of Technical Education Wanted.

In conclusion may I permitted to quote from the last paragraph of the Report of The City and Guilds of London Institute? It stated: "It is generally recognised that, in order to meet the difficult times that lie ahead, everything possible must be done to increase the economic efficiency of the country, and for this purpose to gain the willing co-operation of all classes of workers. But it is still not sufficiently recognised how important a part the technical school can play in this direction by arousing in the student a real interest in his trade. He is brought into touch with perhaps only a small part of it in his daily work, but one of the chief functions of the technical school is to give him a knowledge of the more general principles of science underlying or connected with it.... The hope may, therefore, again be expressed, that manufacturers and employers will give technical colleges and schools in still greater measure, the cordial support which they so well deserve. Apart from any immediate results they may bring by way of increased skill or knowledge, they can give to the young artisan the wider outlook which will interest him more in his work....." There are signs of increased interest in education generally, it is earnestly to be hoped that there will be a fuller recognition of the great importance of technical education."

RIORDON ROUNDS OUT TIMBER HOLDINGS.

Riordon Company, Limited, has recently acquired further timber limits in the Ottawa Valley, thereby rounding out its holdings in that area.

The limits purchased cover 1,100 square miles, and are situated tributary to the Quinze River, northern Quebec, adjacent to limits already owned by the Riordon Company. Purchase of the property, which was formerly owned by M. J. O'Brien, includes a valuable undeveloped water power on the Quinze River capable of development to over 100,000 horse power.

These limits, which are but a few miles east of Lake Temiskaming, are of unusual extent and quantity, containing a fine grade of timber and are admirably situated for delivery at low cost to the Company's pulp mill at Kipawa. Purchase of these limits still further strengthens the Riordon Company's position, placing it in possession of about 12,000 square miles of excellent located and well timbered limits, and increases its ultimate water power capacity to 250,000 horse power.

Belgian Paper Trade Conditions

By Special Correspondence.

The rapidity of Belgium's recovery in the pulp and paper industry is shown by the following table and chart, in which it is seen that both imports and exports for the first seven months in 1920 were greater than for the whole year of 1919, the exports having more than doubled.

IMPORTS.

First Seven Months of the Years 1919 and 1920.

Articles.	1919 Quantity Kg.	1919 Value Fcs.	1920 Quantity Kg.	1920 Value Fcs.
Wood Pulp	18,516,389	11,659,289	68,242,207	77,964,791
Total of the whole year	54,979,061	37,264,444		
Wall Paper	1,176,538	3,269,930	1,306,854	5,270,103
Board	2,561,375	2,402,740	3,000,287	4,472,178
News Paper	4,798,002	4,897,487	3,446,671	6,341,833
Non-denominated Paper	4,249,897	7,389,270	11,050,666	27,445,144
Total	12,785,812	17,959,427	18,804,478	43,529,258
Total of the year	24,866,832	36,857,342		
Printed Matter.				
Books and sheet	495,495	2,289,967	547,160	6,741,488
Books and Bound	137,653	430,791	204,853	1,829,256
Newspapers, periodicals, maps, etc.	1,719,126	3,725,820	1,249,719	2,463,251
Non-denominated	357,053	1,802,241	934,046	6,905,189
Total	2,709,327	8,248,819	2,935,778	17,939,184
Total of the whole year	5,096,039	16,969,711		

Besides non-denominated paper imports for 1920 from "other countries", 6 Kg. came from Argentina, 4 from Australia, 2688 from Denmark, and 1614 from Japan (compared with 10 Kg. in 1919).

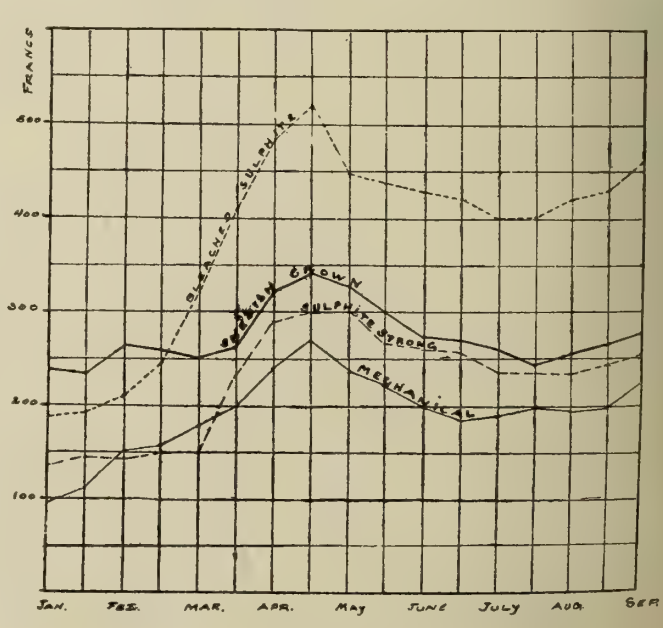
EXPORTS.

First Seven Months of the Years 1919 and 1920.

Articles.	1919 Quantity Kg.	1919 Value Fcs.	1920 Quantity Kg.	1920 Value Fcs.
Wood Pulp			8,987,933	10,366,967
Total for the whole year	1,437,313	1,406,810		
Wall Paper	4,882	16,905	1,365,953	5,507,286
Board	13,000	6,500	263,082	602,212
News Paper	15,134	19,187	119,931	347,148
Non-denominated Paper	527,886	2,124,668	10,136,036	37,754,857
Total	560,902	2,167,260	11,885,002	44,211,503
Total for the whole year	3,956,442	12,452,005		
Printed Matter.				
Books and Sheet	13,802	79,391	224,399	1,317,925
Books Bound	38,453	216,768	378,803	2,010,913
Newspapers, periodicals, maps, etc.	12,514	53,098	140,175	689,777
Non-denominated	16,230	87,268	149,603	1,235,337
Total	80,999	436,525	892,980	5,253,952
Total of the whole year	417,307	2,279,924		

Orders are scarce. Prices have been slightly decreased by those mills running on fine printing paper, which have been especially affected by the present definiteness. It is said that those mills and also some others working on different grades have cleared up nearly all the business on their books. Scandinavian paper is being offered at present, by middle men and jobbers, at prices considerably under those of the home market, but no transactions are being made, partly because there is some stock and chiefly because most of our wholesalers of papers are bound towards their mills, by orders placed months ago at prices to be fixed about the time of delivery. As wages, coal, and pulp are again advancing it is not likely at all that general decreases may occur and it is not probable that those mills, that have specialties to offer, will devote more and more their efforts to the export trade.

Pulp prices are very firm and have been advancing this fortnight owing to another increase of the rate of exchange. Pulp prices depend in our country chiefly on the rate of exchange as is shown clearly in the following diagram, that, for the first 8 months of this year, indicates the fluctuations of pulp prices as compared with the rate of exchange of the Swedish Crown.



British Trade News

(From Our London Correspondent).

London, 5th Oct. 1920

During the past couple of weeks I have referred to the raising of new capital for pulp and paper propositions mooted in England. It is an encouraging sign that despite the menace of labour stoppage and the dark results of oppressive taxation reflected in revenue returns, many owners of mills have decided to appeal for fresh capital. Apparently the belief prevails that notwithstanding the unsympathetic attitude of workers there is still promising scope for the employment of money in industry. There is also evidence that in spite of the rumors of labor wars against the capitalists and constant alarms, intending investors have great confidence in pulp and paper as being sound for putting their money into.

Caldwell's Paper Mill Issue.

Caldwell's Paper Mill Company, Ltd., Inver Keithing, near Rosyth, in Scotland, offered ordinary shares last week to the extent of 292,993 (of £1 each at par) of which the directors and their friends agreed to apply for 120,000 at par, leaving £172,993 for public subscription. Debentures for £250,000 bearing 8 per cent, have already been raised. The directors of the mill are:— Sir Robert Carlyle, K.C.S.I., (chairman of the Hartlepools Paper Mill), chairman; Lord Norris, vice-chairman; Alexander Smith, the Managing Director, of Echo Bank, Inver Keithing; Alfred William Smith, the Assistant Managing Director; Thomas McCrow, the esparto and pulp merchant, of 19 Stirling Road, Trinity, Leith; Albert Kay, Managing Director of Olives Paper Mill Company; and Colonel Simpson, a director of the Hartlepools Paper Mill and Olives Paper Mill. The mill was established in 1893 as a one machine mill primarily for experimenting in the manufacture of grease-proof papers under a secret process, and ever since the business has progressed and developed. In 1913 the mill was destroyed by fire, but a new structure has arisen since and the present plant consist of three paper-making machines and auxiliary plant, finishing, reeling, cutting and packing machinery. A fourth paper-making machine is shortly to be erected as the company is now turning out, in addition to grease-proofs, white printings, writings, bank papers, tub-sized, linen faced papers, tinted papers, and cover papers. One singular statement appears in a report on the mill. It states: The company's works are within a few yards of Inver Keithing Harbour, near Rosyth, "and occupy an excellent position for the importation of the necessary raw materials from Scandinavia and the Baltic." The present output of the mill is stated to be 130 tons of high-class paper per week, and this is expected to reach 180 when the extra machine is installed. The report on the mill further states:

(1) The British paper-making industry is at the present time in a strong position and the company has ample orders on hand.

(2) The company holds large stocks of raw materials purchased at favorable prices and is exceptionally well placed under contracts for future supplies for the next 12 months.

Turning to the values of the assests of the company I find under the heading (b) stock of pulp, raw materials, stores, work in progress and paper, as certified at 31st. August 1920 (at cost or under) are returned at £102,081—18s. 8d.

"Bridge" Paper Mill.

A company has been formed to take over the lease, with an option to purchase, and to carry on, as a going concern, the "Bridge" Paper Mill, in Staffordshire, which was established 100 years ago. The share capital is £25,000, divided into 23,000 9 per cent participation shares of £1 each and 40,000 ordinary shares of 1s. each. In addition to receiving the fixed dividend, the preference shares are entitled to participate in 25 per cent of the remaining net profits available for dividend after deducting the bond interest and providing for the sinking fund for bond redemption. The mill manufactures mill and straw boards, in addition to leather boards and tissue paper, and a new adjunct in the near future will be the introduction of a new waterproof substitute for leather in boot manufacture. At present the machinery of the mill is not able to cope with the demands on the firm and consequently, new capital is wanted to develop extensions and increase the output. One good point about the mill is that it is situated right in the heart of industry — pottery, boot, and textile manufacturing centres. The present directors are outside the paper industry, with the exception of Mr. Edward Warden, of London, who is manager of a paper mill. Tissues paper is largely used in pottery manufacture in England.

Sir Vezey Strong Dead.

After a long illness Rt. Hon. Sir Thomas Vesey Strong, K.C.V.O., K.B.E., Lord Mayor of London 1910-11 — the year of the King's coronation — died this week. Born in the centre of newspaperdom (Fleet Street), he entered the paper industry at the age of 14 and in 1886 started business for himself in Upper Thames St., ultimately becoming head of the great firm known today as Strong, Hanbury & Co., wholesale paper merchants. Sir Vezey was 63 years of age and he was a typical John Bull, with his clean shaved chin and side whiskers. When dressed in his mayoral robes he looked the ideal Lord Mayor and played his part well. All his life he was a staunch teetotaler and on more than one occasion, he has been described as "John Bull — with the beer left out." The paper industry loses a valuable and valued pioneer.

Severe Slump.

I have just received a copy of the report of the Amalgamated Society of Paper Makers, one of the old and respected bodies, which Mr. W. Dyson brought to so high a level as a workers society. The Secretary "pro tem", is Mr. Arthur Fowler,—Mr. Dryson having left, as reported sometime ago in the "Pulp and Paper Magazine" — and he states that trade is suffering a rather severe slump. This is attributable to unrest in the printing and coal industries. The Society, he adds, has a number of men out of work. Here we get an idea of what the mills are doing. If the mills are busy they cannot afford to keep out skilled men. Therefore, we must assume that when skilled labor is out there is a slump.

Pulp and Paper Markets.

Quietude continues just now in the British paper industry. One could not expect anything else with a serious coal crisis overhanging mills and the uncertainty of labor contentions. Newsprint is finding a good outlet and the demand is as keen as ever. One London daily paper, which favors American journalism, states this week that newsprint will very soon go down in price. Foreign stuff may, but it is quite certain British made will not, owing to the cost of raw materials. Of course,

it is another attempt to drive down prices. Indeed, half the newspapers in England today want their newsprint for little or nothing from the mill or agent. In Scandinavian circles the paper market is also dull as regards new business. For good grade papers they have plenty of work on hand.

The pulp market continues unchanged. If the rate of exchange was more evenly balanced all round, the business outlook would be much brighter. Norway showed a change in her rate recently and orders poured in to the pulp mills, but the Norwegians stuck to their prices and would not sell at a reduction. Recently some good supplies of chemical pulps have reached England from Canada. English and Scottish mills are well supplied with pulps for the present.

Price of pulps have not changed in the last week.

Notelets.

John Dickinson & Co., Ltd., the Hertfordshire paper mill owners, announce an interim dividend of 5 per cent, less tax, on the ordinary shares, payable October 1st.

"Recent Researches in Cellulose Industry"—being lectures by Mr. C. F. Cross—are being printed in the Royal Society of Arts Journal, London.

Spasmodic outbreaks, arising from unrest, are occurring in British mills among the workers. At Aberdeen some workers were charged with "throwing divots, cursing, swearing and shouting 'Blacklegs', etc., etc." No doubt the Scotch blood was up.—But Scotland is going "dry" we are told. Pussyfoot Johnston has visited it.

Scotland is not going "dry" in regard to tobacco, because the Union of Wrapping Papermakers (Cap Section) have presented Mr. John Dobson, of Charles Marsden and Sons, Ltd. — one of the fine firm of mill owners — with a cigarette case as a token of great esteem, when he left England to retire to Scotland.

SUITABILITY OF SOUTHERN WOODS FOR PULP AND PAPER MANUFACTURE.

The U. S. Forest Products Laboratory at Madison, Wis., has frequent requests for information concerning the suitability of various southern woods for the manufacture of pulp and paper. In the South there are large stands of various species of pines including longleaf and short leaf yellow pine, scrub, pitch ,loblolly, etc. These woods are characterized by having a good fibre length. However, on account of their pitch content it is not believed that they can be reduced by either the sulphite or ground wood processes of pulping to a grade of pulp to compete commercially with that made from northern non-resinous, long fibred, coniferous woods, such as spruce, balsam, or hemlock.

The various species of southern pines can best be reduced by the sulphate, or kraft, process of pulping, and the resulting pulp utilized for the manufacture of kraft wrapping paper or high test container board. These pines can also be reduced by the soda process and the resulting pulp utilized in the manufacture of grades of paper in which sulphate pulp is ordinarily used. It is possible that further work will demonstrate the feasibility of pulping these pines by the sulphate process, bleaching the pulp to a satisfactory degree of white and mixing it with short-fibred sulphate or soda pulp made from other southern woods, such as the gum woods, for the production of magazine, book, envelope, or lithograph papers. The yield of pulp by the soda and sulphate processes is less than 45 per cent.

The large stands of hardwoods occurring in the South consists in part of the various species of gum wood, cotton wood, sycamore, basswood, magnolia, willow, etc. All of these woods are short fibred and, according to laboratory experience, can be most satisfactorily reduced by the soda and sulphate processes of pulping. This pulp after admixture with a longer —and stronger-fibred stock, such as bleached spruce sulphite, or pine sulphate pulp can be used for the production of book, envelope, or lithograph paper.

In view of the present abnormal situation no definite estimate can be given as to the cost of a balanced pulp and paper mill as all cost figures available at the laboratory are based on pre-war conditions. It is the opinion of the laboratory men, however, that a balanced pulp and paper mill can not be erected at a cost of less than $45,000 to $50,000 per ton capacity per day. Further, before a mill of this type is erected a careful survey should be made of the economic factors, such as freight rates, markets, labor and living conditions, fuel, power and other factors upon which the financial success of the proposed undertaking depends.

AMERICAN CONDITIONS DEEMED UNSUITABLE FOR PLANT FIBRE PAPER.

The U. S. Forest Products Laboratory at Madison, Wis., receives frequent requests for information regarding the possible use of plant fibres, such as sugar cane, bagasse, corn stalks, cotton stalks, the various straws, etc., for pulp and paper manufacture.

The laboratory is restricted in its investigations to a study of the best means of utilizing our forests and forest products, so that little work has been done on the pulping of these plant fibres. From general experience, however, it is believed that these various fibres are not economical for pulping under present American conditions, as they offer the following difficulties in handling :

1.—Plant stalks, straws, grasses, etc., usually contain a large percentage of pitch, giving pulps low in fibre content and requiring high chemical consumption.

2.—Material of this type represents seasonal crops, so that facilities must be provded for the storage of a large volume of the stock in order to permit the paper mill to operate throughout the year. The susceptibility of such material to decay adds greatly to the costs and difficulties of storage.

3.—Due to the bulkiness of these materials, the digester charge is reduced, thereby reducing the yield and increasing overhead costs proportionately.

Some of these fibres, such as the straws, are being pulped at the present time for use in the manufacture of corrugated board and cheaper board products. Pulp of this nature, however, does not compare with a refined pulp such as sulphite or rag stock; it can be used only for special purposes and not in the manufacture of news-print or high-grade paper. Plant fibres of this nature are being reduced commercially in Europe where economic conditions and the scarcity of wood permit their utilization. But under present American conditions, it is believed that such fibres can not compete commercially with wood pulp.

PULP AND PAPER NEWS

The weekly newspaper publishers and job printers of Oxford County and district have organized what will be known as the Oxford District Press Association, with H. S. Johnston of Tillsonburg as President.

The Waterous Engine Works Co., Limited, of Brantford, Ont., have received an order from the J. R. Booth Company for one of the company's standard barking drums which will shortly be installed.

The Ontario Newspapers Corporation, Limited, has been organized and granted incorporation by the Ontario Government. The charter authorizes the company to carry on the business of newspaper proprietors with an authorized capital of $300,000 and head office Toronto. The provisional directors are R. W. Hart, C. H. C. Leggott and E. Fitzsimmons.

Mr. George Carruthers, President of the Interlake Tissue Mills, Limited, Toronto, was one of the speakers at the annual plant dinner of the Abitibi Power and Paper Co., Limited, at Iroquois Falls, on Oct. 9th last. Mr. Carruthers spoke on the financial aspect of education as a reason why a man should increase his earning power and why he should fit in with, and cooperate in, the administration of a mill. The gathering, which has largely attended, was an enjoyable one and the addresses given were instructive and entertaining.

Paper circles in Ontario regretted to learn this week of the death of Mr. Charles E. Warwick, secretary-treasurer of the wholesale stationery manufacturing firm of Messrs. Warwick Bros. & Rutter, Toronto. For the past five years the late Mr. Warwick had been suffering from Bright's disease and two years ago he was compelled to abandon a hitherto active business career. Born in Woodstock, Ont., 56 years ago, Mr. Warwick entered the wholesale stationery business when his father founded the firm bearing his name. He had for many years been prominent in mercantile circles in Toronto. A widow, three sons and one daughter survive.

The current number of the Canada Gazette contains notice of the incorporation of the Dryden Paper Company, Limited, with a capital stock of not less than $500,000 and chief place of business Montreal. The company is authorized to carry on in all its branches a lumber, pulpwood and paper business and the incorporators are E. Languedoc, C. Sinclair, S. G. Dixon, R. E. Allan and William Taylor, all of Montreal.

Mr. John G. Sutherland, President, and Mr. W. L. Bird, General Manager of the Fort William Paper Co. were in Toronto this week conferring with Lieut. Col. Gibson. Mr. Sutherland reported that construction work was proceeding satisfactorily on the ground wood mill but that labor conditions were not all that could be desired.

Mr. R. T. Houck, sales manager of the George H. Mead Co., Limited, Dayton, Ohio, was a visitor at the Toronto office of the company this week.

Mr. George Brian, representing the Paper Makers' Chemical Company, of Easton, Penn., was calling on the Toronto trade during the past week.

The work of installing the 140 inch trim machine in the Interlake Tissue Mills at Thorold is proceeding satisfactorily. When completed the machine will be the largest of the kind in the world. The company will manufacture flat tissue towels along with their other specialties and a cheaper grade of toilet paper will also be turned out to meet competition in a similar line from across the border.

The ratepayers of Fort William were very nearly unanimous this week in passing the by-law granting special privileges to the Fort William Paper Company which is erecting a pulp and paper mill in that city.

With the opening of a branch factory at Kingston, Ont., for the manufacture of paper boxes and confectioners' paper goods, the F. W. Fisher Company, Limited, has added another healthy industry to that city, giving employment to a large number of men and young women. The company's parent plant in Toronto is working to capacity.

After over 39 years service with the Toronto Globe, Mr. W. Pitman Morse, Treasurer of the newspaper, has resigned to enjoy a rest. On the occasion of his retirement the staff presented Mr. Morse with a sterling silver table set and officials of the staff testified to his long and faithful service with the company. Mr. Morse joined the business staff of the Globe in 1881 shortly after the assassination of Hon. George Brown and has been in the service of the company almost continuously since that time.

THREE RIVERS PULP AND PAPER CO.

Having successfully mined gold in Ontario, the Hollinger Gold Mines shareholders are entering the pulp and paper field through the organization of the Three Rivers Pulp & Paper Co. Ltd., whose shares are first offered to holders of the mining stock. Noah A. Timmins is president of both companies.

With the preferred, which carries a dividend of 8 per cent and is both accumulative and participating, there goes a bonus of common stock, share for share. If there is any balance of the $4,000,000 of preferred shares that are not taken up by the shareholders of the mining company, there will be a public offering.

Backing up the mill proposition, the company has secured timber limits of 787 square miles, containing some 4,000,000 cords of spruce and balsam pulpwood. These limits are considered ample for a fifty-year supply for a mill of double the initial capacity of this, that is, 100 tons a day or 30,000 tons per annum.

Associated with the Hollinger group in this new concern are the lumber interests of John Breakey, Limited, the president of which, Denaston Breakey states that the estimates of lumber and pulpwood are correct and conservative, and that in his opinion the operations of this company will be equally as successful as those of other operating companies. A group of British capitalists interested in the paper industry have subscribed for $400,000 of the preferred shares, and are negotiating for a contract covering their entire requirements of pulp, some 40 tons a day, at prevailing

market prices, subject to monthly revisions. These, later, may erect a paper mill on the same site.

In figuring out the element of profits the company has taken as a basis of price $80 a ton, allowing for a readjustment from the present price that runs around $130 a ton. On this basis the profits for a year would be about $1,500,000 on the output of 30,000 tons, or over four times the requirements of the preferred dividends of $320,000, leaving a substantial amount available for common stock.

This is much more conservative than some recent predictions of new company profits and apparently places manufacturing costs at $30 a ton, which is probably not far off.

It is recalled that the Breakey people were recently reported as intending to manufacture pulp.

The directors and officials are well known mining, lumber and steel men and the superintendent of construction and operation is J. J. O'Sullivan, formerly with Geo. F. Hardy, the Northcliffe Mills and the Laurentide Company.

RIORDONS HONOR STEVENSON.



T. J. STEVENSON.

On the occasion of his return from an extensive European business trip, T. J. Stevenson, manager of the Riordon Sales Company, Limited, was the guest of honor at a dinner given in the Old Colony Club, Windsor Hotel, by his associates in the Riordon Company.

Carl Riordon, Geo. E. Challes and other executives of the company, as well as the entire staff directly associated with Mr. Stevenson, joined in the reunion.

During his travels, Mr. Stevenson has visited the United Kingdom, France, Belgium, Switzerland, Holland, Spain, Italy, Germany, Norway and Sweden, and he spoke in a most interesting way of present European conditions, with which his recent experiences have made him thoroughly familiar.

"The man who had his arm broken in two places, should stay away from those places," says the Safety League.

TO MAKE PAPER MACHINES AT PORT ARTHUR.

Mr. P. G. Chace, vice president of the Port Arthur Shipbuilding Company, announced last week the new policy of the Company in connection with the manufacture of pulp and paper machinery.

The Company will go into the manufacture of all classes of grinders, wet-machines, chippers, digesters and heavy paper making machines. The Reliance Mill and Trading Company, of New York, will handle the sales for the Company.

Mr. Chace made the following statement to the Port-Arthur News-Chronicle:

"In view of the pulp and paper business making such favorable progress at the Head of the Lakes, and with the resources in the way of wood behind this production, we believe that the time is now opportune to enter into the manufacture of pulp and paper making machinery.

"In arriving at this decision, we have been prompted and guided by some of the most successful leaders in the pulp and paper industry, and through their assistance, we were able to secure the services of probably the best known and ablest engineers and designers in North America.

"The acreage, floor space in our shops, and facilities in the way of equipment, as contained in our plant, are most favorable for the manufacture of the heavy and complicated types of machinery and equipment necessary for the successful manufacture of pulp and paper. In addition to our present foundry facilities, which include the casting of iron and brass, we have now under consideration and hope soon to start the installation of an electric steel furnace of ample capacity to not only supply our own needs, but the requirements of the surrounding country as well.

"With the opportunity at hand and the amount of business already assured us, our organization will be increased six hundred to a thousand men within a year's time. The type of labor required for this work is of the highest skilled class.

"A similar instance of just such a condition as ours is recalled by reference to one of the largest shipbuilding companies on the Atlantic coast, located in the United States, who, a number of years ago, decided to enter into the manufacture of pulp and paper machinery as a side issue to their enormous shipbuilding program, and this company today is probably the best known and largest manufacturer of high grade paper machinery in the world. The organization required on that work has doubled that required for the shipbuilding industry in their plant within a few short years.

THE WISCONSIN STATE BOARD OF HEALTH SAYS:

The venereal diseases, primarily, are due to a double standard of morals. No man should demand more of a woman than he is willing to give in return.

"If very man were straight, there would be no such thing as prostitution; there would be no loose women if there were no loose men."

"If every man were straight, very few children would be born blind."

"If every man were straight, there would be fewer children born diseased."

"If every man were straight, there would not be nearly so many babies born dead."

"If every man were straight, there would be fewer childless homes."

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Oct. 16.—Although there has been a distinct falling off in the demand for some lines of paper in sympathy with the skidding of prices in other commodities the Canadian paper trade stands out as the one line of commercial activity in which entire confidence is expressed for the future. Prices have not only remained firm in practically all lines but there are those who predict that the upward trend has not yet ceased. Newsprint, for instance, is expected to go to 7½c. in the first quarter of the new year and there may be increases in other lines which may well be said to have reached their peak. The lessened demand for paper is found only in the consuming end of the trade an dthere is a noticeable hesitancy on the part of the printer to stock up. But the jobbers are still out after all the paper they can get and in most lines, notably book, they are unable to get their full wants supplied from the mills, which are still months behind with orders. The opinion is freely expressed in the trade that history is going to repeat itself in the paper industry and that the present period of hesitancy in buying on the part of the consuming public will be followed by a revival when it is discovered that stocks are low and under-production still exists. It will be recalled that early in 1919 trade was bad and paper jobbers had great difficulty in disposing of their stocks. Consumers held off buying on the falling market until they found themselves without supplies. Buying on a bigger scale than ever quickly set in and the trade came back to normal, to be followed by an unprecedented prosperity which has existed up to the present time. The situation at the moment is that while the printers are not stocking up, the jobbers have comparatively little coming along and there are enough orders on the books at the mills to keep the machines running for months yet. Taken all in all the paper trade does not appear to give any cause for worry as to its future.

BOOK PAPERS.—Jobbers report that while shipments are not coming through any more freely from the mills, there is a distinct falling off in enquiries for stock. There is a disposition on the part of the printer to hold back and not endeavor to stock up. Heretofore the printer would buy anything in the paper line he could get his hands on, and particularly book paper. His attitude, however, has changed within the past week or two and he is now buying little more than will meet his immediate requirements. Nevertheless there appears to be little slackening off in the general demand for book papers and distributors report that business is good. None of them have any stocks to speak of on hand and with the mills booked ahead until the first of the year and after, there does not appear to be any prospect of a flooded book paper market for some time to come. A big under-production is still observable in the book paper market notwithstanding the fact that travellers are finding it a little harder to place orders, due, no doubt, to the psychological effect of tumbling prices in certain other commodities. Although a falling market in a number of other lines has characterized Canadian commerce, the only mark it has left on the paper trade is a slight hesitancy in buying, which is considered not an unmixed evil. Prices of book paper are keeping up, along with other paper lines, and it is not anticipated that they are coming down. A spirit of optimism pervades the book paper trade and jobbers do not anticipate a slump of any kind.

WRAPPING PAPERS.—Freer deliveries characterize the wrapping paper trade and although dealers could handle more stock if they could get it, the shortage of stock cry is not so insistent. Shipments are decidedly more liberal and the mills are beginning to advise the jobbers that if they don't want the tonnage promised they will dispose of it elsewhere. The demands on the jobbers' stocks have lessened somewhat and orders for ton lots have been replaced to some extent by half ton lots. There is no let-up, however, in the volume of business, and the trade is as prosperous as any in the paper trade. Prices remain firm and unchanged.

GLASSINE and GREASE PROOF.—The market in these commodities is firm and there is a well-sustained demand for the products. The jobbers' price for glassine is 30c per pound for unbleached and 35c for bleached. Grease-proof is selling at 22c per pound for unbleached and 25c for bleached.

TISSUES AND TOILETS.—Difficulties in securing raw stock and the high prices thereof continue to hamper the tissue and toilet paper manufacturers although the market is firm and the prices unchanged. Canadian makers of toilet papers are beginning to be up against some slight competition from American makers who are sending in some lower priced toilet paper of an inferior quality, although the buyer is getting no better value for his money and the American competition that has so far developed is not considered formidable. The demand for all light-weight papers is well sustained but manufacturers report a great shortage of bleached sulphite pulp which is almost impossible to get.

KRAFT PAPER AND MANILAS.—Kraft mills, while still three months behind, report a slight falling off in demand, although they are still experiencing considerable difficulty in filling orders owing to the calls for tonnage which cannot be supplied in satisfying quantities. The lessening in demand, so far, is only on the part of the consumer and as yet has not affected the manufacturer. Whether this condition will eventually react on the mills it is not safe to predict in these days of falling prices, but at the present moment there appears to be no cause for uneasiness. Under-production is still very marked and there are no signs of future price-reductions. At the present time there is no manila on the market and if there were it would be valued higher than kraft which is now 13c a pound. Kraft pulp is quoted at from $150 to $155 a ton.

RAG AND PAPER STOCK.—The rag and paper stock market is extremely dull. The market in all the lower grades of paper is purely nominal and it is one in which only the buyers figure. The only hope of any immediate change for the better in prices is a

favorable settlement of the strike among the sorters in New York. Shavings and white papers are firm but there is no demand for books and the white paper market is in a moribund condition. New cotton cuttings are keeping up with a tendency to lower prices and old rags are following along the line of old papers. As one of the Toronto dealers put it. "The mills are now coming into their own."

Following are quotations on rag and paper stock :

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$23.00—$24.00
No. 1 unbleached cotton cuttings	$17.50—$18.00
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$13.50—$14.00
City thirds and blues (repacked)	$3.75—$4.00
Flocks and satinettes	$1.75—$2.00
Tailor rags	$1.50—$1.65
Gunny bagging	$1.75—$2.00
Manila rope	$5.25—$5.50
No. 1 white envelope cuttings	$8.50—$9.00
No. 1 soft white shavings	$7.50—$8.00
White blanks	$5.50—$6.00
Heavy ledger stock	$3.75—$4.00
No. 1 magazine	$3.00—$3.10
No. 1 book stock	$2.65—$2.75
No. 1 manila cuttings	$5.50—$5.75
No. 1 print manila	$2.40—$2.50
Folded news	$2.24—$2.30
Over issue, news	$2.50—$2.75
Kraft	$5.50—$6.00
No. 1 clean and mixed papers	$1.75—$1.90

NEW YORK MARKETS.

New York, October 16—(Special Correspondence)—There is little change to report in the paper market and no feature of prominence. Demand continues narrow in comparison with that existing not long ago, consumers at present limiting their buying almost solely to supplies immediately needed. The market has not weakened further, however, as regards prices. Manufacturers as a general thing still have a large volume of unfilled orders on file and are running their plants at maximum or close to full capacity in completing these commitments. No one is cutting prices to any material extent. There are cases that crop up from time to time where this or that manufacturer or jobber has reduced quotations a bit to move a certain lot of paper, but prices on the whole are being maintained at pretty firm levels. Buyers are not operating in the paper market for the same reasons they are keeping out of other commodities; namely, that they have come to the conclusion that a period of slow operations will make for better business conditions in general and act to stabilize values on proper levels.

Developments have effected a decided change in one end of the paper industry, and that is in raw material. Paper manufacturers are pursuing very much the same policy in their buying of raw stock as are consumers of finished paper in their current buying of the product of the paper mill. Demand for all kinds of papermaking material has continued to ease until it is very close to a standstill now. Papermakers apparently are making sure that in the event of a decline in paper prices they will not be obliged to suffer heavy losses on large stocks of raw material. The policy followed by the average paper manufacturer at present is to use up such raw material as he has on hand, liquidating stocks to as low levels as it is wise to do so and to keep from purchasing fresh supplies until the need for them is pressing. This has resulted in most mills remaining very much out of the market for wood pulp, rags, old papers, rope, bagging, etc., and the markets for these commodities have developed an exceedingly quiet tone. That mills will soon appear again as buyers goes without saying, for reserve stocks of raw material cannot last indefinitely, but at the moment there is but a slight call emanating from consuming quarters and those few buyers actually operating are managing to get supplies at attractive prices—prices which in numerous instances represent sharp recessions from the levels prevailing only a short time ago.

The newsprint market retains its steady tone with no change in quotations noted. Spot lots of print paper in standard rolls are selling at from 10 cents a pound upward, with occasionally a purchase reported by some publisher at 9.75 cents. The contract basis is maintained at 6.50 cents, but there is talk in the trade concerning pending important developments in this connection in the near future. What these developments are to be is a question regarding which no one will commit himself, but according to the gossip, it is probable a reduction in price by some of the leading producers will be made.

Book papers are firm in price and are moving into consuming channels in a consistent way. There is no semblance of easiness in quotations, and available supplies show no signs of becoming larger. In fact, buyers seeking extra tonnages of book papers are meeting with little success; mills in general being sold up for some time and having but odd lots of paper to dispose of. The coarse paper market rules steady although demand is a good deal slower than it has been in a long time. Consumers of wrapping and tissue papers evidently are making their contract supplies do them at present without the necessity of placing additional orders.

The board market is a little easier. Due to a sharp decline in waste paper costs, some mills are accepting orders for board at slightly lower prices, sales of news board at $115 a ton and of plain chip board at $105 having been recorded. There are no indications of any severe break in board values, however, and the probabilities of such a happening seem slim while mills still have the amount of unfilled business on their books that they now have.

GROUND WOOD—The ground wood market is moving along in an even and peaceful state without much occurring to disturb its surface. Demand is largely confined to spot tonnages of pulp needed by consumers for immediate use, and yet there is sufficient buying to sustain prices at a quotable range of $125 to $130 per ton at producing mills for spruce ground wood of prime quality. There are no signs of available supplies increasing and mills are said to have little output to reserve for winter use, thus indicating that consumers are taking the great bulk of the present production. Everyone is bullish con-



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cerning ground wood, at least everyone on the selling end of the commodity. It is generally felt that with grinders having little surplus stored up that the winter will see higher pdices unless the paper situation reaches a point where the consumption of mechanical pulp drops far below prevailing tonnages.

CHEMICAL PULP—About the only feature in chemical wood pulp is the continued arrival of fairly large supplies from Scandinavia. Several heavy shipments have reached New York this week, and it can be said there is more imported pulp being offered in the market than in a long time. Prices in general are holding moderately steady. Sulphite shows no recession and is at best difficult to procure in sizable amounts, which also holds true of soda pulp. Kraft is the easiest grade and is being offered at reduced prices, Scandinavian kraft of good quality being available at 7.25 cents a pound and less and domestic kraft at 6.50 cents.

Arrivals of foreign pulp at the port of New York this week included 15,178 bales from Sundsvall, 850 bales from Gothenburg, 596 bales from Osaka, and 700 tons from Haugesund.

RAGS—There is little life to the rag market and prices on old rags continue to sag. Sales of roofing rags have been recorded at as low as 1.70 cents a pound at shipping points, and reports have averred that some mills have bought at even lower figures. Old thirds and blues are offered at 4.25 to 4.50 cents for repacked stock and old whites at 13 cents for No. 1 repacked material. New cuttings are holding their own and buyers find it necessary to meet quoted prices to obtain such grades. A threatened strike of clothing makers is a sustaining factor in the new rag market, dealers being hesitant to sell for cheaper figures in the fear that production will be drastically curtailed by the strike of cutters.

Imports of foreign rags at New York during the current week included 453 bales from Rotterdam, 218 bales from London, and 250 bales from Oran.

PAPER STOCK—The market for old papers is in a very unsettled condition. Consuming mills for the most part have retired as buyers and are keeping almost entirely out of the market and prices are dropping with marked rapidity. Coupled with this, a strike has been instituted by collectors and handlers of old paper in New York City, who claim they are unable to operate at a profit under prevailing market prices and who therefore have stopped producing stock, presumably with a view of advancing prices. It is next to impossible to quote accurate prices. There is not enough business passing to establish values and about the only quotations obtainable are those named by dealers as asking figures from mills. Folded newspapers are to be had at 1.60 to 1.70 cents per pound f.o.b. New York and No. 1 mixed papers at 1.35 to 1.45 cents. Few mills evince a desire to buy even at these figures, however, and the probabilities are purchases can be effected at cheaper prices. Old books and magazines are going abegging at 2.75 cents at shipping points, while No. 1 old kraft paper is freely offered at 5.50 cents and white blank news cuttings at 5.75 cents.

OLD ROPE AND BAGGING—The market for old bagging is dormant and prices are mainly nominal at around 2.25 cents for No. 1 scrap bagging, 1.15 to 1.25 cents for roofing bagging and 2.75 cents for gunny. Old rope is steady and moving in fair quantity at 6 cents per pound at shipping points.

Receipts of foreign rope at New York this week included 49 bales from Rotterdam, 143 coils from Christiania, and 198 coils from Hull. There were no imports of bagging.

SAFETY WORK AND INDUSTRY.

To-day, accident prevention is the one non-controversial subject in industry as both employer and employee are interested in preventing accidents. Compensation costs are a big item in modern industry and yet both employer and employee would be better off if there were no accidents. Compensation at its best can never replace a limb lost nor can it bring back a life lost in industry. Manufacturers in England and the United States have come to realize the importance of accident prevention and are getting very substantial results by placing this feature of their work on a strictly economic basis.

Compensation is a substitute, accident prevention is the "real thing". As far back as the fifth century, compensation in money was paid for personal wrong. The freeman's life and the freeman's limb each had, under this system, its legal value. An eye for an eye and a limb for a limb or fair damages. Accident prevention means whole bodies and lives saved. Accident prevention should win the day.

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That list will give some idea of the importance of the campaign for a national forest policy. — Chas. Lathrop Pack, in "Disson Crucible."

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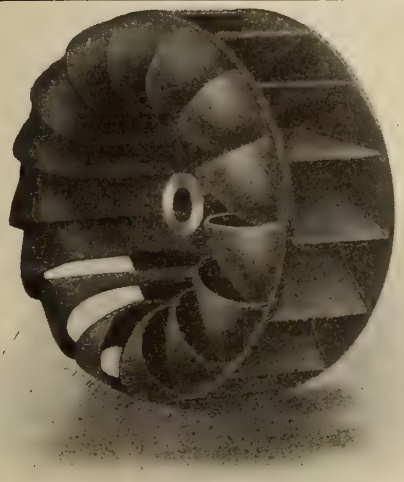
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OF CANADA

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EDITORIAL

A PRIVATE ENTERPRISE OR A PUBLIC UTILITY?

In a recent number of the Pulp & Paper Magazine mention was made of the possibility of the Government of Ontario establishing a pulp and paper plant. In these days when there is so much discussion of public ownership of public utilities we would naturally expect that the field for government operation should be limited to those industries which must of necessity be practically monopolies. Such industries we recognize as street railways, telephone and telegraph and postal organizations, water works, light and gas companies and possibly railways. The farther we get, however, from purely public service corporations as serving municipalities, the farther we get from the probability of efficient operation and the lack of serious interference with the development of resources, the growth of industry and the furnishing of efficient service at reasonable cost without burdening with deficits a portion of the community only indirectly, if at all, served by such activities. Even the operation of strictly municipal monopolies has not always been accomplished successfully.

It is not so long a time since the utilization of prison labor in competition with legitimate private enterprise, was a matter of public consideration and discussion. This practice fortunately, has now mostly disappeared. it having been recognized that such procedure was entirely unfair to honest citizens and that advantage was being taken of conditions which gave the state certain opportunities that could not be available to the individual concern on which the community really must depend for its products. The resources available to the prison authorities is human labor, whereas the resources at the disposition of a government are those of nature such as minerals, water-powers, forests and fisheries. We do not hear any suggestion of our governments here, going into the mining business or the fishing business so why should a province so much as consider entering the pulp and paper industry? The case is similar to the employment of prison labor except that here the government would be employing a natural resource of material things instead of the employment of human labor. In the case of the prison, there is a valuable moral advantage in keeping the unfortunate inmate busy. This furnishes an opportunity of improving his ability to earn his own living and enables him more easily to retain his self-respect. His energies must be employed and if they can be directed into productive effort it is a good thing, and there are ways of absorbing the product without danger to the gainful occupations which must engage the energies of those outside the prison walls.

The natural resources of a province, the raw material of the forest and the latent energy of the waterfall, should be put to use in such a way as to furnish revenue to the people who own these resources. This could be done in all fairness, and at the same time encourage rather than discourage the ambition of the people whose energy and industry makes for the prosperity of the whole province.

It is likely to be argued that the province is already operating a small pulp mill so that it would only be natural to extend this activity to make more extensive use of the people's inheritance. Ontario owns a pulp mill, only by the accident of its being a part of the legacy that fell to the Hydro-Electric Commission.

Previous experience with government operated industries, is that they have usually been extravagant in the extreme and have failed hopelessly to return to the people the product, the employment, or the profit which should derive from the exploitation of resources and opportunities. In fact there is a situation in Ontario right now which illustrates the fallacy of attempting to engage in an industry which has no parallel at least in Canadian history for the soundness, rapidity of growth, and beneficial return to the country that has accompanied the development of the pulp and paper industry. We mean the lack of power which should be available through the government controlled organization that is supposed to develop the water-powers of the province for the benefit of Ontario industries. There is right now a shortage of electric power which must have been foreseen and which has retarded the growth of the very industry which someone has been bold enough to suggest as a field for government activity. The establishment of a paper mill has been held up for several years on the sole excuse that the power to be used had been contracted for with the Government Commission and is not even yet forthcoming in sufficient quantity.

It would be exceedingly unwise both economically and politically for the government of a Canadian province to engage in the manufacture of pulp and paper. The inevitable end of such a course will be a prison-house industry with political appointees running even the envelope and box factories and publishing our newspapers. The government has sufficient

control of the industry through its ownership of the forests and water-powers. It is possible by a judicious use of its power in these respects not only to encourage the growth of the industry but to prevent illigitimate enterprise and to furnish the people with a substantial and continual source of income.

BRINGING THE OCEAN TO PORT ARTHUR.

At the present time there is under consideration by a joint commission representing the United States and Canada, a project that will doubtless be of the greatest interest to the pulp and paper industry. We refer to the plan for deepening the canal system joining the great lakes with the lower St. Lawrence River. The matter has its opponents as well as its advocates. The opponents of the scheme seem to be basing their argument almost entirely on the effect that such a water way would have on their own local interests. For instance, in Boston there is opposition because of the fear that if successful, such a scheme would diminish the importance of this New England port as an ocean shipping point. On the other hand, cities along the great lakes, both in Canada and the United States, are naturally favorable to the idea because of the unquestioned advantage that such a water route would be in assisting them to market bulky and heavy commodities, chiefly farm products.

Along the route which would begin half way across the continent, there are several points from which pulp and paper might be shipped. For instance we have Port Arthur and Fort William, which are not only already important store houses for the ever increasing grain crop of the Canadian Prairies, but which are also coming very rapidly into prominence as a centre of pulp and paper manufacturing. In this vicinity the Port Arthur Pulp and Paper Co., has been in successful operation now for several years and before another twelve months have passed we shall see the Fort William Paper Co., Nipigon Pulp and Paper Co., and the Kaministiquia Pulp and Paper Co., in operation if all their plans mature as successfully as present conditions foretell. It is possible also, that these Twin Cities may some day be the outlet for straw boards and other pulp and paper products from the resources of the Prairie provinces.

Coming farther east, we find the Spanish River Pulp and Paper Mills at Sault Ste Marie and at Espanola and Sturgeon Falls, Ont., which points would be within easy distance of loading points for ocean going vessels. Mills in Northern Ontario, which would include the Spruce Falls Pulp & Paper Co., (now in process of construction), The Matagami Pulp & Paper Co., The Abitibi Company, and any others that might in the future be located in Ontario's pulpwood areas, would find a much shorter railway haul to water transportation than is available at present. There is also the important paper producing centre which has been built up on the Niagara Peninsula and which could almost load its product from the mill directly to the vessel.

The scheme is an enormous project and will prove an expensive one, but like the Panama Canal, it will no doubt prove its value in several ways. In these days of increasing efficiency in every possible way, the expenditure of millions of dollars is examined in many cases for the possible saving of may be a few cents per unit of product. Based on the enormous tonnage that is already passing up and down the St. Lawrence and Great Lakes system and estimating as it is possible accurately to do, the probable increase in tonnage which such facilities would afford, the advocates of the scheme confidently prophesy great success for such improvements as are proposed. Not only then will Canada and large sections of the United States benefit by such a water-way through the more immediate connection of inland shippings points through the many lanes of ocean travel with the American and Trans-Atlantic ports, but great benefit would also be derived through the possibility of bringing them closer to many products from over-seas.

Besides the unquestioned advantages to transportation, the improvement of the St. Lawrence canal system through the erection of dams and locks would give an enormous increase in available electric power. The advantage of this is the more evident and the more important when the saving of coal is considered. This would be an enormous asset to the Dominion through decreasing the dependence of Canada on the United States for fuel. The conversion of potential water power into available electric power, would also tend greatly to increase Canada's importance as a manufacturing country, although it should, of course, be remembered that a proper proportion of power so developed would belong to the United States.

As far as the pulp and paper industry is considered, it seems to us highly advantageous that the proposed improvements in the St. Lawrence water-way be carried out.

COBWEBS.

The Altoona pastor who declared that "the eight-hour man, with a sixteen-hour wife needs to unionize the home" contributed a valuable thought.—Pittsburgh Gazette-Times.

The value of Canada's crop of the five principal grains is estimated at more than $900,000,000.

The Government of Ontario issued a formal proclamation approving of Safety Week for the Province. The results were very gratifying to the Safety League and others who helped the good cause.

Paper-Making Materials in the Philippines

(From the Journal of the Royal Society of Arts, August 20, 1920.)

The Philippine Islands produce an abundance of fibres and other raw materials for the manufacture of paper pulp on a commercial scale, but at present none of these is being utilised for this purpose. So far as is known, no paper has ever been made in the Philippines except for experimental purposes. The country also contains plenty of the raw materials required for the manufacture of the chemicals used in paper pulp making, but none of these chemicals is now being produced locally.

More than a decade ago, Mr. G. F. Richmond, for several years attached to the chemical laboratory of the Philippine Bureau of Science, made a very careful survey of the materials available in the Philippines for the manufacture of paper pulp, but, according to a report by the U. S. correspondent at Manila, no practical use has yet been made in the islands of these valuable data.

The experiments made by the Bureau of Science were undertaken with the object of determining the commercial availability, for paper-making, of the fibres from members of the plantain family, such as abaca (manila hemp), banana, and plantain; of maguey (Agave cantula); of certain palms; of bamboo; of grasses; of certain woods; and of other less important plants.

Bamboo.—Of all the materials for the manufacture of paper found in the Philippines, the bamboos are the most important, considered from every standpoint. Not only is the paper made from bamboo of excellent quality, but a constant, adequate, and accessible supply of this material could be made available for a paper or pulp factory more readily than could such a supply of any other material. Its rapidity of growth is an important item among the various qualities that render bamboo valuable as a paper-making material. Experiments were made with the two most important and widely-distributed bamboos. These are the common, thick-walled variety (Bambusa blumeana), and the thin-walled, dwarf bamboo, also known as cana bojo, of the genus Schizostachyum.

The thick-walled variety is that commonly employed for building purposes throughout the islands. It is planted as a crop along the river bottoms of the Pampangan plain, on Luzon, and in other sections of the Philippines as well. Propagated from cuttings, the plants are set out in rows from sixty to ninety centimetres apart. Marketable culms are produced in from one to two years.

The cana bajo, or dwarf bamboo, is that employed throughout the Philippines for the manufacture of woven products used for furnishing the interiors of nipa houses and for other purposes, such as the "sauale, quisame," and "amatong". The cana bojo is found almost entirely within the forested regions of the country and is a veritable forest pest. It is never cultivated, but is cut without restraint in the forest regions to prevent its deleterious effect on forest growth.

In the Province of Bataan there are two contiguous areas of cana bojo, one of them containing 1,200 hectares (hectare = 2.47 acres), 800 hectares of which are covered with a dense stand of cana bojo. The other area includes about 650 hectares, of which over 40 per cent. is covered with this variety of bamboo. Small areas of cana bojo are found in the same province along the Bamban, Buasao, Pinulot and Bacan rivers, in the basin of the Colo River, and in the basin of the Mababo or Balsic River. Some of these areas contain a higher percentage of timber trees than do others, and are, consequently, less thickly studded with bamboo. In an average stand of this variety of bamboo there are about 9,000 culms to the hectare. An ordinary green cane weighs 7.2 kilos, and an air-dried cane, without the nodes, weighs 3.75 kilos. A hectare would, therefore, produce about 33.75 metric tons of dried material. Mr. Richmond calculated from his experiments that two metric tons of aid-dried material would produce about one short ton of pulp. The yield of pulp would consequently be approximately seventeen tons to the hectare, or nearly eight tons to the acre.

The experiments made by Mr. Richmond developed the following important facts in respect to bamboo as a paper-making material:—

1. The dwarf bamboo (cana bojo) is better than the variety used for building purposes, in that it yields more unbleached pulp and requires less of the bleaching agent to give the best results. The structural bamboo requires from 20 to 25 per cent. of bleach to give but poor results, but a satisfactory white is obtained from dwarf bamboo with from 10 to 20 per cent. of bleach. This compares well with the results obtained from straws of various kinds.

2. A well-digested pulp is obtained from bamboo by the use of from 10 to 20 per cent. of caustic soda, calculated on the gross weight of the stems.

3. The time required for digestion, the pressure and the temperature employed are materially less than those required in making pulp from soft woods by the same process. In fact, in these particulars, bamboo compares favourably with straw and similar materials.

4. Both the sulphite and soda processes may be employed in working up cana bojo. By the former process, fully 50 per cent. of unbleached pulp may be obtained, and that, with the use of much less sulphur than is necessary for the making of wood pulp. By the latter process 43 to 45 per cent. of air-dry, unbleached soda-pulp is obtained. The use of caustic soda is recommended for bamboo because of certain difficulties to be overcome in the use of the sulphite process. The results described were obtained by the use of caustic soda under the following condition: (a) Upright cylindrical stationary digesters; (b) direct live-steam heat; (c) 15 to 20 per cent. of 76 per cent. caustic soda, calculated on the air-dry weight of the raw material; (d) a duration of cooking of from four to six hours; (e) a maximum temperature 160 deg. C. (320 deg. F.) corresponding to a steam pressure of 45 kilos.

5. Pulp obtained by the sulphite process is not light enough in colour to be mixed with mechanical wood pulp in the manufacture of newsprint paper. It is entirely suited in point of colour for use as a wrapping paper. But it is too valuable, by reason of its fibre, to be used for wrapping paper or for the making of newspaper stock. The strength of bamboo fibre makes

it specially adapted to the manufacture of book paper and certain grades of writing and lithographic papers. For these purposes it may be used alone or mixed with rag or sulphite wood pulp.

6. If the bamboo pulp is to be used in the making of book and lithographic papers, the soda process should be employed in its manufacture, because bulk, softness and opacity are the chief features of soda pulp. This pulp bleaches to an excellent white with from 12 to 15 per cent. of bleaching powder. The resulting sheet is more bulky than that from wood pulp and possesses a strong fibre 2.5 to 3 millimetres in length—longer and narrower than spruce fibres—and a good felting capacity.

Abaca or Manila Hemp.—The Philippine Archipelago is the home of abaca (manila hemp), the source of all materials from which the genuine Manila hemp paper is made. The plant (Musa textilis) is a species of wild banana, of which there are several found in the Philippines. The fibre from this plant is the world's premier cordage material and comprises the chief article of export of the Philippine Islands.

Abaca waste, available for paper-making, is of two kinds, namely; that made up of old worn-out rope, gunny sacks, waste thread, and binder twine made from the fibre; and the true abaca waste, i. e., the fibre that is missed in the stripping of abaca or extracting the fibre from the stalk of the plant. There is very little of the former to be had in the Islands. When abaca waste is mentioned in the Philippines, the term signifies that portion of the fibre that is missed or thrown aside with the stalk pulp at the time of, and in the process of stripping the fibre or extracting it from the plant, either in the hills or on the plantations where it is grown.

Abaca, the fibre extracted from the plant of the same name, is taken from the petioles or sheath-like leaf stalks, which, wrapped one about another, form the stem or trunk of the plant. The stripping process consists of separating the fibre from the cellular matter of the petiole.

From this process two kinds of waste material are obtained, both of which are of value in paper-making. One of these is called fibrous waste, and the other semi-fibrous waste. The former is made up of the broken, tangled, or lost but clean fibres mixed with strips or bands of fibre aggregates from which the cellular and incrusting matter has not been entirely removed. The fibre contained in this waste has all the qualities of the fibre that is recovered by the stripper and subsequently employed in the manufacture of cordage. It is therefore identical with the fibre contained in rope waste, well known among manufacturers of paper. There is this difference, however; this fibre is fresh and has not suffered the deterioration of age.

The semi-fibrous waste resulting from the process of stripping abaca is due chiefly to the method by which the stalk of the plant is made ready for the stripping process. The plant is prepared for hand stripping by cutting off a portion of each end of the stalk to facilitate the removal of the petioles. Several of the outer of these are usually discarded on account of being bruised and discoloured. The fibre which is recovered as the abaca of commerce is contained chiefly in the outer surface of the petiole. The inner surface of the petiole and the portion between the two surfaces are made up, for the most part, of cellular matter, although they also contain much fibre of a lower tensile strength than that contained in the outer surface.

After the petiole has been removed from the plant stalk, preparatory to stripping by the hand process, ribbon-like strips are peeled from the entire length of its outer surface. Only these thin, fibrous ribbons are submitted to the hand-stripping process. All the remainder of the petiole is discarded. As already pointed out, this discarded portion, while containing chiefly watery, cellular matter, also has much fibre that is valuable, though never recovered by the hand process of stripping. This cellular portion of the petiole, the discarded outer petioles and the cut ends of the stripped petioles make up the semi-fibrous waste of abaca.

The habitat of abaca is in southern Luzon; the Provinces of La Laguna, Cavite, Batangas, Albay, Ambos Camarines, and Sorsogon; Samar and Leyte and southern Mindanao, chiefly. A mill situated anywhere in the islands would require a more or less considerable haul for most of its supply of abaca waste. It would also have to solve the problem of collecting the waste in the various regions where it is produced. Undoubtedly this would be an easy matter. Once abaca growers knew that there was a market for the waste at a price to leave a reasonable margin of profit over the cost of baling and collecting, the waste would be taken care of as systematically as is now the case with cordage fibre. In fact, a considerable amount of this material has been collected and exported from the Philippines at different times.

The semi-fibrous abaca waste, owing to the length of time, the pressure and the strength of caustic soda required to remove the cellulose matter, cannot be used profitably in the manufacture of the better grades of paper. But this material might readily be manufactured into wrapping paper of the sort in which strength and cheapness are of more importance than colour, by the process employed in working up jute—that is, by the use of lime, cooking under pressure, and partial bleaching.

Grasses.—Grasses of several varieties have long been in use for the manufacture of paper stock. Perhaps the most widely known of these is the esparto grass (Stipa tenacissima), for many years an article of commerce in the Mediterranean countries. This grass has been employed in some of the mills of Europe for many years. In India, the Bhabar grass (Ischaemum angustifolium), which yields a paper but little inferior to that of esparto, is very generally in use. The Munj grass (Saccharum sara) and several other grasses of the same species are constantly used. The paper industry of India is founded principally on these grasses and has become very extensive.

Mr. Richmond experimented with two Philippine grasses, cogon (Imperata exaltata Brong), and Talahib (Saccharum spontaneum), and found each to be an important source of paper stock. Cogon grass grows from two to four feet in height, and is found in even stands on open lands, foot hills, and low mountains in almost every part of the Philippines. It is broad-leaved, gregarious, and thrives with but little moisture on almost any sort of land. In many sections of the Islands, where nipa is not to be had, the natives rely on cogon grass roofing and siding for their houses.

Cogon grass is found in abundance in the central plain of Luzon on most of the open land. In the Province of Tarlac, between Capas and Concepcion, there is a good stand of cogon grass covering a level area of abandoned rice and sugar land. The grass on this

area is usually of good stand and quality. Throughout Tarlac Province and, to a less extent, in the adjoining provinces, there are large areas of open land covered with cogon grass of good quality. Cogon grass is also abundant in the Visayan Islands.

Cogon grass is not jointed. This quality is regarded as of great advantage in the matter of making paper pulp. Its yield is from 5 to 10 per cent. more than that of cereal straws, and it is more easily pulped with a smaller proportion of caustic soda. It has the further advantage over cereal straws that it can be harvested just before it is ripe, a period when it gives the best results. Cogon is easily prepared for digestion, and requires no preliminary cutting down after being dried, hand-picked, or machine cleaned.

Talahib (Saccharum spontaneum) is a coarse jointed grass growing from six to ten feet tall. It is gregarious, and springs in tufts from stout underground root stalks. Talahib is often confounded with cogon grass. It is very different from the latter, however, in both its appearance and habits of growth. Talahib thrives best in low, moist land and flourishes in river valleys and areas subject to annual floods.

This grass generally occurs with or near cogon grass, growing vigorously in the wet places where cogon does not do so well, and being of a poor variety on the uplands where cogon thrives well. It is difficult to get rid of. Cutting and burning has but little effect on it other than to increase its yield and quality. Talahib is related to the "Saccharum sara" (the Munj grass of India) and "Saccharum officinarum" (the sugar cane of tropical countries).

An experiment carried out by Mr. Richmond with a small quantity of talahib fully matured with entire stems and leaves, gave as result a percentage of 53.9 of cellulose.

Bananas and Plantains.—Plantains (Musa paradisiaca) and bananas (Musa sapientum) contain much fibre that might be utilised in the manufacture of paper stock. These plants abound almost everywhere in the Philippines. Probably close to 100,000 acres are planted to them. The fibre from them has not the tensile strength of abaca, but this is considered by Mr. Richmond an advantage when the fibre is to be employed in the manufacture of paper pulp. Nearly 20,000,000 bunches of fruit are gathered yearly in the Islands from these plants, and there are, therefore, a like number of full-grown stalks which annually go to waste, since practically no use is now made of them. The figures do not include the wild non-edible plantains, which are common throughout the Philippines and which might be utilised in the making of paper stock.

The chemical investigation of plantain fibre carried out at the Bureau of Science showed a percentage of 68.21 of cellulose. There appears to be no good reason why a plantation of bananas might not yield a profitable revenue from its fruit, and at the same time supply a pulp mill with the stalks discarded when the fruit is harvested. At the present time no bananas are exported from the Philippines, nor is the domestic market as well supplied as it should be, considering how valuable the fruit is as an article of diet.

Maguey Waste.—Maguey (Agave cantula) and sisal are being extensively planted in several sections of the Philippines. These plants yield a fibre that is well known to the cordage world. This fibre is extracted by retting at present, but a movement is on foot to revolutionise the methods of recovering it by the introduction of machines. When maguey and sisal fibre is extracted by machinery there is a considerable quantity of waste that is comparable to abaca waste. The maguey, owing to the nature of the leaf of the plant, is considerably more bulky than abaca waste.

Other Materials.—Bowstring hemp (Sanseveria zeylanica) is found in many parts of the Archipelago. It is not, however, of commercial importance. It has possibilities and might be cultivated for its fibre, which is not unlike that of maguey.

Coconut coir (husk fibre) might be produced in abundance in all the coconut regions. At the present time this by-product of the coconut industry is almost entirely neglected. It might be utilised very profitably in the manufacture of paper.

The leafstalks of the nipa palm contain valuable paper substance. At present little or no use is made of these, though a vast amount of the nipa leaf is used in almost every section of the islands for thatch and siding for houses.

The buri palm is widely used in the manufacture of hats and other handicraft products, and yields an immense amount of waste in the process of extracting the material utilised for these purposes. No small part of this waste might be employed in the making of paper stock.

The milling waste of certain soft Philippine woods is known to be valuable as a source of paper stock. Mr. Richmond made successful experiments with lauan, kupang, and similar varieties.

It is not conceivable that any of the minor sources of paper pulp mentioned above would alone yield enough material to keep a mill in operation, but, nevertheless, they are not altogether negligible at a time when the world appears to be facing a shortage of such substances.

Raw Materials for Paper-Making Chemicals.—It is the opinion of the Director of the Bureau of Science that caustic soda, sodium sulphite and the bleaching powder required in the manufacture of paper could be manufactured in the Philippines if there were a demand for them. At present all such chemicals are imported.

FRANKLIN WESTON DEAD.

Franklin Weston, aged 54, chairman of the Board of Directors of the Byron Weston Co., Dalton, Mass., died at his home in Pittsfield, Mass., Friday, September 24th.

Mr. Weston was born in Dalton, August 13th, 1866, the son of the late Lieut. Governor and Mrs. Byron Weston. He was educated at Greylock Institute in South Williamstown, Mass., and at Phillips Academy, Andover, Mass. From there he entered his father's mill in the summer of 1887, and worked from the bottom up. Having acquired a practical knowledge of paper making, he entered the business which his father had established in 1863. In 1892 the business was incorporated, and Franklin Weston was then elected treasurer. Upon the death of his father in 1898, he was chosen president, and held that office until February 7th of this year.

PIDGEON RIVER LUMBER MILL DESTROYED.

The planing, and finishing mill of the Pidgeon River Lumber Company at Port Arthur was destroyed by fire October 17. The loss is upwards of $100,000. The lumber yards were saved. It will be recalled that this company has applied for a pulp wood limit in order to build a pulp mill.

Pulping of Jack Pine

By F. I. RITCHIE, Manager Wayagamack Pulp and Paper Co. Ltd., Three Rivers, Que.

Some years ago the Wayagamack Pulp and Paper Company Limited, Three Rivers, Que., was equipped with complete apparatus for the purpose of experimental pulping of all the different species of wood.

Experiments have been systematically carried on for a number of years with the object of discovering what different species of wood were suitable for the different qualities of pulp required for the manufacture of all kinds of paper.

In the provinces of Ontario and Quebec there are enormous tracts of land timbered almost exclusively with what is known as Jack Pine, also called Banksian Pine, or Cypress.

For this reason, it was important to ascertain if Jack Pine could be used for the manufacture of sulphite pulp and ground wood, in spite of all the prejudice against its use for this purpose.

A preliminary examination of Jack Pine, with regard to its resin content seemed to indicate that the resin was not present in quantities which would prohibit its use for the manufacture of sulphite pulp or ground wood, although Jack Pine seems to have had to carry the blame for all the pitch troubles which all paper mills suffer from, more or less.

If Jack Pine is cooked in a mixture with other wood, trouble is quite likely to result, because Jack Pine apparently requires a stronger acid and a longer cooking time than other species of wood.

If, however, Jack Pine is cooked alone, the company's experiments, as well as those reported below, would indicate that Jack Pine will produce a sulphite pulp which is in all respects equal to Spruce Pulp. The fibre from Jack Pine was found to be about .25 mm. longer than Spruce fibre, which will make it particularly suitable for newsprint.

Some years ago, by special arrangement with Geo. McDougall, of the Jacques-Cartier Pulp & Paper Co., of Pont Rouge, Que., the Wayagamack Pulp & Paper Company Limited shipped a quantity of Jack Pine to be pulped into ground wood at the Pont Rouge plant.

The pulp obtained from this wood proved to be as good as, if not better than, anything that could be purchased on the market. The Wayagamack Pulp & Paper Company would like, therefore to call attention to the fact that from all the experiments made, there is no evidence of excessive pitch which could be traced to the use of Jack Pine.

By arrangement with Messrs. Arthur D. Little Inc., of Cambridge, Mass., sulphite cooking experiments were performed at their laboratory and the Wayagamack Pulp & Paper Company have pleasure in publishing the principal results with the consent of the Arthur D. Little Inc., in the hope that the facts will be of interest to the industry. It should be carefully noted that the figures obtained from these experiments seem to demonstrate that the results obtained from the measurements of fibre length and content of pitch for Jack Pine as against Spruce, show that the Jack Pine is **fully equal to Spruce in every respect.**

The following is an extract of the detailed report by Arthur D. Little Inc.

"Fibre Length and Pitch."

The fibre length of pulp from Jack Pine was rigidly compared with that of Spruce and the results of our measurements are as follows :

	Jack Pine	Spruce
Max. length of fibre	3 mm.	2½ mm.
Min. length of fibre . . .	1¼ mm.	1¼ mm.
Mean	2.26 mm.	1.92 mm.
P. C. of fibres over 2 mm.	80 %	73 %

It will be observed that the fibres in the Jack Pine pulp are superior in length to those of Spruce and the former should therefore be an excellent substitute for the Spruce, especially in connection with newsprint paper.

As the content of pitch in woods is practically always an indication of their behavior in either the sulphite or ground wood process, we have made an ether-alcohol extraction of this Jack Pine to determine the total resins and waxes. These were found to be as follows :

. Alcohol extract	2.28 %
x. Ether Extract	.30
Total Fats, Resins and Waxes	2.58 %

x. Ether extraction made successive to alcohol extraction.

Results of this analysis do not indicate that an excessive amount of resin is present and, furthermore, that this amount of resin does not necessarily preclude the use of Jack Pine in the sulphite process."

It is to be hoped that any person who has made experiments along this line will publish the results of the experiments, for the benefit of all concerned.

CHEMICAL ENGINEERING CATALOG.

The Pulp and Paper Magazine has no interest in the Chemical Engineering Catalog, other than an appreciation of its value to those interested in the purchase, use and development of chemicals and mechanical appliances used in industries of this character. The editor has had a copy of each issue and knows it to be a valuable book.

The size of this edition is limited and orders must be placed early. Last year more than 800 orders for Catalogs were received after the edition for that year had been exhausted.

The 1920 issue contains about 30% more data than any previous issue, in addition to the corrections and changes necessary to bring it up to date. It is a book of 1452 pages, 9 by 12 in size, and contains the catalog data of 748 firms manufacturing and dealing in equipment, materials and supplies required in industries employing chemical processes. It also contains a list of approximately 1200 scientific and technical books with their prices and a brief table of their contents. In addition to the catalog material, the Classified Directory gives the names and addresses of hundreds of manufacturers of chemicals and equipment whose products are not cataloged in the volume.

The leasing fee for the use of the volume this year is $2.00 per copy in the United States ($3.50 U. S. funds, in foreign countries, prepaid) plus the cost of delivery or transportation. Only those who are professional men or who are members of technical organizations in the chemical and allied industries are permitted to subscribe for the Catalog on this basis. The cost to others is $7.50 per copy.

Send orders to the Chemical Catalog Co., Inc., 1 Madison Ave., New York, giving the title of the position occupied and the nature of the business engaged in.

The Greatest Conservation of All

We of the pulp and paper industry in the past have been strongly criticised for our lack of interest in conservation. In some cases the charge was unwarranted; in others strongly justified. We were told we were rapidly depleting our forests; depleting them more than the production of paper warranted. Depleting them, in many instances, by ignoring all knowledge of scientific forestry and scientific reforestation. But we were a comparatively youthful industry and, like all youth, prodigal of our resources. But age and experience came to our rescue and we saw the light. Today there are few reputable companies which do not maintain an efficient Forestry Department under the direction of a capable forester. In the language of the street, we had been cutting off our noses to spite our faces. We now realize that the life blood of our industry depends upon the products of the forest and that any intelligent methods we can use to prolong or re-new the life of our forests are well worth our serious consideration. But what is more to the point we learned that a man may spend his life in the woods and yet not know as much about economic forestry as a young pup fresh from college. We learned much the same bitter lesson as did the farmer—he learned that though he spent his whole life on a farm, a young chemist in the Agricultural Department at Ottawa knew more about soil than did he.

We have been so busy the last few years conserving our forests that we have in the main overlooked the most important conservation of all—the conservation of our working force. There is only one way to do that : by intelligently employing men in the first place and then following their progress after employment making sure that we haven't placed square pegs in round holes.

No mill would buy an absolutely new type of paper machine, for instance, until its technical heads had thoroughly investigated its possibilities. Yet the same mill will hire a high priced man on the say-so of a foreman or a Department head who may or may not be a judge of men and who may or may not be thoroughly conversant with the exact qualifications the man should have to hold the position in question. For instance, a man might be highly qualified practically and technically for the position of Sulphite Superintendent and yet have none of the qualities of leadership—be unable to maintain a loyal working force under him. Not until the mill loses some of its best cooks and other highly skilled men does it wake up to the fact that it has picked a "lemon". How many mill heads in employing, beyond a mere superficial questioning, enquire into a prospective employee's temperamental and human qualifications?

The hiring of employees is just as much technical as the designing of an extension to a mill is a question for technical experts. This very fact has developed a group of highly skilled and trained men whose vocation in life is to cull the fit from the unfit, to distinguish the earnest from the casual, the efficient from the inefficient and to develop all to the best that is in them. Some corporations call the man or woman (and there are many of the latter) "Employment Manager", "Employment Supervisor", "Director of Employment" or some similar title.

There are many who think of co-ordinated and organized employment organizations as being designed, primarily, to deal with the laboring classes. As a matter of fact their most important function is the locating of and hiring of men for important executive positions.

Fundamentally the functions of an Employment Department may be divided under three main heads:

(a) Locating desirable applicants and obtaining full particulars about them and filing same for ready reference should a vacancy occur later in which they would be suitable.

(b) Hiring personnel as the occasion requires. Investigating applicants on a number of points in order to ascertain his or her fitness for the position in question.

(c) After the employee has been engaged, to see that he is happy and efficiently suited in his work. To recommend changes to other classes of employment in cases of men wrongly placed. To act as intermediary between the employer and the employee.

Now let us take the above three functions in order.

(a) What happens in a mill where the employment is done by the manager or a department head. A vacancy occurs. Either the application files are gone over until an apparently suitable applicant is found or he "enquires around for a man with the necessary qualifications. Hit or miss; isn't it ?

Now let us take it that the mill has an organized Employment Department. What happens? The employment manager receives a requisition from the department in which the vacancy has occurred for a replacement. He has carefully filled data cards of applicants in every class of work and by referring to his records he locates a number of applicants who have had the necessary training to fill the position. But more important still he may find, through his detailed records, a suitable man within the organization to fill the vacancy. He then communicates with those applicants who seem suitable and by personal examination selects the most likely man. The department head is then called into consultation and if the applicant appears suitable he is engaged. But with his engagement the employment manager's work only begins. He follows the progress of the new employee until he passes the probationary stage and is found entirely suitable. If he does not measure up to his new job the employment manager has him transferred to some other place in which he might better fit and obtains another man without delay.

(b) In the average mill, without an organized Employment Department, how is a new man hired? Something like this. The applicant is asked some haphazard questions as to his age, married or single, where he has worked, and how much he wants. Usually the latter plays a large part. Generally speaking a low-priced man is low in efficiency.

He must be or he would "sell" his services at the highest market price. How often is the applicant met with the old argument that other mills are paying about such and such a wage for similar work. It's not the job entirely that should fix the wage. It's the man. Recent scientific investigation of an office force of clerks, all getting twenty-five dollars a week, showed the following interesting results: 60 per cent were only economically earning $20.00 per week; 20 per cent were earning their wage and 20 per cent were earning $30.00 per week. Do you think a standard wage a square deal? Are you making money by it? What is going to become of the $30 men being paid $25? Are they going to stay long with you? What busy

mill manager really has the time to ascertain what his men are worth?

Many employers have a prejudice against a man who was "fired" from his last place. Yet many large employers will tell you that some of their best men have been fired from previous positions. The Employment Department is in a position to investigate thoroughly why a man was fired or left his last place. Are you, Mr. Mill Manager?

(c) Perhaps the most important function the employment manager has to perform is that of intermediary between the personnel and the management. Men come to him with their foreman and talk their grievances over. The net result of these talks is a low labor turnover and a better feeling between foremen and men. Everyone knows what a large turnover costs an industry like ours. Above all the Employment Department gives the personal touch between management and men which the busy mill manager never has the time to perfect. The men feel that there is at least one man in the organization who has their interests, their aims and their ambitions at heart. Don't you think your employees would be more happy and contented under such circumstances?

If we are to conserve our human element the most effectual way in which we can do so is by the formation of an Employment Department under the direction of a capable executive specially trained in employment work. The selection of a man to head such a department is one worthy of every care for if he is not a man of heart, broad vision and great understanding you may still have a highly trained department, but it will be machine-like in its functions instead of human, and it must be the latter.

Does it pay? Compute the cost of such a department. Then get your labor turnover figures for one year and compute the cost of it. Figure that intelligent employment methods will cut your labor turnover 50 per cent and then figure the difference. The result will answer your very natural question.

Some of our large mills have employment departments and they are working out successfully but there are still many large mils adhering to the old rule-of-thumb, hit or miss, style of employment.

It is safe to say that all mills now recognize the value of trained forestry personnel to conserve our forests. Isn't it just as important to recognize the necessity of trained personnel to conserve our human resources?—C. K.

PRICE BROTHERS' CAPITAL $42,671,000.

At a meeting this week of the shareholders of the firm of Price Brothers, the resolution of the directors of the firm to sell the concern to the Price Brothers & Company, Limited, was unanimously approved. The transfer will take place on November 1st.

The meeting was presided over by Sir William Price. The new company, when making the transfer, will assume all the assets, the outstanding bonded debts as well as the liabilities of the old company and will undertake to carry out all its contracts and obligations.

The capitalization of the new company will be $42,671,000, as compared with $8,534,200, which is the capitalization of the present company. The increased capital will enable the new company to realize the extensive development in the lumber, pulp and paper industries, for which plans have been made.

MENTAL TELEPATHY.

After our editorial "Regarding Immigration" was published (Oct. 14) we read the following in the United States Paper Maker for Oct. 1.—a strange coincidence.

Congress has enacted restraining measures; but to my mind they are neither wise nor sufficient. The principal provision in the existing law aimed to control immigration is a literacy test. It is supposed to prevent the coming in of any who have not had certain educational advantages. Experience, however, has taught us that most social troubles originate with that element cursed with a "little learning", which has always been held to be a dangerous thing. It is the man who has a smattering of education who gets the notion that he is too good to work and at once becomes an agitator in the endeavor to live by his wits. The illiterate may easily be led into mischief but they seldom plan it. It is my view that most of our social and political troubles originate among the so-called educated classes. Trotsky is a man of eminent literary attainments, but I had rather trust America's future to a million immigrants who can neither read nor write than have him among us. Debs is a well-read man; but he is far more dangerous for that very reason. The law, therefore, keeps out the honest toiler who might become a good and useful citizen, but allows free entry to the educated enemy of free government. We could use a few workers of limited literary achievement. As a friend of mine recently put it, "When all our men and women become college graduates, who's going to carry out the garbage?"

I know labor is scarce; but people who might labor are not scarce. If every able-bodied man and woman in this country would go to work, we could take care of all there is to do and have plenty of time to play. More people brought into the country does not necessarily mean more work. It is more apt to mean shorter working hours and more loafing.

This country has cost too much and is worth too much to destroy it for the sake of a temporary industrial gain, admitting there would be gain. What we need is to pay more heed to the quality of our citizenship than to its quantity. Better preserve our national character even if some of us have to milk the cows instead of playing golf, and some of our wives and daughters have to wash dishes instead of playing bridge.—C. F. M.

ONTARIO SETTLERS MAKING MONEY ON PULPWOOD.

A recent report from Cobalt, Ontario, states that settlers in the north land who have pulpwood on their properties, and who reside within a reasonable distance of the railroads, are reaping big harvests—all due to the great scarcity of newsprint paper in the cities. The prevailing price of pulpwood at present is around $15 per cord, with a payment of $5 on account as soon as the pulpwood is cut and piled in the bush. The price four or five years ago was $4.00 and $4.50 per cord.

As high as $17.50 per cord is being offered by representatives of the large mill interests for delivery at the track—the whole $17.50 at the track and no previous payment on account. However, the majority of the settlers cannot benefit by this price, as they usually need money before the hauling begins and require the advance of $5 in the bush.

The only things one could put off until tomorrow are the things one should not do at all.

GERMAN PAPER MILLS IN VERY BAD CONDITION.

(From Our London Correspondent)
London 18th Oct. 1920

New light has been thrown on the condition of the German paper industry and judging by a recent statement the "Fatherland" is in a very bad plight. The pulp industry has also not recovered itself since the war, thongh small shipments are being exported to England and other places.

It was at on extraordinary general meeting of the Hartlepools Paper Mill Company, Ltd., held in London on the 12th inst. that the truth about Germany was revealed. Sir Robert W. Carlyle, K. C. S. I., (President) was in the chair and Mr. Popham, one of the shareholders, addressing him said, he understood that Mr. William Harrison had recently been to Germany with a view to making inquiries into the paper-manufacturing industry there and the conditions of the trade generally as compared with the industry in England. Previous to the war Germany was Britain's greatest competitor. The shareholders would like to hear Mr. Harrison on his visits.

Mills Without Coal

Mr. William Harrison, who has spent the month of August and part of September making an extensive tour in the pulp and paper centers of Germany said : My tour was for the benefit, I certainly believe of the Hartlepools Paper Mill Company. Now, what did I find in Germany during my travels of some thousands of miles ? I found that the German paper mills were in a very bad condition. They were practically without coal, and the paper mill owners told me, with a certain sadness in their eyes, we cannot make paper as long as the French compel us from Monday moving until Saturday mid-day, to ship to them by boat some 2,000,000 tons of coal per month. I found that one of the largest paper mills I visited had not been running for seven months and only had enough coal to run for two or three days when I was there. But, the German coal question and paper industry, so far as it concerns this country, is only one side of the subject. I want you to consider another side and it is this : as you know these have been great fluctuations in the Mark on the Exchange, manipulated in my view by the International Ten. When I was in Germany I bought the Mark at something like 160 or 170 to the £1 ; It has since been something like 235 to 240 to the £1. That, in my view, is an important factor as affecting the paper industry of the United Kingdom. So long as we have that fluctuation in the German Exchange, we have to be on our guard, and as a company we are determined, along with other papermakers in Britain, to be on our guard, for believe me, the German does not mind the Exchange being down to 235 to the £1. Rather does it concern the British paper manufacturer.

Finnish Pulp 150 Marks to £1.

Continuing, Mr. Harrison, said : It is up to us to see that the German who bought his pulp in Finlind at 150 Marks to the £1, and can now dump it in this country with Marks at 235 to the £1. thus getting more Marks for his £1, is not permitted to do so. And I for one am going to take good care that the papermakers of Great Britain combine together, if necessary, to stop this dumping if it ever takes place. But we are in this position : There is no chance at the moment of large dumping of German paper, although you get isolated lots offered to you at for less than the British papermaker can quote you. But the German, from my personal study of the situation in Germany for nearly a month, is still a very wily individual, and we take care, in combination with other mills to see, if necessary, that the fluctuation in the German Exchange is not going to help him. Sir Robert Carlyle and myself, along with other delegates, are leaving shortly for an extended tour in Norway, Sweden, and Finland, to study the situation there on behalf of the Hartlepools Paper Mill Company, because, we realise as a board that the key of the situation in the future prospects of any paper mill which is properly conducted in the United Kingdom, lies in people who are directing the company, knowing how to purchase and when to purchase raw materials for your mill. We want to study the situation. Sir Robert Carlyle at one meeting not long ago, referred to the Hartlepools Paper Mill Company, contemplating the purchase a pulp mill in Norway or Sweden. That is an important matter in my opinion for the future prosperity of the company.

War Kills Splendid Industries.

In these statements made by Mr. Harrison, who understands what a pulp and paper mill should be like, one can read between the lines that after 2 years of a most terrible war the country who started it has "killed the goose that laid the golden egg." Prior to 1914 the German paper and pulp industries were a credit to any nation and papermakers had many lessons to learn by the methods adopted in the Fatherland. Today they are practically doomed with a war indemnity hanging round the country's neck and it is quite evident another year must elapse before it can be said the Germans will show anything like a good hand in competition. It must be remembered that although paper and pulp mills are in a backward condition it does not follow that Germans are lying dormant. They are very much alive just at present in a small way and the old motto must be respected in this connection—"we creep before we walk."

A glance back into the past will give some indication of the extent of the German pulp industry. In quoting figures of quantities of any values I will give those from the German sources and I may assume that they are well below the exports ; because, my experience has been that one cannot rely on their returns before war broke out. Consular officers also had some difficulty in getting at anything like the true figures ; but the following exported pulp in 1913 will give an idea of what Germany was doing.

Exports.

	100K.g
Groundwood—	
To France	61,663
To Italy	6,788
Total	75,075
Value (marks)	653,000

Chemical—	
To Belgium	102,320
" France	410,139
" Great Britain	362,975
" Italy	236,006
" Netherlands	95,029
" Austria	24,024
" Portugal	9,254
" Russia	18,345
" Sweden	12,619
" U. S. A.	352,468
" Switzerland	56,357
" Spain	71,264
" Argentina	30,092
Total	1,794,630
Value (marks)	35,236,000

From these exports it will be seen that a thriving industry received a severe check. Going back earlier I find the exports were as follows :—

		Groundwood.	Chemical
1911	100Kg.	57,713	1,658,633
1910	"	55,880	1,707,753
1909	"	74,871	1,470,878

For comparison I will give Canadian exports for the same years as those furnished by Germany—

	Costs.	$
Chemical—		
1913	1,112,457	2,100,842
1911	721428	1,308,101
1910	864,606	1,658,846
1909	826,585	1,603,006
Groundwood—		
1913	4,749,719	3,408,702
1911	5,867,227	4,407,431
1910	5,038,850	3,545,751
1909	4,612,509	2,703,923

Most of these exports from Canada were sent to U. S. A. and Great Britain, and now Canada stands every chance of picking up what Germany has lost by declaring war.

Paper Exports.

Like the pulp Exports, the paper exports from Germany in pre-war days were also difficult to get accurately, the returns being something "on a par" with those about the strength of the "Fatherland"s" armies. In this respect, however, I can only quote the British Trade Board figures for 1913, just to give but a small idea of the German export of paper to one country, Great Britain.

	Cwts.
Reel paper	172,806
Printing & Writing Paper	301,744
Paper Hangings	38,210
Coated Paper	53,440
Packing Paper	892,589

Since the war Norway & Sweden have picked up a good deal of the German trade in England, while Canada & Newfoundland got a fair share of newsprint orders.

Mr. Harrison has not overstated what he has witnessed in Germany. Canadian consumers of paper from German sources also require to be warned on the Exchange question as it will hit them harder than the people of England, owing to the value of the dollar today outside the Dominion.

THE SAFETY WEEK CAMPAIGN IN ONTARIO.

The "Safety Week" campaign in Ontario is over and has served a useful purpose. The public has been taught to think and has been shown that accident prevention is largely a matter of ordinary, not extraordinary, care and precaution.

There were definite campaigns against accidents and fires running in fifteen towns and cities in Ontario, some large and spectacular campaigns and others of a less conspicuous type, but all with the object of inlisting the co-operation of everyone in cutting down the losses due to accidents.

During the drive, the various classes of each community were shown how they could assist in making their own city safe from accidents. The motorist, the street-car man, the teamster, the pedestrian, the woman in the home, the child at school, the men and women in industry, all had a lesson and from each lesson all have learned something. The campaign was unique in that it was a matter of vital interest to each community; not something that was being done in some other city or some far off land, but a campaign affecting the lives and well being of each city where the work was conducted.

In addition to an enormous amount of special literature prepared for purely local use in several of the larger cities, the Ontario Safety League issued 60,000 general bulletins, 10,000 school bulletins, 125,000 parcel inserts, 150,000 gummed seals, hundreds of rubber stamps, 70,000 letters to parents, 85,000 window cards, 30,000 automobile stickers and thousands of cards, notices, etc.

It will prove an interesting comparison to take the accidents of "Safety Week," this week and next week and contrast them with the three weeks preceding "Safty Week." Experience of other campaigns would point to a very considerable reduction in accidents of all types.

CANADIAN MILLS IN SOUND POSITION.

For many months, both speculative and investment buying has been very active in the pulp and paper section of the Canadian investment market. We cannot attempt to forecast immediate movements in Canadian pulp and paper securities, but we can state with authority that the intrinsic value of the securities of established and soundly-managed Canadian pulp and paper companies were never higher than they are at the present moment. Speaking from intimate association with many of the most representative Canadian pulp and paper companies, we cannot emphasize too strongly the financial strength, from the standpoint both of working capital and of earning power, of the larger Canadian pulp and paper companies to-day. The contract market for their products is strong. While some decline is to be expected in spot prices for pulp and paper, we look for at least a maintenance of to-day's contract prices for some months to come. It is quite within the range of possibility that present contract prices for newsprint will be increased; and it must be remembered that current market prices for pulp and paper, while reasonably profitable to American mills, are doubly profitable to Canadian mills. There are the best of grounds for believing that the financial statement of the stronger of our Canadian pulp and paper companies for the current year will be found most satisfactory by investors in Canadian pulp and paper securities.

Regulations for Cutting Pulpwood on Dominion Timber Berths

The following regulations governing the granting of permits to cut timber for pulp purposes on Dominion Lands in the Provinces of Manitoba, Saskatchewan and Alberta, the North West Territories, within twenty miles on either side of the Canadian Pacific Railway in the Province of British Columbia and the tract of three and one-half million acres controlled by the Government of the Dominion in the Peace River District in the Province of British Columbia, were approved by Order-in-Council, 19th May, 1920.

That berths shall be disposed of by tender, after having been advertised for not less than ninety days in at least two newspapers having a general circulation in the province in which the berth is located.

That persons desirous of securing pulpwood berths shall locate the same and make application therefor to the Controller of the Timber and Grazing Lands Branch, Ottawa or to the Crown, or to the Crown Timber Agent for the district. The applicant shall furnish a ground sketch or plan showing the boundaries of the tract appplied for.

That in the event of it being decided to dispose of a berth as provided in these Regulations, the Minister, after an inspection has been made by an officer of his department, shall decide the area to be included therein and whether or not it will be necessary to have the boundaries thereof run by a duly qualified Dominion Lands Surveyor. If a survey is necessary, the successful tenderer shall be required to pay the cost thereof, and the amount involved must be paid before the agreement hereinafter referred to is executed. If a berth is granted without the boundaries being surveyed, and it is afterwards found necessary to have a survey made, the Minister may require the permittee, at his own expense, to have the boundaries run by a Dominion Lands Surveyor, and to keep the marking of the boundaries in such condition that the boundary lines may be readily observed.

That the length of a berth shall not exceed three times its width, and that in the event of a berth comprising several blocks the length of no block shall be more than three times its width.

That a tract containing sufficient merchantable timber 10 inches and over in diameter at the stump to make the same a saw mill proposition shall not be included in a pulpwood berth.

That tenderers shall be asked to state the amount per cord on pulpwood they are prepared to pay as a bonus, in addition to dues at 60 cents per cord, but the rate of dues chargeable on timber cut may be fixed from time to time by the Governor in Council.

That a berth cannot be assigned or transferred without the consent of the Minister, and where assignment is agreed to, a registration fee of 25 cents per square mile shall be charged.

That a tenderer shall be required to deposit with his tender a marked cheque drawn on a chartered bank of Canada, payable to the Deputy Minister of the Interior, for a certain amount, which shall depend upon the size and value of the berth, and which amount shall be forfeited in the event of his not entering into agreement to carry out the conditions attached. The amount of deposit will be set out in the notice calling for tenders. If the successful tenderer enters into agreement to carry out the conditions, the deposit will be applied on account of bonus dues as they accrue, but the regulation dues will require to be paid in the usual manner as returns of cutting of wood are received.

The Minister may, subject to the approval of the Governor in Council and subject to these Regulations, enter into an agreement with the successful tenderer, the general conditions of which shall be available when the berth is being advertised for sale, requiring him to erect within the limits of the berth or at some other place approved by the Minister, a pulp and paper mill costing with the equipment thereof and machinery contained therein a specified sum, to operate the mill to a certain extent ; to keep a certain number of hands employed, etc., but before entering into the agreement, the Minister shall require him to furnish a bond from an approved guarantee company for an amount not less than 3 per centum of the amount proposed to be expended upon the paper or pulp undertaking (but exclusive of the amount proposed to be expended upon the water power development, if any, the guarantee for which is provided for under the Dominion Water Power Regulations), for the purpose of guaranteeing the faithful performance of such agreement ; and such agreement shall provide that the initial development shall be completed and placed in operation within such period, not exceeding five years after the agreement is executed, as may be stipulated therein. The agreement shall provide that at least a certain percentage (never less than 50 per cent) of the pulp manufactured shall be manufactured into paper at the mill erected by the permittee.

The agreement shall provide that the successful tenderer may, if he so desires, apply under the Dominion Water Power Regulations for the right to develop any conveniently located water power for the purpose of supplying energy to his mill or mills, and if the water power applied for is available and, in the opinion of the Director of Water Power, suitable for the purpose, the Minister shall proceed under the Water Power Regulations to enter into an agreement with the successful tenderer whereby the successful tenderer shall, on the satisfactory completion of the development, become entitled to a lease for the necessary Dominion Lands and a license to use the water for the purpose of his water power development.

Note :—This provision is not effective in British Columbia.

It shall be provided in the agreement that the berth shall be subject to an annual rental at the rate of $1.00 per square mile, due in advance on the 1st May, but this rate may be changed from time to time by the Governor in Council. If rental is not paid on the due date, it shall be subject to interest at the rate of 7 per cent per annum.

The agreement shall provide that the successful

tenderer, provided he has complied with the conditions of the Regulations and his agreement ,shall have the right to secure from the Dominion Crown Timber Agent for the district a yearly permit covering the berth, authorizing him to cut and remove all trees suitable for the manufacture of pulp 7 inches and upwards in diameter 18 inches from ground, sufficient to supply the mill or mills for a period of twenty-five years from the date of the sale of the berth, provided the berth contains a sufficient quantity, it being understood that the Minister does not guarantee any particular quantity of pulpwood nor undertake to do more than grant the right to cut such quantities of wood of the kind aforesaid mentioned as may be on the berth. It shall also be provided that the permittee shall be entitled to secure yearly permits for an additional twenty-five years, provided he has faithfully complied with all the conditions of the agreement and the Regulations.

The agreement shall provide that all permits shall expire on the 30th April following the date of issue, but, as set out in the next preceding clause, the holder of the berth, provided he has complied with the conditions of his agreement, and the Regulations, shall be entitled to a renewal permit.

That the permittee shall pay one-half the cost incurred by the Crown in guarding the timber on his berth from fire, the Crown paying the other half. A statement will be furnished the permittee showing his share of the cost incurred, and payment thereof shall be made to the Crown within thirty days thereafter.

Some of the other conditions of the agreement may be as follows, but the Minister may insert such other conditions as he may consider necessary :—

That the permittee shall take from every tree he cuts down all the timber down to and including 4 inches at the top end, and, shall dispose of the tops and branches and other debris of lumbering operations in such a way as to prevent as far as possible the danger of fire, in accordance with the directions of the proper officer of the Timber and Grazing Lands Branch of the Department of the Interior.

That if the Minister should ascertain, after inspection, that any lands within a berth have not a sufficient quantity of pulp timber to make it profitable to remove the timber upon such portion of the berth, he may withdraw such portion of the berth provided the permittee or his legal representative has had sixty days' notice thereof, and that upon such withdrawal the ground rent shall be reduced in proportion to the area withdrawn.

That the permittee shall cut all the timber suitable for pulpwood purposes of the size authorized under these Regulations as cutting progresses, and any timber which, in the opinion of the Crown Timber Agent or officer acting for him, is left on the berth uncut or cut and unhauled, shall be subject to regulations dues. The Minister may, however, require, in order to provide for the proper reproduction of the forest, that certain designated trees exceeding 7 inches in diameter 18 inches from the ground shall be left uncut. The total quantity of such trees as may be designated to be left shall not exceed, on the average, 10 per cent of the total volume of the trees removed for the manufacture of pulpwood. If the trees designated to be left uncut are cut, dues shall be charged on the estimated quantity of material in such trees at not less than double the regulation rate of dues.

That the permittee shall prevent all unnecessary destruction of growing timber on the part of his men, and exercise strict and constant supervision to prevent the origin and spread of fire, and shall also comply during the term of his permit, and of any renewal thereof, with all regulations made in that respect by the Governor in Council and with all laws and regulations in that respect in force in the province or territory in which the berth is located

That the permittee shall furnish the Dominion Crown Timber Agent having jurisdiction in the matter with quarterly retuns, or at such periods as may be required by the Minister, sworn to by him or his authorized agent cognizant of the facts, showing the quantity of pulpwood cut during the period covered, and shall pay dues thereon at the rate agreed upon. If payment is not made on the due date, interest at the rate of 7 per cent per annum shall be charged.

That the permit shall entitle the holder to cut pulpwood only and shall not convey to him any right to the soil or use thereof except as may be necessary for cutting and removing such wood.

That no wood cut on a berth shall be exported or sold or disposed of to any person or persons, but such wood shall be used for the purpose of supplying the said mill or mills.

That failure to erect a mill or mills and make the required expenditures within the time specified shall entail forfeiture of the right to cut pulpwood and of the amount of the bond deposited with the Minister.

That the pulpwood shall be cut upon such portion of the berth and in such a manner as the Minister may from time direct.

That no refuse, chemicals or matter of any other kind shall be placed or deposited in any river, stream or other waters in such a manner as shall, in the opinion of the Minister, be injurious to fish life.

That a berth shall be subject to cancellation for non-compliance with any of the conditions of the agreement or of the Regulations.

NEW FORESTER AT LAURENTIDE.

Mr. A. W. Gamash, who has been the Assistant State Forester of New Hampshire for some time, recently resined that position to take one with the Laurentide Forestry Department. Mr. Gamash is a graduate of the New Hampshire State College, and also has taken special forestry courses at Yale. During the war, he was in an American forestry unit and spent about two years in the forests of Scotland and France. He takes over the work performed by Mr. Leon A. Nix.

VALUABLE TIMBER LIMIT SOLD.

The timber limit belonging to the Gibson Indian Reserve, near Bala, was auctionad off at Parry Sound last month, by Mr. A. R. Jackson, for the Department for Indian affairs, and was sold to the McGibbon Lumber Company, of Penetang, for the sum of $171,500, they being the highest bidders. The reserve bid was for $150,000. There were quite a lot of lumbermen there bidding for the limit, among whom were representatives fromPratt & Shaughnessy, Manley Chew, John Harrison & Sons, of Owen Sound; McGibbon Lumber Co., and others.

British Trade News

(From Our London Correspondent)

London, 12th Oct., 1920.

The first conference of the Technical Section of the British Paper Makers' Association was held Oct. 8th, in the Milton Hall, Manchester. Mr. A. Baker, (Empire Paper Mill) chairman of the Section, presided and there was a good attendance. The chairman enlarged upon the necessity of British papermakers studying the problems which faced the industry, especially in these days of paper shortage and strong competition from other countries. Mr. A. W. Foster, (Secretary), commented on the satisfactory membership of the Section and the success which has been achieved. During the conference Major J. Erdington Aitken's paper on "Technical Education in Papermaking," elicited the highest encomiums from the members. Mr. G. H. Gemnell, B.Sc., a consulting paper mill chemist, read a paper on "The Testing of Wood Pulps," which proved instructive. Mr. A. MacIvor, N.J.M.E., engineer of the Wall-Paper Manufacturers Ltd., contributed some interesting comments on "Machine Strainers" and a director of Charles Walmsley & Co., Ltd., Mr. William Adamson, dealt with "The Economic Utilisation of Heat and Power in Paper Mills." The well arranged program included other attractions and a feature of the conference was the free and open discussions. Everything augurs well for the success of the Technical Section and with such men as Mr. Arthur Baker and Major Aitken at the head of affairs, nothing will be left undone.

Mills Change Hands.

Since the outburst in England some months back of the big demand in Canada for pulp and paper, more interest has been centred in the British paper mills. This interest is reflected in the changing of owners of mills in various parts of the United Kingdom, the opinion no doubt prevailing that they are sound investments. Put a new financial issue, or prospectus, on the market today and let it mention a paper or pulp mill and tomorrow you will have more money than you require. One has only to look at the Anglo-Newfoundland Development Company's recent enterprise. The shares are all well and satisfactory quoted and everybody is pleased at present. As a matter of fact the general public in England are beginning to realize there is money in pulp and paper, and for this reason, mills are changing hands. A group has just negotiated for the Inverkeithing Paper Mill, run by Caldwell & Co., Ltd., and one of the old established properties of which Britishers are very proud — not to mention papermakers. Then the one-machine mill turning out good class and colored papers at Barkisland, near Halifax, has passed into the control of Mr. G. H. Wilkinson, National Paper and Pulp Co. Ltd., who has now seven mills at his disposal.

Irish Paper Burnt.

Recently, some of the newspapers in the West of Ireland, were raided and printing paper destroyed in some cases. So if they are not slaying Sinn Feiners or policemen in the "Emerald Isle," they are burning newsprint. The other day one of the big papers in Cork had a large supply destroyed. To put the finishing touch to all things there is a big strike in Dublin port and cargoes of newsprint are held up. From what I can learn the paper mills there are not suffering any loss and the strike is only causing a temporary disad vantage.

The Paper Market.

The paper industry of the United Kingdom has its back against the wall. No sooner had the mill owners got over the settlement of the wages question with their workers than the railway people started with high costs, and now they are up against the agitation of the typographical and compositors in the printing offices for better salaries. And so the game goes on! The paper mill man is expected to "carry on," notwithstanding what happens, and in addition, he has to meet Scandinavian competition. Therefore, he would be a wise man who could give an accurate gauge of what the paper market is like in England today. Buyers go about knowing that trouble is brewing over head and the mill owner hesitates before putting his signature to a contract, because he does not know when the coal miner is going to close down his mill for want of fuel. Business is getting into a state of chaos and unemployment is becoming rife — which, of course, must be expected as a result of agitations, adverse and otherwise. Now what is the result? Some of the newsprint mills have been, in the North of England, on the verge of closing down for a spell; stocks of certain classes of papers have been going for a little over cost price and boards showed a reduction in values. Here is no slump —far be it. It is just the unsettled state of the labor elements. But the outlook is not healthy at the moment. Merchants are dull, printers could do with more work and the paper mills are cursing the miners and their leaders.

Paper Mills Going a Begging.

In the London "Times" there appears advertisements announcing that some small paper mills are for sale. One mill is noted for paper and fibre boards and two others contain one machine each for the production of high-class papers. No one seems to know where these mills are, as transactions are to be conducted privately. It is quite evident the high cost of raw materials, labor, transport, and excessive taxation—somebody, of course, must pay for the war,—are crushing out small mills in the United Kingdom, and the present condition of things is reflected in the small private advertisements in the daily newspapers.

Paper Market.

Good employment is a sign that an industry is standing well on its legs; unemployment indicates that things are not going well. If one takes the labor market as a barometer, indicative of progress, or "slump," in a trade, or industry, we may assume that there is a dull paper market just now in the United Kingdom—from a seller's point of view. What is wanted is more consumption. As a matter of fact a reaction has set in since the Armistice was signed and the paper industry here is getting its share. One of the Union secretaries stated the other day, that he had a good many men unemployed and he wanted to find vacancies in mills for them somehow or other. He thought it was only a temporary set-back, though, he admitted, the winter outlook was gloomy enough. As a matter of fact, the threatened coal strike in the mining districts — negotiations are still going on about it, — upset all industries and buyers and sellers adopted a wait-and-see policy. That is really the state of things today in the paper industry — orders are not plentiful and buyers are hesitating, as their own businesses may be affected if the coal strike comes along. Newsprint, however, is doing well. It can always find an outlet.

Where the Newsprint Goes.

The London "Daily Mail," one of the Northcliffe newspapers, has a circulation of 1,206,408 copies a day. This is certified. The "Evening News," which belongs to the same people, claims a daily circulation of 825,-825 copies, and there are five editions of the paper each day, except Sunday. Now the "Evening Standard" and the "Star" challenge the "Evening News" on their figures and more particularly for saying that the sale "exceeds the combined net sale of any three London evening newspapers." The "Star" and the "Evening Standard" assert that the net sales of these two papers alone exceed by many scores of thousands daily the highest figure given in the certificate issued by the "Evening News." The challenge is followed up by £10,000 which the losing side must pay to charity. Apart from the merits and demerits of this newspaper "wrangle" one cannot fail to recognise the enormous amount of newsprint these 3 papers alone get through. They run 8 pages, 16 pages, and sometimes more. The "Daily Mail" has sometimes 10 or 12 pages — more ofter the latter. Most of the great daily and evening papers can boast of big circulations and the most notable feature among them is that there is never a shortage of newsprint. They can take plenty and if they cannot use it all, they will store it for a rainy day. Recently I have seen newsprint used of a very close resemblance to the Canadian product and I am wondering if there is a leakage on the American side. Further investigation may prove something, perhaps.

The Imperial Press and Canada.

There are all kinds of writers at present — good, bad, and indifferent — penning articles on the great progress of the paper and pulp industry in Canada. Nearly every mill the Imperial Press Conference delegates visited is being boomed from the writer's own point of view—including the woman's. The advertisement is certainly a good one, but what one would like to see is more hard cash invested in the Dominion opportunities. I cannot forget that little phrase "Trade within the Empire," which was coined after the Armistice.

The Land of Milk and Honey.

Canada, according to some of the gentlemen who have returned from the Imperial Press Conference in the Dominion, is a land flowing with milk and honey. Some of the papers give extended reports of what the delegates had seen. One writer says that if British capital is not soon invested in Canada, it will be full of nothing but American dollars. Sir Campbell Stuart says the output of newspapers and periodicals, in the Dominion is, in fact, very large in proportion to the population and the cause is not an extraordinary demand for publications, but the remarkable supply of paper at comparatively low prices. This is a gentle hint for the British paper mill man. Another writer has made the wonderful discovery — because he has not read his own English newspapers — that the manufacture of paper is a growing industry in the Dominion. New mills, he says, are springing up and established concerns are extending their operations. It is, however, disappointing to find that the United States is taking up most of the surplus production, he adds. One would like to know if this delegate of the Imperial Press Conference ever contended that Canadian newsprint should be utilised on his machines, instead of Scandiavian? He has seen Canada now and he should not forget the motto, "Trade within the Empire." Then he goes on to say: "These conditions are not likely to change unless some British capital — and with it British influence — finds its way into paper-making promotions. As the matter stands, American capital flows in and paper supplies flow South." Why—? ? ?

Ten-to-One Winner.

Papermakers in Ireland, that "distressful country," enjoy a little play; "All work and no play makes George a dull boy," — so Mr. George P. Fleming, of the Inchicore Paper Mill, goes in for horse-racing as a bit of sport. "Ten-to-one the Winner"; "Ten-to-one Besse Belle" was the shout at Lanark (Scotland) last week. "Besse Bell" did win and Mr. Fleming smiled when he was handed the Lanarkshire Handicap valued at £400. He has not told us what sulphite he fed it on. And didn't the Scotsmen look gloomy when they saw the £400 going across to Ireland. This is Mr. Fleming's second win with "Besse Bell" — the pride of the British paper industry.

Pulp.

The market continues dull for all kinds of pulps. Buying is on a small scale at unchanged prices. Paper mills are well stocked — and not too full with orders on their books. They could do with more at present which might be reflected in the pulp market.

PAPER PRICES IN SWEDEN.

The Association of Swedish Paper Mills writes the Swedish American Trade Journal, that the following are the average prices of paper.

Sulphate	1,285		kronor	per ton F.O.B.
Sulphite	1,285		kronor	per ton F.O.B.
Greaseproof, 42 gr.	1,542		kronor	per ton F.O.B.
Newsprint	1,100		kronor	per ton F.O.B.
Writing	2,500		kronor	per ton F.O.B.
Book	2,100	to 2,200	kronor	per ton F.O.B.
Brown cardbrd.	651	to 685	kronor	per ton F.O.B.
White cardbrd.	548	to 600	kronor	per ton F.O.B.

FUTURE PRICE OF PAPER.

Newsprint paper has sold on spot in the United States recently at 10c. a pound against a high price of 15c. some months ago. While the price in sales on spot has weakened, actually the price on long term contracts has advanced, the quotation now being 6½c. against 5c. in the spring. The great bulk of the output of the Canadian mills is sold on long term contracts and the indications are that this price of 6½c. for the last quarter of the year will also be in effect in the first quarter of 1921.

The industry in Canada has prospered on a much lower level of prices than now prevails, and its technical position is actually a good deal stronger than the technical position of any important manufacturing industry on the continent. The margin between production and consumption is narrow and this will probably support prices during the period of adjustment in general business.—Greenshield's Review.

HANDLE ROLLS CAREFULLY!

Never pull the "hoist" chain to lift a roll from the rewinder until you are sure the hook is properly placed on the shaft.

Don't swing the roll from its place while it is still revolving—it may roll out of the hook.

Take no chances.

NATIONAL FORESTRY PROGRAM APPROVED BY NEW YORK CONFERENCE.

In New York on October 15, for the first time after many years of agitation and controversy, a definite proposal for a national forest policy received the preliminary endorsement of the several elements chiefly concerned, which promises well for its adoption and for its success through their cooperation and through fair sharing of public and private responsibility.

At this conference accredited representatives of the nation-wide lumber and paper industries which control most of the commercial forests in private ownership met with similar representatives of the United States Chamber of Commerce, and the American Forestry Association, speaking in behalf of the general public, and of the wholesale lumber distributors, the newspaper organizations vitally interested in the paper supply as well as in general economic welfare, and the great wood-using industries such as furniture and vehicle manufacturing, railroad operation and the like.

Unanimous agreement was reached on all essentials of a federal legislative program, more specific in detail but substantially in accord with the recommendations made last June to the United States Senate by Chief Forester, W. B. Greeley. Col. Greeley was also at the conference by invitation and gave its conclusions his full approval on behalf of the United States Forest Service. It is expected that this preliminary agreement, being thus so significant of accomplishment through its full consideration of the public welfare, will receive the ratification of all the public and private agencies represented and also be acceptable to the majority of others interested including the forestry departments of the several states.

The primary provisions are two-fold for a considerable extension of direct federal activity in forest ownershop and production, and for the development with federal aid and encouragement of such systematic policies in the several forested states as, being consistent with local conditions, will bring about adequate forest protection and reproduction in the interest of these states and of the public at large.

With these aims, the program provides specifically, through co-operation between the Government, the states and owners of timberlands, for adequate protection against forest fires, for reforestation of denuded lands, for obtaining essential information in regard to timber and timberlands, for extension of the national Forests, and for other steps all essential to continuous forest production on lands chiefly suitable for this purpose.

Much of the responsibility outlined lies with states and with private owners. To define that which lies with the government and hence is properly for the consideration of Congress, the following legislation is proposed :

1. Authorizing the Secretary of Agriculture after consulting appropriate local agencies to approve an adequate policy for each state, covering the essentials of fire protection on timbered and restocking lands, reforestation of denuded lands, and, where and to the extent necessary, the cutting and removing of timber crops so as to promote continuous production of timber on lands chiefly suitable therefor, and authorizing his co-operation in the work required, provided there is also satisfactory local compliance in state legislation or administrative practice. Chief although not entire emphasis for the time being on fire prevention, as the most important single step, and not less than a million dollars annually available for such co-operation with states.

2. A survey to obtain necessary information as to forest resources, forest production and forest requirements of the nation.

3. Provision for studies and experiments in forest reproduction methods, wood utilization, timber tests, wood preservation, development of by-products and other steps to bring about the most effective use of the nation's forest resources.

4. Provision for a study of forest taxation, to assist states in devising tax laws which will encourage the conservation and growing timber. Also of methods of insuring against forest losses by fire.

5. Provision for more rapid replanting of the vast areas of denuded lands within the National Forests.

6. Appropriation of ten million dollars a year for five years for the purchase of lands which should be added to the National Forest System, whether or not on the headwaters of navigable streams as such purchases are now limited.

7. Authorizing acquisition of similar lands by exchanges of land or timber when clearly in the public interest.

8. Authorizing the addition to National Forests of lands now in other forms of government ownership, but found chiefly suitable for permanent forest production.

Some of these features of complete Federal program will doubtless be covered in whole or in part by recommendations to Congress by the Secretary of Agriculture in connection with the agricultural appropriation bill. It was felt by the conference, however, that they should be presented in a comprehensive measure, clearly setting forth the picture of an adequate national forest policy and proper Federal participation therein. By this means, with other efforts the necessary private and state participation can best be shown and obtained.

The following organizations were represented at the conference: American Paper and Pulp Association, National Lumber Manufacturers' Association, National Wholesale Lumber Dealers Association, Association of Wood-Using Industries, American Newspaper Publishers' Association, American Forestry Association, U. S. Chamber of Commerce, U. S. Forest Service.

QUEBEC PLANTING THREE MILLION TREES

In connection with an article in another column, it would be interesting to repeat the remark of Dr. E. L. M. Dechene, Deputy Minister of Lands and Forests for Quebec. "An attempt is being made," he states, "to substitute Jack pine for spruce in the manufacture of paper, as millions of tons of the former are available in the province of Quebec." Other observations of Dr. Dechene are that there is not likely to be any decrease in the price of pulp wood for three years; and that three million new trees will be planted in Quebec this year. It is the aim to plant two trees for every one cut down.

Between August 17th and Oct. 14th, the Lagerloef Trading Company, Inc., 18 East 41st St., New York, has received through the port of Philadelphia, six cargoes of pulp from Finland. The total import was 835 tons of chemical pulp and 1221 tons of mechanical pulp. This would indicate that Finland is becoming quite a factor in the American wood pulp market.

Technical Section

REVIEW OF RECENT LITERATURE.

A-1. Microscopy of pulpwoods. Eloise Gerry, Forest Products Laboratory, Madison, Wis. Paper, **26,** 277-98, 308, (1920). The characteristic structures of the various types of woods are described. Tables are given giving the chemical properties and resin content of Can. pulp woods, general average of fiber lengths for ordinary mature material of various species and the variation from it, some fiber lengths of hardwoods, and the variation of fiber length within the annual ring in Douglas fir specimens. The lab. equipment useful for examining wood and pulp fibers is listed; and the methods to be used in the microscopic examination of woods and woodpulp fibers is given, together with a key for the identification with the naked eye or with the aid of a hand lens magnifying 12 diams. of woods commonly used for pulp and paper making. The results of over 34,000 measurements made at the U. S. Forest Products Lab. show that there is no distinctive or approximately constant fiber length for each species, at least in the more common conifers and hardwoods used for pulp.—A. P.-C.

A-1. The proximate analysis of coniferous woods. W. H. Dore, Univ. of Cal., Berkerley, Cal. J. Ind. & Eng. Chem. **12,** 476-9, (1920). An improved procedure is described for the summative analysis of coniferous woods. Methods are given for the estimation of the following constituents: loss on drying, benzene extract, alcohol extract, cellulose, lignin, solubly pentosans, mannan, and galactan. By the omission of preliminary hydrolysis, more reliable results are obtained in the cellulose and lignin determinations than by methods previously used. Soluble pentosans are determined in the chlorination liquors, mannan and galactan in separate portions of the original material. Improvements in the galactan determination are described. Complete analyses of redwood, yellow pine, and sugar pine are carried out by these methods. A summation of slightly over 100 per cent is obtained in every case. The results indicate that overlapping of the proximate groups, i.e., partial inclusion of any constituent in more than one group, has been largely avoided. Analyses by the proposed scheme probably account for all important constituents of coniferous woods.—A. P.-C.

A-2; K-6. Pulp from cotton linters. Further mill trials on the pulping of second-cut cotton linters. Otto Kress and Sidney D. Wells, Forest Products Lab., Madison, Wis. Paper, **26,** 320-6, (1920). The details of 2 commercial cooks and one papermachine run made with the resulting stock, are given, together with the account of cooks and experimental papermachine tests carried out at the Forest Products Lab. An attempt to cook second-cut cotton linters by the sulphite process was unsuccessful. The results of these and previous tests (See Pulp and Paper **17,** 1072, Dec. 11, 1919; **18,** 80, Jan. 22, 1920; ....) showed that carefully prepared and handled second-cut cotton linters which are free from dirt can be pulped with the ordinary soda pulp equipment with an economical chemical consumption not to exceed 10 lb. of NaOH per 100 lb. of bone dry fiber. This represents less than half the chemical required in the reduction of wood. Cotton linter pulp can be economically bleached with 2 per cent of 35 per cent available bleaching powder which is less than one-sixth the bleach required by ordinary woodpulp. The advantages of second-cut linters over cotton hull fiber are: increased yield of pulp of 15-20 per cent based on the weight of bone-dry fiber, and 50 per cent of finished paper; a saving of 50 per cent in NaOH and of 25 per cent in bleach consumption; presence of cooked hull fragments in hull fiber pulp, which react similarly to woodpulp with Herzberg's stain and which would probably be detrimental to the value of the pulp if it were used for chemical purposes; greater strength of paper made of cotton linter pulp owing to its greater fiber length.—A. P.-C.

A-3. The distribution of certain chemical constants of wood over its proximate constituents. W. H. Dore, Univ. of California, Berkeley, Cal. J. Ind. & Eng. Chem., **12,** 472-6, (1920). A study is made of the distribution of the groups contained in redwood which yield furfural, acetic acid, and methoxy, with the object of learning their relation to the constituents cellulose and lignin. About half of the furfural-yielding groups are associated with the cellulose, but only a small amount with the lignin. The portion present as true pentosan is hydrolyzed and removed during chlorination. The acetic-yielding groups are partly associated with the cellulose, much less so with the lignin. A small amount appears to be detached from either. The results are not conclusive in view of the small amount present in redwood and the analytical difficulties. In the case of coniferous woods acetic acid probably need not be considered as a proximate group. The methoxy groups are wholly associated with the lignin. They may be partially split off from it by acid hydrolysis. In the summative analysis of coniferous woods, all of the acetic-yielding and methoxy groups and part of the furfural-yielding groups may be disregarded as already accounted for in the oxy groups and part of the furfural-yielding substances contained in the chlorination washings and representing hydrolyzed pentosans should be estimated.—A. P.-C.

A-3. Plants suitable for papermaking. Felicien Michotte. Bull. Sec. Ind. Rouen, **47,** 444-9, (1919). Art. reviewed by Jean Letorre in Rev. Univ. Papeterie. (See Pulp & Paper, **17,** 1112, Dec. 25, 1919). A list is given of 55 so-called weed grasses, both terrestrial and aquatic, which could be used for papermaking. Very promising preliminary tests were made with flax stalks which had received a new retting treatment (by decortication of the flax, followed by a one hour's treatment without pressure); but these have not yet been concluded.—A. P.-C.

A-3. New source of pulp. (Papyrus) Paper, **26,** 407, (1920). A mill has been installed in Zululand and machinery is being installed with a view to producing paper pulp from papyrus grass.—A. P.-C.

A-4; L-5. The determination of the quality of spruce sulphite. J. G. Varlot, Papier, **23,** 49-52, (March 1920). For the manufacture of artificial silk, the chem. compositions of the pulp is the most important consideration, while for papermaking the felting quality,

strength and flexibility of the fibers are also important. The following determinations give an insight into the quality of the pulp. 1) Moisture, either by drying or by distilling with a mineral oil, giving the amount of actual pulp. 2) Waxes, gums and resins, either by extraction. (preferably with trichlor-ethylene) or by solution in cold 5 per cent NaOH and precipitation with EtOH. 3) Lignin, which is always present in unbleached sulphite and furnishes an indication as to the bleaching quality. It may be estimated indirectly by determining the furfural, methoxy no., acetic acid no., consumption of Cl on bleaching, or it may be tested for qualitatively by means of various organic and inorganic reagents (Cl, I in KI, Cr_2O_3, $KMnO_4$, $Fe_2Cl_6+K_4Fe(CN)_6$, phloroglucine, phenylhydrazine, aniline salts, etc.). It may be determined, directly by dissolving in 4:1 H_2SO_4 and comparing the color with that obtained with a standard sample, 4) Cellulose, by Cross and Bevan's chlorination method. 5) Bleaching quality, by determining the amount of Cl required for bleaching. 6) Ash. 7) Free acidity, SO_2, and sulphites 8) Cu no., which indicates the amount of hydro-cellulose.—A. P.-C.

A-14. Strength test for paper. The Elmendorf Tearing Tester.. Amin Elmendorf. Paper, **26**, 302-8, (1920). According to Sidney D. Wells the difficulties encountered in determining the tearing resistance of paper are: 1) The tearing resistance of paper varies greatly in different parts of the sheet and any device that would apply a varying load by means of a spring, a pendulum or other arrangement may possess so much inertia that after the tear has passed a strong spot the momentum of the load would carry it through the adjoining weaker area without registering the strength thereof; 2) The variation of paper is such that it seemed to be necessary to use an integrating attachment to measure work rather than force and the consequent complications with the probable expense necessary to develop and manufacture such an instrument discouraged further work 3) The force required to tear a sheet of paper is so small that irregularities in the action of most types of instruments tried caused an error which amounted to a considerable per cent of the total force and vitiated the value of the results. The Elmendorf tester actually measures a change in potential energy brought about by tearing a given length of paper. This is evidently equal to the work required to make the tear and this divided by the length of the tear gives the tearing force per unit length. The tearing force is obtained by means of a pendulum which is raised to one side and allowed to fall, thereby tearing the paper through a fixed and definite length by means of a string and pulley. The initial angle and length of tear are constant. The tearing strength can be obtained by reading the final angle, i.e., the angle after the tear has been made, and referring to a suitable table; or the arc on the instrument may be calibrated to read the tearing force directly. The instrument gives more constant values than the usual methods of determining tearing strength.—A. P.-C.

A-15; K-8. Reactions of cellulose with salts and dyes. Jessie E. Minor, Ph. D., Paper **26**, 584-7, (1920). The author brings forth arguments based on the residual valence theory to prove that: 1) The theories that cellulose and dye are held together mechanically, or that a definite chem. compound is formed in every case, are untenable. 2) The theory that dye and cellulose form a solid solution is not in keeping with the laws of physical chemistry. 3) The union between dissolving salt and cellulose, as well as between cellulose and fixative, mordant or dye, is due primarily at least, if not entirely, to absorption. 4) $ZnCl_2$ dissolves cellulose because it is capable of being absorbed the cellulose cannot be quantatively recovered. 6) not a decomposition of the cellulose. 5) The action of strong H_2SO_4 on cellulose is not the formation of a true solution, or even of a true colloidal solution, since the cellulose cannot be quantitatively recovered. 6) The amount which a given dye is absorbed is directly related to the primary and residual affinities carried by all of the particles in the dye solution. A highly charger solution, whose charge is the same as that of the dye particle, decreases the absorption of the dye, one whose charge is opposite to that of the dye increases the absorption. 7) Basic dyes, theoretically, should adhere to cellulose better than most acid dyes because the acid dyes are continuously stripped by the stronger hydroxyl ions in the solution. 8) Besides the foregoing considerations, the adherence of dyes in woodpulp is influenced by the presence of lignin, or by the hydration, hydrolysis or oxidation of cellulose in large or small amounts, and any of these factors may exercize a decided influence on the validity of the foregoing conclusions.—A. P.-C.

A-7. Limestone analysis. W. E. Byron Baker, York Haven Paper Co., York Haven, Pa. Paper, **26**, 328-46, (1920). A discussion of the importance of the various mineralogical and chem. characteristics of limestone from the point of view of bisulphite liquor making, comprising insoluble carbonaceous matter, SiO_2, insoluble inorganic matter, Fe as FeO and Fe_2O_3, Al_2O_3, CaO, MgO, alkali metal oxides, CO_2, SO_3, S present as sulphides, hygroscopic (surface) moisture, crystal or combined H_2O, the form in which the $CaCO_3$ exists (calcite or aragonite) and the form in which the $MgCO_3$ exists (magnesite or dolomite). The methods of analysis are described in detail with special emphasis on the refinements required for obtaining accurate results. (See Pulp & Paper, June 24, 1920).—A. P.-C.

A-9; H-1. Analysis of electrolytic bleach. Anna Klughaupt and Jessie E. Minor, Paper **26**, 683-5, 688, (1920). One of the great advantages of electrolytic bleach over bleaching powder is uniformity of product. A comparison of the arsenate and thiosulphate methods for the analysis of available Cl in bleach showed the 2 to give practically identical results when properly carried out. Chlorates, in the proportions found in bleach, do not affect the bleaching of the pulp, and, from the standpoint of the papermaker, need not be considered. A control method is described consisting in heating a a mixture of bleach, dilute HCl, and KI in a sealed tube to 100°C for 1 hr., cooling, opening, and titrating with $Na_2S_2O_3$; and the advantages and accuracy of this method are discussed. The only real difference between stored and fresh bleach is in the $CaClO_3$ content. Higgins has shown that in the bleaching action of bleach the reaction is always unimolecular, which must mean that O is directly released from the HOCl present, and that this O then rapidly reacts with the coloring matter.—A. P.-C.

A-14. The determination of starch in paper. Oliver Kamm and Frank H. Tendick. Paper, **25**, 460-1, (1919); Papier, **23**, 55-6, (March 1920).—A. P. C.

B-3. Aerial protection against forest fires. Paper, **26**, 736-7, 740-2, (1920). A description of the aerial forest patrols in the U. S. during 1919, and of the great advantages of this form of patrol.—A. P.-C.

T. A. P. P. I. COMMITTEE PLANS LIBRARY OF PAPERMAKING.

The secretary of the Technical Association of the Pulp and Paper Industry has issued a letter from the chairman of its Committee on Bibliography in which mention is made of the intention of the Association to build up and maintain a library of papermaking, which shall be available to members of the Association by a lending system. The Committee on Bibliography, of which Charles J. West, with Arthur D. Little, Inc., 30 Charles River Road, Cambridge, Mass., is chairman, makes a special appeal at the moment for advertising literature, reprints and books bearing upon the pulp and paper industry. The text of the letter which is addressed to all members of T. A. P. P. I. follows :

A Library of Papermaking.

To Members of The T. A. P. P. I.

All of us, from time to time, notice titles of books, pamphlets or catalogs which we feel would be very interesting reading, and which might contain the answer to one of our problems. If we knew that we could write to one person, and either secure the publication, or information as to where it might be purchased or borrowed, we would feel more inclined to follow up these leads. The Committee on Bibliography proposes, therefore, to attempt such a service for the members of the Technical Association. Our idea is to build up, as rapidly as possible, a library of papermaking, which would be available, through loans, for a limited period of time, to the industry.

Our beginning must necessarily be small, as books are very expensive. As the Association grows in numbers, we hope that the Executive Committee will be able to appropriate a definite amount each year to the building up of such a library. Meantime, we must depend upon the generous cooperation of our friends in the industry. We have had such cooperation on the part of a number of manufacturing organizations, who have sent us their advertising literature, which is much more than mere advertising.

This first letter is addressed particularly to those who are in a position to send us advertising literature, pamphlets, reprints and books bearing upon the pulp and paper industry. From time to time lists of accessions will be published, and distributed to the members of the Association. In this way they will be kept in touch with the recent developments.

May we ask the hearty co-operation of all those interested in the industry? Please send us your publications, and also names of books, pamphlets, catalogs, etc., which you feel properly belong in such a collection. These will be secured as far as possible and made available to all. It is obvious that success in such an undertaking can come only through the assistance of the entire industry.

Clarence J. West, c-o Arthur D. Little, Inc., 30 Charles River Road, Cambridge, Mass.

In this connection it is appropriate to mention some of the publications of the Association which are available from the Secretary.

Iiterature Issued by the Technical Association.

Among the reprints and special papers which are still obtainable by purchase from the Secretary of the Technical Association of the Pulp and Paper Industry are the following :

"The Creative Workman." This is an account of pulp and paper mill operations showing how production was increased and an improved esprit de corps cultivated by the keeping of records of production and efficiency. It is a pamphlet that should be accessible to every mill executive and foreman, to say nothing of the workers themselves. (25 cents).

"Hand Made Paper and Its Water Marks." This is a bibliographical list of works dealing with the manufacture of hand made paper and the water marks in hand made papers. Descriptions of the books are given and these are of special value for library purposes. (25 cents).

"Forest Products Statistics." Forms an invaluable finding list for the records of government publications, which are sources of statistics on forest products. It includes both original and secondary sources and the names of the various offices in Washington from which tabulations may be obtained. (25 cents).

"Government Paper Bibliography". Is a reference list of government documents on pulp and paper which are published by the Government Printing Office, Washington, D. C. (10 cents).

"Technical Association Papers, Series II." This is a compilation of papers and addresses delivered before the Technical Association of the Pulp and Paper Industry, which includes a complete descriptive list of books and periodicals pertaining to pulp and manufacture. Included in it are articles on Paper Making Clays; Cotton Linters Pulp; Soda Mill Problems; Tearing Test for Paper; Tests for Sulphite Liquor; Heat, Light and Power Problems; Accounting Systems for Power Plants; Mill Lighting Systems; Judging Character of Applicants for Positions; Woodpulp Grinding Methods, etc., ($2.00).

"Paper Testing Methods." Is a practical treatise on the analysis of paper and papermaking fibres as well as the leading materials in ordinary use. Formulas for stains and chemical reagents are given and there is a chapter on the fibres used or proposed for use in papermaking. ($1.00).

Orders should be addressed to Mr. T. J. Keenan, Secretary, 542 Fifth Avenue, New York.

THE LATE MR. JOHN FORD.

A pioneer of the pulp and paper industry passed away last month in the person of Mr. John Ford of Portneuf. Mr. Ford followed the business of paper making from his youth having had his training in his father's mills at Portneuf. He saw the first ground wood pulp made in Canada by the hydraulic process and built the first successful pulp mill in Canada at Glenford, Portneuf County, which was in operation until a few years ago. Although the pulp and paper industry has developed tremendously of late years he kept pace with it and was identified in the construction of a number of mills in the province. Mr. Ford was also an Engineer and an inventor of marked ability and many of his inventions are now in general use in pulp and paper mills throughout the country. His death after a short illness will be felt considerably by the large circle of friends and business acquaintances who admired him and respected him for his sterling worth and unswerving integrity, and for his kindness of heart he will be long remembered.

If top-notch effort yields you no happiness, there's something wrong either with you or your efforts. Sit down and do some analyzing.—B. C. Forbes.

"The Safety Habit is contagious. Be sure to catch it," says the Safety League.

PULP AND PAPER NEWS

Mr. I. H. Weldon, of the Provincial Paper Mills, Limited, and Mr. N. L. Martin, Secretary of the Canadian Paper Trade Association, Toronto, leave next week on their annual hunting trip on the French River.

Pulp and timber limits aggregating 200 square miles have been put up for tender by the Ontario Government. The limits are scattered throughout the north country, running from small bits of one or two square milels to limits of 72 square miles. There are two of the latter size, one in the Townships of Kimberley and Cairo in Temiskaming, and another in Thunder Bay, in the district west of the Townships of Hele and Sterling. There is one limit of 30½ miles in the Townships of Ryan and Palmer, Algoma, and one of 15 square miles in the north half of McFadden Township, Temiskaming. The balance are small limits, for most part adjoining limits of operating companies. In the past these would have been disposed of without tender, but under the new policy of the Department of Lands and Forests they must be tendered upon in the usual way.

At the annual meeting of the Association of Canadian Advertisers in Toronto this week, Vice-President W. G. Steward declared that the time had arrived to impress upon the publishers the necessity of charging more for their product. "We all know that there is a world-wide paper shortage", said he, "but so far the advertiser has had to pay the larger proportion of the increased costs, and many of us believe that the time has now arrived for the reader to pay his fair share of the increase in the overhead expenses of the publisher. "President D. G. Clark and Vice-President Steward both emphasized the need for more color work in advertising. C. A. Crabtree, president of the Crabtree Company, gave an address on "Art work and engraving problems and how to meet them economically". Film, billboard and other advertising mediums were discussed and F. T. Stanford of the Canada Life Assurance Company gave an address on "Co-operative Institutional Advertising." A feature of the meeting was an exhibition of advertising art work.

The Adams Cellboard Company, Limited, has been incorporated, with power among other things to carry on business as printers, publishers, paper makers etc., and with a capital stock of $400,000. The new company takes over as a going concern the business and assets of the Adams Cellboard Company, box makers, etc., on Defries Street, Toronto.

A charter has been granted the Pembroke Timber, Tie & Pulp Co. Limited with head office in Pembroke, Ont., with power to manufacture and deal in lumber, ties and pulpwood. The mills of the company are located at Makwa on the C. N. Railway. Mr. W. H. Bromley is the manager of the organization. He is well known to the trade and previously was engaged in the wholesale line. He served three years overseas with the Canadian Forestry Corps. Another member of the company is Major A. J. Miller, who was officer commanding of a Forestry Corps in France and who is now engaged in the milling trade in Pembroke. Mr. J. S. Fraser is president and Mr. L. M. Chapman is secretary of the company.

A good example in creating good roads is being set by the Ontario Paper Co., of Thorold, who are large users of coal. Huge piles of cinders have accumulated and the company recently bought a three ton automatic dumping truck and now have men at work spreading the cinders on the road from the mills to meet the Stamford road which has already been cinder-paved by the township council. The Ontario Paper Co. has offered to cinder-pave many miles of roadway in and around Thorold .

Mr. A. T. Wilgress, King's Printer of Ontario, who has been on a visit to France where he saw the grave of his son Lieut. George Wilgress of the 21st Batallion has returned to his home in Toronto.

Mr. Cal Davis, for the past thirty years on the staff of the Hamilton Times and for many years managing editor of the paper, was recently presented with a gold Masonic locket. Mr. Davis, who is one of the city controllers of Hamilton, becomes managing editor of the morning edition of the Times which will shortly be issued.

It is stated that over one hundred newspaper offices have been closed in Canada during the past year either through suspensions or amalgamations owing to the shortage and high cost of paper and general advances in supplies of all kinds, including wages. On the other hand there has been a marked increase with number of weekly and monthly publications.

The Manitoba Free Press of Winnipeg has increased its subscription rates for the morning edition to 25c per week owing to the tremendous advance in the cost of producing a newspaper. In making the announcement the Free Press says that on July 1st a new labor schedule and a fresh newsprint contract became operative simultaneously, increasing the newsprint bill of the publishers by exactly 25 per cent and advancing the payroll of the mechanical department by 26 per cent. More recently the raise in freight rates has added greatly to the freight bill. All the papers published in Regina, Saskatoon, Calgary and Edmonton are now selling at 25c per week delivered.

Another amalgamation has been added to the rather long Ontario list. The St. Marys Argus has been absorbed by the St. Mary's Journal of which J. W. Eddy is the proprietor.

Proposals for an enlarged British cable service were thoroughly gone into at a meeting of the board of Directors of the Canadian Press, Limited, in Toronto this week when the decision was reached to call a special general meeting of the membership

in Montreal within five weeks to pass finally on the draft agreement for such a service, to be negotiated by the management with Sir Roderick Jones of euters, Limited, B. C. Nicholas of Victoria was appointed director to fill the vacancy on the board for British Columbia and W. J. McNair, Hamilton, Ont., Herald was added to the Ontario and Quebec representation of the board in the place of Irving Robertson, Toronto, resigned. The Hamilton Spectator and the Hamilton Herald, both afternoon papers, withdrew their applications for morning paper franchises on the understanding that The Times is to abandon the evening field.

An interesting development in the exploitation of the natural resources of Quebec, is the statement which appeared in "L'Evenement" that a railway is to be constructed from Hudson Bay to the Seven Islands on the north shore of the Gulf of St. Lawrence by interests connected with the pulp and paper industry. The statement also mentions that pulp and paper mills will be erected at Seven Islands and at other points along the route where there are important water powers. Steel works also are to be created at Chicoutimi and at Quebec. It will be recalled that there is already a pulp mill at Seven Islands which was recently acquired by British industries.

An employee of the Spanish River pulp and paper mills at Sturgeon Falls, Ont., Henri Lacroix, recently had a very strange experience. Last May he was thrown into the mill race and besides having several ribs broken, a shoulder dislocated, and being nearly drowned, he added to nature's equipment by swallowing the stem of his pipe. This article remained in his stomach until he was awaiting an operation to remove it, when he felt the stem ascending and was able to catch hold of it with his fingers and pull it from his throat.

In an address before the Rotary Club of Vancouver, Mr. James White of the Commission of Conservation, stated that in order to provide somewhat more than 2.000,000 tons of news print to Canada and the United States annually, 1,000 square miles of forest land must be stripped of mature trees each year.

The Laurentide Co., will have two more satisfied and permanent employees when H. Downes and J. McDonald received loans from the town of Grand-Mere for assistance in building their own houses. The grants are for $3,600 each.

A large operator in pulpwood in Eastern Canada, is of the opinion that there will not be any rapid decline in the price of pulpwood. This opinion is based on the present condition with regard to transportation facilities, that the demand is consistently urgent and although there has been a slight easing of contracts for a long time, this concern is completely sold out for the total output until 1921 at the highest price ever obtained. This view is held by many other pulpwood men although there are some who think the production this winter will more than meet the immediate demand. All seem to agree, however, that the situation depends very largely on development in transportation conditions.

W. I. Bishop, Ltd., of Montreal, are doing foundation and general construction work for the Belgo-Canadian Pulp & Paper Co., and are building a dam for Bird & Son, at their mill near Pont Rouge. The Bishop Company are purely construction engineers and leave the consulting part of the business to those who make that a specialty. This gives them the better opportunity to concentrate on construction.

Mr. John C. Corcoran has severed his connection with Dominion Engineering Works Ltd., and has opened an office at 510 Dominion Express Building. Mr. Corcoran is in negotiation with a number of firms to handle their lines for the pulp and paper trade and plans to manufacture in Canada a number of lines that are not manufactured here now. Mr. Corcoran is well known in the paper trade, having been for a number of years with Rice, Barton & Fales before going with Dominion Engineering Works about two years ago.

CLARKE BROS.' MILL DOUBLED IN SIZE.

A circular issued by Clarke Brothers, Limited, now building a pulp mill at Bear River, N.S., for which a bond issue was sold some months ago, announces that delays have occurred in the construction program, that the buildings are now nearing completion and the machinery is being rushed forward, and set up as fast as it arrives.

"As far as our pulp mill is concerned," says the circular, "the delays have been beneficial to the company, for during this period the permanent shortage in kraft pulp has become more accentuated, and has brought home to us more forcibly the wisdom of increasing the output of our mill. The original mill was at the rate of 30 tons per day. The extension we are now installing will give us a capacity of 50 tons per day. Although we have been able to double the capacity of our mill, we only found it necessary to increase our indebtedness by $250,000, making our total indebtedness $1,250,000, which will more than complete these additions and improvements and provide working capital as is required to carry on under this intended program. The additional finances have been arranged."

According to a report from St. John, N.B., the old Mispec pulp mill has been entirely dismantled. The brick, machinery and other material has been carried across the Bay of Fundy to the big pulp plant of Clarke Brothers, Limited, erected at the mouth of the Bear River.

IMPROVEMENTS IN THE ABITIBI FINISHING ROOM.

Within a very short time the handling of the rolls at Iroquois Falls will be done entirely without the use of hand trucks.

A narrow guage track and electric trucks are on order and some of the equipment has already arrived.

Some of the large Toledo scales are now installed and others are to be put in before long.

A narrow gauge track with dolly trucks is to be put in to put the rolls of paper of the same length together, and electric trucks will deliver the rolls to the railway cars. These trucks will up-end the rolls themselves.

Another thing which will make for greater efficiency if it is worked out is the scheme of putting on the heads with the rolls in a horizontal position. Plans for this are now being worked out and it is hoped before long to have a satisfactory method of doing it in operation.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Oct. 23—Although there is a lessened volume of business in the printing trade it is believed to be only of a temporary nature. In contrast to this is the satisfactory trading in paper by the jobbers, some of whom are now booking orders for January delivery, although they admit they are taking more or less chance on stocking up for future delivery from mills, and at the same time declare that the outlook justifies their action. Deliveries from the mills are coming in more liberally than heretofore but stocks in some lines, notably book papers, are still low and the product is very hard to get. United States paper makers are beginning to offer tonnage in many lines exclusive of book paper and there appears to be a general loosening up of paper supplies, although prices of all paper products remain steady. One prominent Toronto jobber points to the possibility of ascending prices again should the spirit of unrest in mining and some productive labor activity spread to Canada thus reducing the driving power behind paper production in this country. The natural result of any strike trouble in the mines, he said, would be to influence the output of the paper industry with the further corollary of still greater under-production. While this eventuality is not anticipated seriously it is mentioned as one of the possibilities that the trade may have to face.

A feature of the jobbing trade is that there are comparatively few big orders coming in but the total of smaller sales has resulted in a larger volume of business than under the era of big buying. The policy of the printing and publishing houses appears to be that of buying from hand to mouth but there is still a great demand for paper of most classes. Every scrap of stock in the job printer's plants is being used up and it is estimated that it will not be very long before the stock rooms are cleaned out, which should result in increased demand upon the jobbers and the mills. It is estimated that January next will see a cleaning out of all small stocks and that buying will be renewed on a big scale. The mills are not booking any of the new making for delivery before January or February.

CATALOG DEMANDS.—According to the statement of one Toronto jobber the demand for stock for catalog work is just as heavy as ever, although it was thought that there would be a slight falling off in the call for this class of stock in the near future. A case was cited where a big catalog manufacturer in Toronto placed an order in England for his stock during the shortage here and after considerable delay he got it, but it turned out to be poor stock and he was left with it on his hands, which means that hereafter he will take his chances on the domestic supply. It is known that salesmen for English houses have gone back home with orders from Canadian houses for papers but the matter of delivery is entirely a different matter and while the orders were placed practically no deliveries have as yet been made and none are looked for in the immediate future.

WRAPPING AND BAGS.—The demand for these lines keeps up and the jobbers report that stocks are hard to get from the mills. Very little is coming through and the jobbers have more business than they can get stock to fill, although in some lines of wrapping paper there has been a slight falling off in demand. While the demand for paper bags is good it is noticeable that the jobbers' customers are not buying any more than they absolutely have to.

MILL MACHINERY.—Paper mill machinery dealers in Toronto say that they are not getting any better deliveries of the machines they are handling and that there has been no falling off in the demand for paper cutting machines and other equipment supplied the mills. There has been no slump in the trade and none is looked for.

PULPWOOD.—The pulpwood market is firm in price at the present time but some dealers see signs of a slump in prices by the time the snow comes. One dealer expressed the belief that rough wood would go down $2 a cord within the next six weeks, although he did not anticipate any material reduction in the price of peeled wood. The situation has so shaped itself that but few dealers are buying pulpwood for speculative purposes. One leading Toronto firm which deals in pulpwood and lumber told the Pulp and Paper Magazine that having bought and produced all the wood covered by its contracts were now going to play safe and buy no more, although the firm is in receipt daily of letters offering wood for sale. The firm, however, is not in the market for more wood. There appears to be considerable activity in the woods, farmers, settlers and others being engaged in taking out the wood in considerable quantities. Cordwood is exceedingly scarce and it is estimated that about five hundred cords would cover the available supply in the woods, although there is some in the wood yards. During the coal shortage of a couple of years ago woodsmen were urged to get out all the wood they possibly could and when the coal situation righted itself the consumption had kept pace with the production. Comparatively little cordwood has been cut since then and hence the shortage at the present time. If the Canadian woodsmen are going to be called upon to jump into the breach now that the worlds coal supply is threatened by strikes in various countries it may mean a big call for cordwood and a consequent lessening of the production of pulpwood.

WHOLESALE STATIONERY.—Conditions in the wholesale manufacturing trade are good as far as business goes but difficulty is being experienced in getting raw stock. The fact of the mills being unable to get ground wood and sulphite is holding up the paper and beoard for the stationary manufacturers who report that it is very hard to get delivery of stock. In one instance, a leading Toronto firm placed orders at the beginning of the present year for delivery in July and the stock

is not yet to hand. There is a great shortage of linen finished boards and there is none in sight. The labor situation is slightly easier with the exception of certain branches of skilled labor, although the manufacturers are still finding it hard to get labor of the right kind The demand for envelopes, blank books, writing pads and papeteries keeps up and the coming Christmas trade promises to be good. The papeteries trade is booming and one manufacturer reports that his firm has already shipped from seventy five to eighty per cent of his orders for the Christmas trade while designs are being worked on for them following Christmas. There have been practically no cancellations of orders and all branches of the wholesale stationery trade are thriving.

The new plant of the Dominion Cone and Folding Paper Box Company, which is being erected at Ingersoll, nt., is about completed and it is expected that manufacturing operations will commence in about a week's time, although the portion given over to box making will not start for about ten days yet. It is stated that the company is ready to start operations with a large number of orders on hand and that prospects for the future are very bright.

NEWSPRINT.—A visitor from New York interested in publishing stated that the price for spot lots of newsprint had dropped in a short time from 15 to as low as 7½ cents per pound. The view expressed was that the paper situation could not wholly escape the fate of the sugar market, in which high prices attracted the commodity from various parts of the world. This should be modified, however, by the statement that only a few parts of the world are in a position to export paper. One Toronto paper dealer has the idea that the dumping of over two hundred thousand tons of newsprint from Finland on the American market, as reported in the daily press, is going to queer the Canadian market and that pulp and paper circles would soon see a drop in wood and sulphite.

HEAVY CHEMICALS.—This market is still very tight.

Alum if anything harder to get.

Bleaching powder about the same. Some English powder is available in carload lots, from 5 to 6 weeks delivery at 7 1/8c, Toronto, duty paid subject to possible delays due to spread of coal strike to transport workers.

Soda ash, 58 p. c., can be had in carlots at 3c. at Toronto.

Salt cake and niter cake are scarce .

Sulphuric acid may be easier towards the end of the year when the product of some new units will be on the market.

NEW YORK MARKETS.

New York, October 23—(Special Correspondence)—The outstanding development in the paper and board markets this week has been a sharp drop in box board prices. One of the leading producers in the Eastern States has repeatedly cut quotations, presumably in an effort to secure enough business to keep his machines runing full, and while other mills have not generally followed this procedure, the actions of the one manufacturer have brought market prices down to subtantially lower levels. Plain chip board is selling at $85 to $95 per ton f.o.b. mills, as compared to $110 to $115 —the ruling market quotations previously—while news board has dropped in price to $95 to $100 a ton, against former prices of $120 to $125. The reasons behind the decline in board prices are several. First, mills have been getting very little new business during the past few weeks. The paper box trade is in the doldrums owing to the dullness prevailing in most lines wherein boxes are used, and boxmakers have placed few orders for board, most of them having stocks on hand sufficient to cover their wants. Secondly, sharp declines in old paper stock have enabled board manufacturers to buy raw material at considerable lower prices in a long time, and some producers figured this as justifying their lowering prices on boards. The mill which has led in reducing quotations has a reputation of going to any lengths to secure ample business to keep running full, having pursued this same policy at frequent intervals in the past. Most other boardmakers are holding off in trying to get business for the present, evidently with the idea that when the one mill in question has booked enough orders to keep it operating at maximum for a time, they will then be able to obtain orders at more favorable prices. At the same time, market prices, at least for the moment, have been well established at the low levels named above, and obviously consumers are refusing to buy at other figures than these.

There is a feeling common in the trade that better times are in store for board manufacturers and dealers than they have lately been obliged to contend with. It is a fact that retailers all over the country have held off in placing orders for paper boxes for the Christmas holiday season, and it is believed that they will necessarily have to begin covering these requirements in the very near future, or else go without the boxes. Board men, therefor, look for a period of pretty brisk buying of boxes during the next several weeks, and for a resultant livelier demand for box boards. The decline in board prices is in direct line with the recession in waste paper costs, and is viewed as a healthy market condition. Board mills are today obtaining raw material at reductons of from $25 to $25 per ton from the prices they were obliged to pay a short while back, and the lower prices on boards are looked upon in many quarters as a natural readjustment of prices on the manufactured article.

The remainder of the market has undergone no broad changes. Considerable discussion is being engaged in among paper manufacturers and jobbers regarding the possibilities of Germany and Finland sending large tonnages of newsprint to America. Late reports are to the effect that both Germany and Finland are preparing to ship heavy amounts of print paper to this country to sell at prices under the present value of domestic newsprint. The arrival of two prominent paper manufacturers from Germany, who have given out interviews in this connection, has served to whip up interest. Sentiment in the trade here is that there is small likelihood of enough newsprint being sent to America from Europe to materially affect the market situation. Some factors express the opinion that the quantity of newsprint received from Europe will only go to make up the lighter supplies the United States will likely get from Canada owing to the larger exports of theDominion to England.

Prices on spot lots of newsprint hold at at around 10 cents a pound, with an occasional sale reported, most often of imported paper, at a quarter of a cent less than this figure. The contract basis is maintained firmly at 6.50 cents f.o.b. mills.



SOLE AGENTS in the United States, Canada, Mexico and Cuba for

Finnish Cellulose Association, Helsingfors, Finland

comprising all and every Sulphite, Sulphate and Kraft pulp mill in Finland, Manufacturers of superior grades of Bleached and Unbleached Sulphites, Easy Bleaching Sulphates and Kraft Pulps.

—ALSO—



Trade Mark

SOLE AGENTS in the United States, Canada, Mexico and Cuba for

Finnish Wood Pulp Union, Helsingfors, Finland

a combination of the foremost Ground Wood Pulp and Board Mills in Finland, makers of various kinds of boards and dry and wet Brown and White Mechanical Wood Pulp.

Get the most for your money by getting next to our qualities and prices!

WOOD  PULP

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18 East 41st Street, NEW YORK, N. Y.

Telephone: Murray Hill 4246-47
" " " 2170

INQUIRIES SOLICITED.

Book papers are in a slightly easier spot position. Some mills have lowered prices half a cent per pound for prompt shipments, and yet there is but little book paper of any kind available; mills as a rule being sold up for the balance of the year on contract. Wrapping papers also have eased off a trifle in the open market. No. 1 kraft wrapping is to be had in some quarters at 12 cents, while No. 1 jute is quoted down to 14 cents and No. 1 fibre at 8.50 cents. That all manufacturers are not reducing prices is shown by the fact that one of the leading producers of kraft wrappings only a few days ago advanced all prices half a cent a pound. Prices on paper of any and all kinds today depend almost wholly on the position the mill quoting is in the way of having business. If it is well booked up with orders, it is maintaining quotations and sometimes advancing them; if, on the other hand, it is looking for orders, it is cutting prices somewhat.

GROUND WOOD.—There is a comparatively narrow demand for ground wood yet prices are well sustained, and buyers seeking mechanical pulp at concessions are meeting with scant success in finding it. As an example of the firmness of ground wood values, a New York dealer told of canvassing the trade locally this week in search of domestic spruce pulp of prime quality for prompt delivery and of having to pay $122.50 a ton, which was eventually turned over to a consumer at a price of $125. This latter figure represents the value of prime quality ground wood today. There are offerings in some cases down to $110 but pulp available at this level is foreign pulp and does not begin to compare in quality with the domestic product. Moreover, only certain mills, principally board plants, can use this foreign ground wood.

CHEMICAL PULP.—There is a firm tone to prices on some grades of chemical wood pulp and easiness in other parts of the market. Kraft pulp is weakening fast and new low prices are being quoted, domestic kraft of good No. 1 quality being offered for prompt shipment at 6.50 to 6.75 cents, and Scandinavian kraft down to 6 cents. Unbleached sulphite is easy also though not so much as kraft. Newsprint sulphite is selling at 7.50 cents, which records a decline, and easy bleaching sulphite of domestic origin at 9 cents. Bleached sulphite remains strong in price and it is still a problem to locate sizable tonnages for quick delivery or for shipment sometime hence. Domestic bleached is quoted at 12 cents upward at mills and foreign bleached at 13 to 14 cents. Receipts of pulp from Scandinavian countries continue fairly large, but there is a good deal of talk concerning the poor quality of much of this pulp and apparently there is not as active a demand for it as importers probably anticipated.

Arrivals of foreign pulp at New York this week included 4,250 bales from Christiania, 2,100 bales from Gothenburg, and 4,300 bales from Hamburg.

RAGS.—Little trade activity of importance is current in papermaking rags. Mills are keeping out of the market, presumably having enough supply on hand to cover their present wants, and in the absence of actual transactions, prices are mainly nominal. New cuttings hold moderately steady in price for the reason that such rags are scarce and that production of them is not heavy enough to create any material surplus, but old rags continue to decline and it is a question just how low buyers can obtain supplies. Roofing rags have sunk to 1.75 cents a pound at shipping points for No. 1 packing, and there have been reports of purchases at even lower levels, while old thirds and blues are available to mills at 4.50 cents for repacked stock No. 1 repacked white rags at 12 cents.

Receipts of foreign rags at this port during the current week included 2,454 bales from Havre, 436 bales from Hamburg, 460 bales from Bordeaux, 176 bales from London, and 68 bales from Hull.

PAPER STOCK.—The decline in waste paper prices has continued uninterrupted throughout this week and values have sunk to levels representing differences of $20 to $25 a ton from the levels ruling prior to the break in the market. No. 1 mixed paper is now quotable at 1.25 cents, folded newspapers at 1.50 cents, old No. 1 kraft at 4.75 cents, white news cuttings at 5.25 cents, heavy magazine stock at 2.50 cents, No. 1 hard white shavings at 9.25 cents, and No. 1 soft white shavings at 8.25 cents. High grades hold comparatively steady although they have sagged to some extent, but low qualities have broken with a rush probably never before witnessed. Consuming mills are doing little buying, evidently figuring it a better policy to refrain from absorbing supplies with prices tumbling as they are. There are reasons to believe that prices have reached a point now where they are not likely to recede much further. Packers and dealers contend they cannot produce stock at a profit on prevailing prices and many of them have shut down their establishments. The situation at best is greatly unsettled and it not likely to become definitely readjusted until mills resume buying on something near to a normal scale.

Scandinavian American Trading Co.

50 E. 42nd STREET TELEPHONES 8311 8312 1813 MURRAY HILL **NEW YORK**

Write us when you have any surplus of **Ground Wood** Bleached or Unbleached. We are always in the market.



THE TEST OF DAILY USE.

Valves, Pipes, Casting, any Fittings used in Pulp Mill work must possess positive ***Acid-resisting*** qualities.

The castings which we make for this purpose are of "WORLD" ***Acid-resisting Bronze,*** a metal which years of use, under exacting conditions, has proved to be the best suited for this purpose.

Let us know your requirements. We will be glad to send you a ***Sample Casting*** for an ***Acid Bath Test.***

If you are not entirely satisfied with any Valve or Fitting you are now using send to us for a sample to try in actual use.



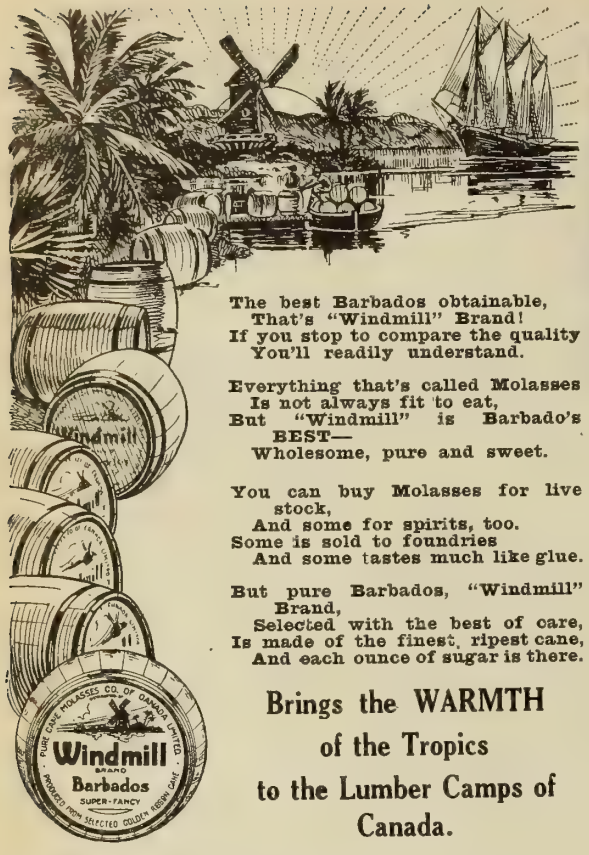
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The best Barbados obtainable,
That's "Windmill" Brand!
If you stop to compare the quality
You'll readily understand.

Everything that's called Molasses
Is not always fit to eat,
But "Windmill" is Barbado's
BEST—
Wholesome, pure and sweet.

You can buy Molasses for live stock,
And some for spirits, too.
Some is sold to foundries
And some tastes much like glue.

But pure Barbados, "Windmill" Brand,
Selected with the best of care,
Is made of the finest, ripest cane,
And each ounce of sugar is there.

Brings the WARMTH of the Tropics to the Lumber Camps of Canada.

Genuine "Windmill" Brand, containing all its natural flavour, sugar and salts, is the finest food for your men because it gives them warmth and energy. Liberal use of "Windmill" Brand makes the men feel like work.

Windmill

Barbados Super-Fancy

The most valuable property of the genuine "Windmill" Barbados Syrup is that it is a live, green vegetable foodstuff. To people whose diet contains little or no fresh vegetables or fresh fruit, the salts and acids contained in "Windmill" Brand are absolutely necessary for the maintenance of health. This applies especially to men in the lumber camps. Ordinary molasses, blended syrups, and even high priced syrups made out of sugar, lack the peculiar property that makes "Windmill" a necessity in the lumber camp.

A limited quantity offered in original puncheons of 100 gallons at $1.33 per Imperial Gallon, f.o.b. Montreal, St. John, N.B., and Quebec. For quotations on smaller packages, write to

Pure Cane Molasses Co. of Canada, Limited,

St. John, N.B., - Montreal, Que.



Builds Flesh, Keeps Stock Healthy.

Cane Mola is not a prepared stock food, but a selected, pure sugar-cane molasses. The cost is very reasonable. Sprinkle Cane Mola over your straw, old hay, corn stover, fodder, ensilage, screenings, etc., and you have a feed that Produces More Milk; Builds Flesh Faster; Keeps Stock Healthier; Reduces Cost of Feeding; Increases your Profit.

Cane Mola is very easy to use, as no special apparatus is required. Cane Mola is not a "remedy" — it is not Beet Molasses. It is a "food" and the cheapest food you can buy today.

Cane Mola

Reduces Feeding Costs to a Minimum.

It is endorsed by Government Experiment Stations. Successful dairymen and farmers are continually reordering in ever-increasing quantities. They realize how good and economical Cane Mola is.

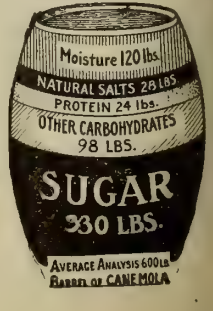
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You save the cost of expensive prepared feeds, and you will experience a rapid, healthier growth of stock. Cows yield 15 to 25 per cent more milk.

Write for full information and booklet giving expert advice on feeding.

Cane Mola Co. of Canada, Limited,

1700 Notre Dame St. West, MONTREAL.



Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. GARDENVALE, P. Que November 4, 1920. No. 45

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FAIRBANKS-MORSE



Building a Bigger Canada

THESE are days of progress—days when industry is leaping ahead and Canada is assuming her place in the world of commerce. Giant structures are being reared to house the machinery, men and equipment necessary to a bigger business.

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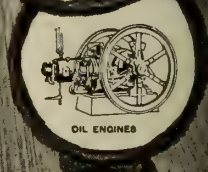
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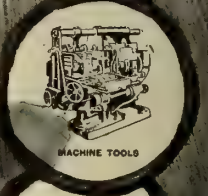
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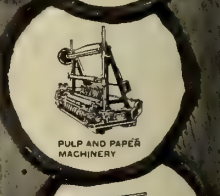
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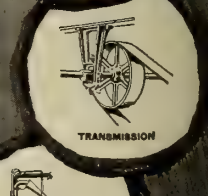
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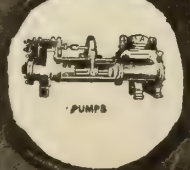














EDITORIAL

WILL PRICES DROP IN SYMPATHY OR BY FORCE?

At this time, when prices in many commodities are on the down grade, or at least, show signs of declining, the question naturally arises as to what the effect will be on the products of the pulp and paper industry. In most of the cases where decreases in prices have occurred, there seems to have been a slackening of demand. This has been particularly noticeable with regard to the Textile industry. The public has simply made up its mind that it will no longer pay war prices. The result however, is not without some disadvantages as we have noted a considerable increase in unemployment in textile centres. Some mills have had to shut down, or to operate on part time, and textile workers and garment makers have agreed to a reduction in wages rather than be turned out of their jobs. There is, therefore, an obligation on the part of the public to continue purchasing necessary supplies at as nearly a normal rate as possible, otherwise there is sure to be considerable dis-organising of industry, with a resultant disadvantage to all concerned. In other industries however, the demand still keeps pace with, or in advance of production. The pulp and paper industry is one instance, and materials for building is another. There is not only a scarcity of many lines of building material, but there is a marked scarcity of competent labor, consequently it is not likely that building costs will decrease for some time to come; some contractors estimate the period of continued high building costs to be about three years. It is predicted that the shortage of houses cannot be made up in less time than that.

In the case of the paper industry, there are also a number of factors which have to be considered. The most important of these we should give as demand, capacity of productive equipment, and availability of necessary raw materials. In some lines of paper there is a tendency to higher prices. This is principally due to scarcity of fundamental raw materials; the most noticeable instance is the market for the highest grade of paper where there is marked difficulty in getting sufficient high grade rags and the lack of this class of stock is said to be partly due to a scarcity of bleaching powder for the preparation of colored rags that might otherwise be used. The disinclination of the consumer to pay the necessarily high price for high grade stock, puts an additional burden on manufacturers of the lines which are substituted. In other lines such as book and newsprint papers, there continues to be a demand which is taxing mill capacity to the utmost and a large amount of printing is left undone which could readily be taken care of if sufficient paper were available.

The situation with regard to capacity is not confined to the paper mills but goes back to the chemical pulp mill and the grinder. It seems probable that some relief in the ground wood situation will be found before very long but through the insistent demand for this grade of stock, there is not much likelihood of an over-supply. At the present time, the prices paid for ground-wood are the highest in history and will not likely be touched again for many years. They have been supported by the extraordinary demand for newsprint which has forced the price of spot sales to twelve, fourteen and sixteen cents. At this rate it was advantageous for mills not ordinarily producing newsprint, to switch over, so as to take advantage of an unusual opportunity. The tendency has been growing, however, in the last few months, for publishers who have contracts, to use only such paper as is bought in this way. This action has considerably relieved the situation with regard to those papers that must rely on the spot market for their supplies. It has meant however, that mills not ordinarily producing newsprint, and which could only produce it at high cost, have naturally gone back to their normal grades which again began to offer possibilities of approximately equivalent profits. It is easy to see that this jumping to the other side of the fence still leaves the market short of spot supplies as the big producers have no difficulty whatever in more than filling their machines with contract orders and only those specialty mills can continue to supply the spot market as are able to produce newsprint profitably for the lower scale of spot prices that is gradually being established.

This partial easing of the spot newsprint market, and the consequent throwing of machines back into other lines of production, is at the same time relieving to some extent of the tightness that has existed in such lines as tissues, wrappings and boards where the same raw materials are required as are used in newsprint, but the market in these lines cannot go easy, or prices appreciably soft, until there is a more abundant supply of pulp. A slight slackening of business such as appears on the horizon for the next few months, at least in some lines, may bring the supply of these nearer to the demand than has occurred for some time, but a rebound toward prosperity cannot be long delayed and there is not much chance of sup-

plies out-running requirements. An instance is the present comatose condition of the board market.

In book and magazine papers there is no indication whatever of a let-up; periodicals are hard up for paper, one publisher alone being 1600 tons short and many others could use up more paper than is available. If there were a larger supply we are sure that many new productions would appear and the same may be said of newspapers and newsprint supplies. There has been marked difficulty in obtaining text books this year and there is not much relief in sight.

Most of the paper manufacturers are dependent on the output of pulpwood and from various sections of the country come tales of difficulty in getting enough men to carry on lumbering operations. It has been stated that the efficiency of workmen has increased generally of late, but it is doubtful whether many of the old time lumber jacks will be seen in the woods this winter. Even so, the wood that is required by the mills now was cut one or two years ago and the cost of producing it was abnormally high then and is still approximately at the same level because supplies had to be sent into the woods before the present tendency for a decrease in the cost of food-stuffs made its appearance. Pulpwood is a very considerable factor in determining both the quantity and the cost of the production of paper, and we are approaching a time when it will be **the** determining factor. Ontario and Quebec forests form the keystone of the paper industry for at least the eastern half of Canada and the United States. Public opinion is being aroused to the necessity of conserving this resource in order that it may continue to be the important source of provincial revenues that it should be. The result of instituting proper forestry policies must be to increase the price of most grades of paper or at least to maintain them at something like present levels.

Nothing has been said with regard to the price of other raw materials or the cost of transportation or labor. The paper mill receives approximately four tons of freight to each ton of product shipped out and the cost of hauling has increased just recently by 40 per cent. It is not likely that the cost of operating railways will be so reduced as to make it possible to decrease present rates very much, at least not within the next few years. As to the other raw materials such as rosin, clay, color, and adhesives, and materials of equipment and operation, their present prices are high and it is the present cost of such goods that must largely determine the cost of the product sold.

For most paper mills, the rate of wages has been fixed for another six months. This item is one of the most important factors in the cost of production. The effect of wages is cumulative; it is evident in the price of wood, coal, transportation, and equipment, to say nothing of its place in the conversion of raw material to finished produce. It is generally admitted that this is the last item of cost that can be reduced. Only continued maximum production can keep it up, however, but in most lines of paper, this is likely to be the case for some time to come.

From an analysis of factors entering into the manufacture of pulp and paper, and in view of the present and probable demands for these products, it is likely to be some time before market conditions force a decline in selling prices. The only chance we see of lower prices until demand slackens is the possibility that some manufacturers may consider it good policy to trim profits as far as safety will permit in order to announce a price cut in sympathy with decline in some other commodities and with a view of geeting publicity, and perhaps goodwill, by such a procedure.

MAKING PROHIBITION PROHIBIT.

Referendum votes have been cast recently in five Canadian provinces on the subject of prohibition. In only one case has the result been in favor of the liquor interests. British Columbia has decided to permit the Government to deal in alcoholic liquors, but Alberta, Saskatchewan, Manitoba and Nova Scotia have cast decisive votes in favor of prohibition. Possibly British Columbia has moved in the direction of temperance to a degree; but we have no doubt that the action of the other four provinces, if properly backed up, will give much the better results. Even Quebec, which passed a modified temperance act about a year ago, has finally come around to the conclusion that the act was not being properly enforced and orders have been given, at least in Montreal, that the law be obeyed. Everybody will not be satisfied with the restrictions that require a bona fide doctor's prescription for the purchase of liquor, but many of these same people would be the very ones to object to its promiscuous sale. There are some who still believe in privileged class in a democracy; we believe there should be no privileged classes before the law. No good citizen will attempt to evade the law which a majority have passed because he thinks it is unduly restrictive of his own personal action, and at the same time expect others to obey a statute which is also designed to be a public benefit. We trust that the Government of all the provinces in Canada will have the courage to enforce prohibition laws, with at least, the same vigor that is used with regard to theft and other crimes against the public good.

COBWEBS.

A newspaper headline says Riordons have bought timber on the **Quince** River. Do you C Z difference?

A recent report from New York said that big American publishers had probably $50,000,000 worth of paper on hand which cost them about 5 cents a pound and which they are getting ready to unload on publishers short of paper. Of all the crazy ideas! That paper will be gone, long before the price hits 5 cents again.

Human Conservation, A National Necessity

Dr. FRANKLIN C. WELLS, Medical Director, Equitable Life Assurance Society of the United States*

Off Land's End, England, there is an old house with two signs upon it, or rather one sign with two sides. On one side you read, "This is the first house in England." You go around to the other side and you read, "This is the last house in England." It all depends upon your angle of vision and where you stand as you read that sign what that sign means to you. It all depends upon the way you look at a subject what that subject means to you. There is a great audience here that represents a great deal. Thank God, from whatever places we have come and how we may look at the business of life through different glasses or different views or angles of vision, we are one in the fact that human life must be saved and conserved where life is lost by accident or by disease.

You employers of labor take a man and you don't ask what he is, you don't look underneath the outside covering and go to the inside machinery to ask the condition of the machinery there. You say, "What can you do?" You watch his production. If a man can produce, you don't ask what is on the inside.

I have been selecting men for some thirty years and I have learned this: That you can't tell the inside of a man by looking at the outside. You can't tell the condition of the inside machinery by simply looking at the outside of the man. If you want to know the value of a watch, take off the cover, examine the wheels and cogs and springs inside, find their condition. We are all composed of machinery on the inside—wheels and cogs and springs. We each have a pump, we have filters, we have a great laboratory, we have a great pair of bellows, we have a telegraph system on the inside of this wonderful machinery. What is the condition of that machinery today?

In your own case, do you gentlemen as captains of industry and employers of labor know the condition of the machinery of your men working for you in your plants today? If you don't I want to tell you that you are losing millions of dollars from non-efficiency and non-production by men who have disease creeping over them insidiously. They do not know it themselves, but it is seen in their production, it is seen in their lives, and you do not know it until the man drops. There is a cause, and you must go back and have that inside machinery watched and examined if you would maintain production, if you would maintain the physical efficiency of your men. Watch that inside machinery just as you would watch the motor power of your automobile or the motor that runs the elevator of your building.

We take the man who applies for insurance and examine the machinery to see if that man is going to live probably his alloted life. And then we find out one other thing, we ask one other question: "How is the man that has this machinery using it from day to day?" because we die daily. There is no such thing as sudden death; causes go back over the years insidiously creeping on until the man drops. We say it is a sudden death, but it comes down through the years.

America is honey-combed today with insidious diseases, diseases that are sapping the kidney, the heart, and degenerative diseases that ruin the health. Our business men today at forty years of age are dying twenty-five per cent. faster than they died fifteen and twenty years ago. I can understand how this machine might wear out when a man is three score and ten or eighty years of age. We expect the machine to wear out then, but one thing we can't understand from our standpoint in life is this: Why is old age today putting its bony and clammy hand on the man of forty throughout this land and saying to him, "Be old at forty years of age with degenerative diseases of the heart and the kidneys and the nervous system." Forty years of age!

This is one cause for the large number of accidents you are having in your factories. Your men have disease. They do not know it but it unsteadies the hand and the head and the heart and the eye. I don't wonder that there are so many accidents in the factories, because we do not watch the inside machinery as we should.

Watch the human machine, watch it by a physical examination, watch it by a regular physical inspection, not to fire the man out of his job but to adapt the man to the job that the man can fill. Watch the men in your employ and give them a fair chance.

If I told you that thirty-three per cent. of our young men in this land five years ago were so defective that they could'nt meet the standard of Uncle Sam, you would'nt believe me; yet we find that to be a fact. All the armaments in the world or all the steel never could keep one enemy from our shores if the man behind the gun is a physical degenerate.

A year and a half ago an invader came to this land. We thought little of his coming. We had been warned, but we made little preparation for his coming, and it took 500,000 who made graves in America to awaken America to the fact that we must prepare to meet this invader. Influenza had been here before. Influenza had been elsewhere, and yet we waited until influenza came to lock the barn door and then we issued warnings preparing people how to meet influenza. An invader! And it is coming again and we are going to see the effects of influenza. Get ready for it.

Suppose the people of this land were divided into families of seventy-one each. And suppose I would tell you that every year from every one of those homes in this land one person would die; two people in every one of those families would be confined to the bed all the time; thirty would be sick with adenoids, with heart disease and degenerative diseases, with insanity and indigestion and impaired hearing, malaria, tuberculosis, typhoid fever and hookworm; twenty-five would be in what we call fair health—they would be the ones that would be walking around and saying, "Thank you, I'm not enjoying very good health." They would be the ones who would have excesses of all kinds, coffee and tea, overeating and undereating, lack of sleep. And only on thirteen out of seventy-one in each home could you put your hand and say they are in robust health.

*Delivered before the Ninth Annual Congress of the National Safety Council.

Go to the school house, and there Uncle Sam tells us that seventy-five per cent. of the 26,000,000 boys and girls in this land today have physical impairments that are interfering with their normal development. That is a mighty important question because what America will be tomorrow depends upon the boy and the girl of today. You and I won't be here then. Your boy will be here and your girl will be here, and we find a large proportion physically defective, physically imperfect.

Japan realizes this great danger, for with a population of about 70,000,000 she has some 16,000 school physicians to keep her boys and girls in school in good order. America, with a population of 110,000,000, has about 1,500 school physicians to look after the boys and girls in this land.

Back of the schoolhouse we find the home, and back of the home we find the mother and the baby, and there is the very center of American manhood because the home is where manhood is made. We find that we have been so interested in our haste and speed mania for making money that we forgot to make manhood.

Three hundred thousand little babies die the first year of life, most of them under two months of age. Twenty thousand new mothers die every year from diseases that are easily preventable in this land. One hundred and fifty thousand of those little babies are two months of age and under—two months old and under! Dying because the new mothers do not know how to take care of them.

When the Titanic want down the world stood aghast and said, "Oh, what wonderful bravery!" as men lined up on the deck and said, "Women and children first to the boats of safety," and they let them go. Women and children first on the sea but women and children last on land when it comes to the storms of malnutrition and of disease that beat upon the home and take the baby and the new mother.

It has well been asked in this land, "Suppose men who are making automobiles should get together and fabricate a twelve-cylinder engine that cost $5,000 and put it on the market and at the end of two months that machine had to be sent to the scrap heap, how long would that concern do business?" Babies come into our land; at the end of two months and often before they are carried out, and there is very little interest manifested in that question unless it happens to come into your home. Herod slaughtering the infants doesn't seem to be in it with some of our social conditions and our infant mortality.

This is a significant thing: The higher the percentage in this land of new mothers who are obliged to go out and work for their daily bread and to support their babies, the higher does the percentage of disease and mortality rise, showing that what society is taking out of motherhood in the production of money she is paying for in the impoverishment of manhood and youth.

If the test of a city is the chance of a child, the test also of a civilization is the care and attention it gives to the homes of its land, demanding that its mothers and babies be not sacrificed in pest-holes of malnutrition, in social conditions that are sapping our very life.

We hear a great deal about the high cost of living. We hear very little about some of the causes that are producing the high cost of living. We hear a great deal about advising our people to make two blades of grass grow were only one grew before. We hear very little about advising some of our people about some of the causes underlying this that are tremendous causes of this high cost of living. Crime and insanity are two tremendous causes. We hear very little about the fact that one dollar of prevention will save ten dollars in toll for crime and disease later on. We are paying in this land about $600,000,000 a year for crime, $200,000,000 a year for insanity—a tax on every man and woman and child in this country of about $9.00 for these things, to say nothing of our bad housing, bad sanitation, labor turn-over, tuberculosis and typhoid fever.

When I came here today I was handed a little pamphlet and as I read it I thought what an indictment it was against America that America should allow such a thing. Last year there were 225 lives lost every day through accidental means, 82,000 in one year. Of this number, 22,000 occurred in the industries, 60,000 may be termed public accidents on streets and in homes, and over twenty-five per cent. of these were children under ten years of age, and over four-fifths of all accidents, your own pamphlet tells us, are of a preventable nature. What an indictment against American civilization that we allow such a thing as that today! What an indictment when one dollar of prevention will save this country millions of dollars in the end in crime, disease, crippled men, loss of life and loss of limb.

A large percentage of your accidents are caused by defect of the human machine. Watch the human machine and if you have never in your factories or in your establishments gone back down underneath to the cause, do it now and look to the condition of the machinery and have it thoroughly inspected; have every man in your employ inspected regularly. Get that man's confidence so that he will be glad to have it done. Do it as Marcus Dow has said, because it is a service and service lies at the foundation of our structure everywhere.

GOOD WORK, ABITIBI!

The most important thing in regard to the Mill in a long time is the report of the accidents from September 1 to 21. There were four accidents of a minor nature in the three weeks.

Now a thing like that does not just happen, says the Broke Hustler. There is a reason for it. And the only reason which can explain it is that from the superintendents to the latest joined man, care was exercised. There are careless men, and they will get hurt. But if the other men and the foremen use their influence for Safety, the effect will make itself felt in time and gather greater effect as time goes on. Safety does not mean Safety First. It means Safety First, Last and All the Time.

And remember that your whole duty is not done when you are careful yourself. That is a fine start, but it is a start only. You must show the other fellow who, generally through lack of knowledge, is taking risks, what the result is likely to be. When every man in the plant is careful for himself and careful for every other man it will be a great place for the workman. No fool-proof machine was ever built, so help educate your neighbor at the next machine, or bench or whatever it is, not to play the fool.

Six Months' Export Exceed those of Previous Year

Canadian pulp and paper exports for the first six months of the fiscal year, ending September 30th, were valued at $87,243,476, as compared with $43,745,-972 for the corresponding period in 1919, a gain of $43,497,504, or approximately 100 per cent. They exceeded by $3,380,910 the total value of all such exports for the entire fiscal year ending March 31st last and were practically fourteen and one-half times the value of all similar exports during the same period of 1918. They were made up as follows:

Paper and mfgs. of	$43,025,764
Sulphate (kraft)	6,887,557
Sulphite, bleached	7,889,214
Sulphite, unbleached	18,802,783
Mechanical	10,638,158
	$87,243,476

The paper exports included 33,636 cwts. of book paper, valued at $356,788; 7,537,441 cwts. of newsprint, valued at $35,760,333, and miscellaneous paper to the value of $6,908,643.

EXPORTS OF PAPER, WOOD WOOD PULP, AND PULP WOOD.

Exports of Canadian Produce—Months of September, 1919 and 1920 and six months ending September 1918, 1919 and 1920.

		Month of September		Six months ending September		
Paper		1919	1920	1918	1919	1920
Printing Paper :						
Book paper	Cwt.	4,100	3,291	.....	27,802	33,636
	$	32,879	32,609	.....	259,053	356,788
Newsprint paper	Cwt.	1,079,599	1,212,225	.....	6,505,166	7,537,441
	$	3,842,641	6,542,179	.....	23,019,380	35,760,333
Printing paper	Cwt.	.....	.....	1,033,529	.....	.....
	$	.....	.....	3,001,194	.....	.....
Other paper	$	712,059	1,280,705	488,134	3,840,813	6,908,643
Total paper	$	4,587,579	7,855,493	3,489,328	27,119,246	43,025,764
Wood pulp :						
Sulphate (Kraft)	Cwt.	243,991	274,190	.....	1,171,524	1,419,151
	$	836,089	1,398,092	.....	3,858,267	6,887,557
Sulphite, bleached	Cwt.	87,339	222,306	.....	499,342	1,046,504
	$	453,096	1,999,016	.....	2,451,251	7,889,214
Sulphite, unbleached	Cwt.	524,769	513,526	.....	2,047,708	3,273,363
	$	1,942,391	3,361,048	.....	7,698,870	18,802,783
Chemically prepared	Cwt.	.....	.....	714,673	.....	.....
	$	.....	.....	2,584,097	.....	.....
Mechanically prepared	Cwt.	415,046	424,689	279,512	2,148,877	3,449,300
	$	511,402	1,877,053	337,565	2,618,338	10,638,158
Total Wood Pulp	Cwt.	1,271,145	1,434,711	994,185	5,867,451	9,188,318
	$	3,742,978	8,635,209	2921,662	16,626,726	44,217,712
Pulp wood	Cord	89,470	151,541	128,646	515,444	653,856
	$	884,575	2,046,868	1,217,635	5,089,693	7,803,332
Country of Destination.						
Paper and Manufactures of:						
To United Kingdom	$	361,087	390,313	49,235	1,848,130	2,403,079
United States	$	3,913,721	6,228,615	2,932,601	21,917,486	33,899,788
Other Countries	$	312,771	1,236,565	507,492	3,353,630	6,722,897
Wood Pulp :						
To United Kingdom	$	193,771	1,023,924	.....	1,280,242	5,610,648
United States	$	3,153,088	7,228,818	2,635,474	13,251,069	35,834,034
Other Countries	$	396,119	382,467	286,188	2,095,415	2,773,030
Pulp Wood :						
To United Kingdom	$	.....	.....	.....	.....	.....
United States	$	884,575	2,046,868	1,217,635	5,089,693	7,803,332
Other Countries	$	.....	.....	.....	.....	.....
Total Paper, Pulp Wood and Pulp :						
To United Kingdom	$	554,858	1,414,237	49,235	3,128,372	8,013,727
United States	$	7,951,384	15,504,301	6,785,710	40,258,248	77,537,154
Other Countries	$	708,890	1,619,032	793,680	5,449,045	9,495,927
Totals	$	9,215,132	18,537,570	7,628,256	48,835,665	95,046,808

Exports of pulp and paper for the month of September were valued at $16,490,702, compared with $8,330,557 in September, 1919, an increase of $8,160,145.

Paper exports included 3,291 cwts. of book paper, valued at $32,609; 1,212,225 cwts. of newsprint; valued at $6,542,179 and miscellaneous paper valued at $1,280,705.

Exports of woodpulp of all grades for the month again show large increases over last year. Exports of sulphate (kraft) amounted to 274,190 cwts., valued at $1,398,092, as compared with 243,991 cwts., valued at $836,089 last year; sulphite; bleached, 222,306 cwts., valued at $1,999,016, compared with 87,339 cwts., valued at $453,096; sulphite, unbleached, 513,526 cwts., valued at $3,361,048, compared with 524,769 cwts., valued at $1,942,391; mechanical, 424,689 cwts., valued at $1,877,053, compared with 415,046 cwts., valued at $511,402.

Exports of unmanufactured pulpwood for September amounted to 151,541, cords, valued at $2,046,868, compared with 89,470 cords, valued at $884,575 in September, 1919, and for the six months' period, 653,856 cords valued at $7,803,332, compared with 515,444, valued at $5,089,693 the year previous. All of the pulpwood exported went to the United States.

The accompanying table gives a summary of the situation.

U. S. NEWSPRINT NEWS.

The imports and exports of printing paper not dutiable (practically all newsprint) and of wood pulp for the month of August 1920 compared with the month of August 1919 were as follows:

	August 1920 Net tons.	August 1919 Net tons.
Imports of Newsprint (total)	73,513	47,131
From Canada	71,222	47,125
From Norway	78	0
From Sweden	2,213	0
Export of Newsprint (total)	4,426	9,599
To Argentina	1,751	3,781
To Cuba	1,145	1,061
To China	312	512
To Italy	164	65
To other countries	1,054	4,180
Imports of ground wood pulp (total)	32,805	23,116
Imports of Chemical Wood Pulp (total)	77,709	34,038
Bleached Sulphite	13,453	3,800
Bleached Sulphite	39,789	19,501
Unbleached Sulphate	20,404	10,339
Bleached Sulphate	4,063	398
Exports of Domestic Wood Pulp	1,643	3,573

The imports of newsprint for August 1920 were 26,382 tons more than for August 1919. The exports for August 1920 were 5,186 tons less than for August 1919.

The tonnage to "Other Countries" under the "exports of Newsprint" for August 1920 includes 162 tons to Peru, 112 tons to Brazil, 96 tons to Uruguay, 91 tons to Philippine Island, 84 tons to Australia, 82 tons to Columbia and 68 tons to Chile.

The imports of mechanically ground wood pulp for August 1920 were 9,689 tons more than for August 1919. The exports of domestic wood pulp were 1,930 tons less than for August 1919.

The imports of chemical wood pulp (total) for August 1920 were 43,671 tons greater than for August 1919.

Publishers' stock increased 14,871 tons during the month. The average daily tonnage used during September was 469 tons more than the average used in August.

Publishers' stocks and transit tonnage on September 30 represented slightly more than 49 days supply at the existing rate of consumption.

Seventy publishing concerns held about 49 per cent of the tonnage on hand at the end of the month.

The domestic consumption of standard news by metropolitan dailies using between one-half and three-fourths of a million tons annually decreased more than 1 per cent for September, 1920, compared with September, 1919, and increased more than 31 per cent for September, 1920, over September, 1918.

Average Prices Paid by Publishers

The weighted average price of contract deliveries from domestic mills to publishers during September, 1920, f.o.b. mill in carload lots for standard news in rolls, wa $5.531 per 100 pounds. This weighted average is based upon September deliveries of about 43,000 tons on contracts involving a total tonnage of approximately 340,000 tons of undelivered paper manufactured in the United States.

The weighted average contract price based on deliveries from Canada mills of about 25,000 tons of standard roll news in carload lots, f.o.b. mill in September, 1920, was $5.308 per 100 pounds. This weighted average is based upon the September deliveries on contracts involving about 140,000 tons of undelivered Canadian paper. The greater number of these are short-term contracts expiring before 1921.

The weighted average market price for September of standard roll news in carload lots f.o.b. mill based upon domestic purchases totaling more than 5,000 tons was $9.800 per 100 pounds This weighted average may be less than market quotations on account of contract relations, quantity discounts, mill stock ownership and other causes unknown to the Commission.

Weighted average, contract and open-market prices of standard roll news per 100 pounds f.o.b. mill, purchased by American newspapers from United States and Canadian mills during the third quarter of 1920:

Month.	Contract. United States	Canada.	Open Market United States and Canada.
July	$5.211	$4.938	$10.498
August	5.371	5.306	10.212
September	5.531	5.308	9.800

SAFETY LIMERICKS.

There once was an onery guy,
Who oft made the safety man suy,
As he worked he would swear
That no goggles he'd wear,
Now he's wearing a patch on his uy.

Another nut fooled with the juice
In a high voltage line that was luice,
He always was scoffin'
Now he's lining a coffin,
If they must die to learn, what's the uice?

Business is the hand that feeds us all. Let us strengthen it, not weaken it.

Press Comment on a Goverment Paper Mill

A proposal, already twice referred to by the Pulp and Paper Magazine, is the scheme suggested for the operation of a pulp and paper mill by the Ontario Government. Press comment on the idea is somewhat varied. We find a number of papers in Ontario supporting the idea in various terms. A friend of ours says: "Let them build it, and there will be a perpetual precedent for high prices."

This is what the Sudbury, Ont., "Mining News," says:

Should the Provincial Government carry out its plan of operating a pulp and paper mill in the Nipigon district the experiment would be interesting in more ways than one. The timber probe has revealed that there is an astonishing lack of reliable information as to just how much money the province is entitled from the sale of timber and pulp-wood concessions and if the province ran a pulp mill of its own that information could be secured first-hand.

It is to be hoped that the scheme goes through as the North would be benefited to a considerable extent and in the event of success in the enterprise other industries would undoubtedly be encouraged to locate in Northern Ontario. All of which would undoubtedly result in further development of the forest, mineral and natural resources. One cannot predict with any degree of assurance that the venture would result in immediate profit as governments usually have a way of muddling up otherwise promising schemes in ways which a private concern could not dream of but from past records it would seem that the paper industry is one which is at best far from overcrowded and one which pays exceedingly good dividends for the money invested. Should government competition in this line assume serious proportions we could confidently look for a general decrease in the price of paper and that at least would have the unqualified endorsement of printers and publishers.

The Hamilton, Ont., "Herald" also supports the idea, thus:

For more reasons than one the establishment of a pulp-manufacturing plant in the Nipigon district, to be owned and operated by the provincial government, would be a promising adventure in the field of public ownership. It would afford a market for much Hydro power developed in that district, power which otherwise might go to waste. It would (especially if paper as well as pulp were manufactured) provide a standard of costs which would enable the public to know about what is the cost of paper-making in this country. Comparisons between the cost and the selling prices would be instructive and perhaps profitable. As for the product, there would be no difficulty in disposing of it at a profit. The demand for wood pulp and paper will for a long time to come be much greater than the supply, and so long as that condition lasts manufacturing will be profitable.

It is to be hoped that the government's plan will include a paper mill as well as a pulp mill. It would be easy to dispose of the whole product of that mill to Ontario publishers at a price sufficient to make the industry profitable to the public.

From the remarks of the Belleville "Intelligencer" it looks as if that newspaper considers it the duty of the Government to undertake a very costly and special line of activity in order to supply the press with cheap paper. Our contemporary says:

Practical government seems to be gaining ground. The Ontario Legislature went into the fish business with very satisfactory results and now there is a possibility of the same government undertaking to astablish and operate a paper mill. According to the Toronto Mail and Empire a plan for operating a pulp and paper mill as a provincial enterprise has been receiving the serious consideration of the Ontario Cabinet for the past three months. The establishment of such a plant as a publicly-owned and operated concern is stated to be by no means improbable. According to the plan under consideration, the mill would be established in the Nipigon district at some point to which power could be transmitted from the new Hydro-Electric power development plant at Nipigon Falls.

While neither the details of the plan nor the general policy has yet been decided upon, it would occasion no surprise in Government circles if a favorable conclusion was reached. The plan is unique in that it would be the first time an Ontario Government had ever undertaken the utilization of the province's pulp resources for the production of paper as a publicly-owned enterprise. If decided upon it is probable that the large timber in the district chosen will be set aside for the project.

The Nipigon Hydro-Electric plant will have a surplus of power available for some years. A Government-owned pulp mill, supporters of the idea argue, would furnish a good customer and the basis for a mutually satisfactory contract for power. Another important feature from the Government's standpoint is the results obtained in a plant of this nature would provide the means of ascertaining with far more definiteness than is now the case, what remuneration the province is entitled to in return for timber and pulp-wood concessions granted to private enterprises.

The paper output of the government mill if it is established should be reserved for Canadian newspapers and sold at a fair price, thus relieving a situation which is forcing newspapers out of business and resulting in steadily increasing rates of subscription and advertising to keep alive the papers which survive.

According to the following, the Toronto "Globe" thinks a public saw mill should come first:

The suggestion is made by The Toronto World that the people of Ontario would like to see "a pulp mill worked out as a public-owned proposition." There should be no difficulty about that. For several years the Hydro-electric Commission has been operating such a mill in the Trent Valley watershed near Campbellford. Although the existing contract price for the pulp ground in the mill is considerably below the rate that is now current on new contracts, the Bruton mill is making what pulp magnates speak of as " a quite satisfactory profit."

The people of Ontario own the mill, because it was taken over as part of the property of the syndicate which developed the Trent Hydo-electric system and which sold out to the Ontario Government at a price that was regarded as fairly steep. For a time it was feared that the pulp mill would be a liability rather than an asset. This idea was fostered by shrewd business men who wanted to buy the property cheaply and

participate in the pulp and paper boom. They offered somewhat over half a million dollars for it as a going concern. At the present time, and for some months past, the mill has been earning profits at a rate that in a little more than a year will put to the credit of the Trent branch of the Hydro system fully as much as the Province would have obtained from the sale of the property.

It would do no harm, and might do a lot of good, were Mr. Drury to publish the facts as to the profits accruing to the Central Ontario light and power service from the operation of the Bruton mill. The Hydro-electric Commission is doubtless profiteering like everybody else in the pulp industry. A profit of a hundred per cent. a year cannot be defended, even when it goes toward the reduction of the cost of light and power to the people who obtain electric energy from the Central Ontario section of the Hydro-electric system. But Sir Adam Beck and his colleagues would be false to their trust were they to sell the pulp produced by the people's mill at prices less than the going quotation. The volume produced is not sufficient to break the market, and the paper produced from Bruton pulp would not cost the consumer any less than it does at present were the Commission to lower pulp prices. The extra earnings would be "absorbed" by the paper manufacturers into whose hands the pulp finds its way.

If there is any moral at all to this tale of the public ownership of a pulp mill it is that the Province cannot regulate or influence the price of products to the ultimate consumer by carrying on a single process of manufacture, and that not the finishing one of a series. It may be that the people of Ontario as consumers of paper will yet have to combat paper profiteers as they fought the exploiters of electric energy by building public service plants. There are not a few things, however, fully as urgent if public ownership and operation are to be brought into general use as a remedy for industrial monopolies. The sawing of timber from the Crown lands as a means of providing cheap lumber and ending the house famine looks like a more immediate need even than the enlargement of the venture in pulp production, which has merely proved what everybody already knew—that the real gold mines of Ontario to-day are its pulp and paper mills.

But from the community that would benefit most by another paper mill comes the warning that all is not good that's government. The Port Arthur "News-Chronicle" remarks:

Somebody Please Put Them Wise.

We cannot help wondering if the Drury Government is serious in its idea of entering into the manufacture of pulp and paper or either one of those commodities. If they are somebody ought to take the whole cabinet to one side and give them a good fatherly talk about going into a business of which not one of them knows a single thing, and in which no expert will stay with any government which has in view the objects stated to be back of the proposal.

Manufacture of pulp and paper is among the lines of business that require exceptionally skilled men and those men are in such demand today that they can receive better remuneration for their services than any government will pay them.

It has been said that one of the objects would be to demonstrate what the government should receive for the raw wood. The value of wood is being ascertained daily by the government through the bids it is receiving for limits that it puts up for sale. The Government can rest assured that the companies now engaged in the business of making pulp and paper will keep it fully advised of values, to the cost of the newspapers first and the ultimate consumer in the end.

It is stated that the project is put forward also for the purpose of finding what newsprint should be sold for to give fair returns on the money invested. By the time the Government has expended $10,000,000 or $15,000,000 in building and equipping say a four hundred ton mill, or $5,000,000 for a hundred ton mill, we are of the opinion that it will make up its mind that more than wind is required for construction, operation and revenues.

Another reason given for the erection of a mill is that it will give to the public the full value for the material used. A person with a sore lip should not think of this, for the very thought makes one laugh.

And then comes the Financial Post, with the following:

Newspapers and politicians desirous of capitalizing to their own advantage the popularity of public ownership with the masses are urging the governments to go into all kinds of business. Ventures in paper manufacturing are being urged upon Premier Drury. Publishers like J. Atkinson, of the Toronto "Star," who have no opportunity of studying the practical features of such enterprises, are very willing to let the Government experiment with anything if it will please their readers—no matter what the cost to the province as a whole may be. This is particularly the case in view of the benefits which might accrue to the publisher of a powerful political newspaper in his relations with a government paper mill.

But while publishers who know nothing of the paper business are suggesting Government manufacture, we find the Fort William "Times-Journal," published right on the ground of the pulp industry, emphatically opposing anything of the kind and standing firmly for the encouragement of private enterprise:

Our experience of government and public ownership and operation has not been so brilliant as to encourage us in widening its scope so as to include industries that have always been regarded as essentially undertakings that should be operated by private enterprise.

There is apparently no lack of private capital to-day seeking for investment in the pulp and paper business, and it would only be the stress of a demand, which private capital refused to supply, that would justify the Government in pledging the credit of the province to build pulp, paper and saw mills.

Even granting that the Hydro Commission can make a success of supplying power, which it has assumed as a Government monopoly, it was demonstrated that it could not go out of that field into general industry successfully, when the Hydro undertook to operate the farms, which it had acquired along the line of the Chippawa development, and lost about $30,000 in the attempt.

No one would deny the Government the right to dictate the terms and conditions under which its timber shall be utilized, and there will be no difficulty in securing capital to do the work, if the terms and conditions are made as little onerous as the Government would make them for itself were it determined to build and operate mills of its own.

A miss is as good as a mile, but remember that you are not always missed, says the Safety League.

The Belching Smoke-Stack

By T. K. D.

(An unusual advertisement for Winans, Dickinson and Whitehead, Ltd., which appeared in a daily paper).

It may be within the scope of the practical economist to take cognizance of the problem of perpetuating such national resources as Providence has given this country in the form and outline of our great timber areas.

Of Conservation of Forests we have heard much, learned little, and cared less.

But as a consequence of the very considerable monetary interest recently allocated to the development of our forest resources, we must, as investors in this rapidly growing industry, hear more, learn more, and care more. We have capitalized the industry to the extent of several hundred million dollars, and having assumed this huge financial stake in the comparatively new business of paper production, we want to know what conservation means when translated into the language of Capital Investment.

When we garner an acre of wheat, we dispose of the wheat and retain the acre. When we burn a ton of coal we deplete a valuable national asset to the extent of one ton of coal. That ton of coal boils down to productive heat-units, and goes up in smoke. When we cut a cord of wood—what happens?

Until posterity (and our own immediate interest) have in sight, we cut and slashed each cord of wood and passed on to the next. The lumberman started the game in haste and there was little leisure in the operations of paper-makers who came in later. Depletion was so rapid that by 1908 it was found imperative to exercise more care in the cultivation of new woods and the protection of those woods yet uncut.

Scientific methods have been adopted for re-forestation and fire protection, and much good has been accomplished in the past ten years. The Quebec Legislature has given material help in some directions, while allowing destructive influences to prevail in others.

The business, the very serious business, of Forest Conservation is, however, still in its infancy, and it is necessary, on behalf of the heavy capital investment, as well as from the national standpoint, that practical rather than theoretical plans for Conservation be adopted as a definite policy for the guidance of lumbering and paper-making operations.

The Two Alternatives.

"A Tree for a Tree,"—"A Life for a Life"—is the slogan of some of the professionals. These gentlemen would "seed" on neutral ground a compensating tree for the tree led to the slaughter. They would start a new forest, all their own, on adjoining ground not necessarily designed by Providence for timber bearing. It takes 30 seconds by the clock to bring a tree to earth, and 40 to 50 to 100 years to bring its offspring to maturity. For every denuded acre another acre, by this plan, would be pressed into service on hill and dale, both far and near.

As can readily be imagined it costs money to "seed," and as each seed bursts into infant plant, into youthful tree, and by stages to maturity, the tied-up capital cost per tree compounds at a fearful rate over a period of 40, 50 or 100 years. Obviously, this makes the "Tree for Tree" expediency an affair of infinite cost, infinite labour and infinite risk of destruction by the scourge of fire so prevalent in this country.

Other professionals urge, as the best method of Conservation, a system of selection of cut, plus elaborate fire protection, plus aid to nature's own service in the practice of re-forestation. For many reasons the advocates of this latter course have the more practical, the more sensible solution of the problem of Conservation.

An article which appeared in the "Canada Lumberman and Woodworker," in February last, entitled "Wantonly Wasting Many Growing Forests," was most instructive and well worth the consideration of all who are interested in the conservation of our forests.

In respect to European methods of Forestry, it is interesting to note that the Premier of Quebec, immediately upon taking office, declared his intention of sending some members of the Provincial Forestry Department to Scandivania to study forestry as practised in that country.

It may be opportune to mention that, realizing the importance of the forest to their industry, the Wayagamack Pulp & Paper Company, Limited, some five years ago sent a McGill Science Graduate to Scandinavia to pursue a course of practical work under some of the leading Foresters in Scandinavia, finishing with a course at the Royal School of Forestry at Stockholm. This student had the good fortune to spend many months in the forests of Baron Mannerheim of the Kramfors Company, where conditions are very similar to some of the extensive Canadian plants. Baron Mannerheim, by the way, is well known to pulp and paper makers in Canada, and recently was a visitor to this country. This educational work brought out the fact that, while a certain amount of re-forestation by planting is practicable, and is carried out in certain especially adapted parts of Europe, it had on the whole been abandoned in favour of the adoption of good, practical and scientific methods of wood cutting, draining, thinning out and helping natural seeding of the forest.

Nature is a Great Healer. It is estimated that in the course of the past 200 years fully 80% of the timber resources of the forest areas of Canada has been destroyed by fire—and Canada today is the White Man's Hope for uninterrupted delivery of the daily newspaper, with one billion cords of coniferous pulpwood species standing erect awaiting the call of the pulp consumers.

Fire protection in deed and not in need; a comprehensive aid-to-nature plan to enable the trees to propagate their species, in addition to seed planting on parts of cut-over lands, offer the only solution that is practicable, economical and certain of definite and profitable results.

The Root of The Evil.

Destruction by Fire is the root of the evil of forest depletion. Fire will wipe out in one short week more fine timber than the whole producing machinery of the Dominion could cut down in the course of a ten-year period. That being a fact, is it not the imperative and immediate duty of the Provincial Governments to take every conceivable precaution? Much advancement has, no doubt, been made in fire protection, but curiously enough the Federal Government's own steam locomotives and the Provincial Government-urged colonists are the greatest source of danger to our forest areas. Locomotives are allowed to belch live coal into inflammable material in the Northern parts of Quebec and Ontario, and the would-be-farm-settlers buy the best of timber lands, at 50c per acre, cut the

timber, sell and ship it to United States mills, and jump the claim. In the process of masquerading as a potential farmer, this gentleman only too often cleans up the debris from his lumbering operations by means of more or less regulated bonfires.

Thus we have the two chief Causes of forest destruction located, but not cornered, as the Effect has still a wide range of freedom for dangerous work.

If there is danger from live coal, let us get rid of live coal. Electricity in this province is cheap enough, in all conscience. The capital expenditure for electric or for oil-burning locomotives would be saved in one twelve month period. Electric storage locomotives with the necessary generating stations as used by the New York Central, surely could be installed on those parts of the railway system which run through the richest of our forest areas.

Let us put the lid on the belching smoke-stack, and if timber areas are the only lands in this province available for the so-called colonist, the colonist should be urged to go elsewhere to farm, without the preliminary back-aching process of stump extraction.

LET THE BUYER BEWARE.

There is a growing and urgent need for extreme care and caution on the part of buyers of the securities of new pulp and paper enterprises in Canada, says the October Bulletin of Royal Securities Corporation.

The brilliant records of earnings shown by many of the old-established and well-managed pulp and paper companies are, as might well have been expected, inducing an increasing number of new promotions. The promoters of some of these companies, lacking both a proper appreciation of the essentials of a sound pulp and paper enterprise and a proper sense of their responsibility to investors, are offering for public participation the Bonds and Stocks of corporations possessing few, if any, of the elements requisite to sustained success. As an inducement to part with their money investors are reminded of the large profits realized by early buyers of the securities of some of the now highly successful Canadian pulp and paper companies; but little, or nothing, is said about the factors which, in not a few cases, are conspicuously lacking in these new promotions.

At the risk of wearying our readers with repetition, we would once more point out with all possible emphasis that there are four major essentials which must characterize pulp and paper enterprises, if capital invested in them is to be properly safeguarded.

The first is an adequate and accessible pulpwood supply. The second is the combination in close proximity with it of an easily developed water power of a sufficient capacity to operate the mill construction necessary for the conversion of the wood. It is well for the investor to remember that timber areas which are possessed of this combination and which at the same time have easy access to the markets for their products are becoming extremely scarce and of correspondingly high value. In the third place, there must be constructed efficient mills with up-to-date equipment, involving in most cases the eventual investment of many millions of dollars. The fourth, and not the least, essential is the technical staff of experts necessary for the efficient prosecution of the numerous and highly scientific processes involved in pulp and paper production. To be successful, the manufacturing organization in its entirety must be operated by a competent staff of experts, which can develop efficiency only through years of experience. The organization of such a staff for an entirely new company is about as difficult as the securing of a wood supply sufficient both in quality and quantity.

The first thing, therefore, that the investor should ask himself is whether the estimated wood holdings are sufficient to carry on the business throughout the lifetime of the mill and whether the estimate is backed by the authority of a skilled and practical expert. The next is whether the proposed enterprise controls a water power by which wood can be converted into pulp and paper at low cost. The third is whether it either possesses an up-to-date mill or will have sufficient capital for its erection. And, lastly, the investor will do well to scrutinize very carefully the record of those responsible for the technical operations to be carried on with his money. If they are obviously successful men of high professional and business standing, he may reasonably not only relieve his mind as to the conduct of the business but also as to the basic soundness of its conception; for such men will not today asociate themselves with enterprises which they see foredoomed to eventual failure by reason of the lack of any of the factors fundamentally necessary to success.

It is only indeed in very exceptional circumstances that enterprise of any kind involving entirely new construction without the backing of already established earning-power should be undertaken at all in this period of high cost of labor, materials and capital. If it is proposed to finance new construction in the Canadian pulp and paper industry, without linking it up to present earning power capable of absorbing high construction cost and interest charges, to be successful that enterprise must possess an entirely capable organization and have available most exceptionally cheap and accessible pulpwood and water power.

The only construction which, in our judgment, is thoroughly justifiable under present conditions is that undertaken to extend the scope and prove the efficiency of an already existing and successful manufacturing organization. Such a concern is almost certain to be able to finance and to build more cheaply than an entirely new enterprise, added to which, the weight of present high costs of men and construction is spread over a large volume of business, much of it carried on with plants and capital obtained at much lower price-levels than those now prevailing.

Investors should examine most carefully offerings of securities of new industrial enterprises of any description, especially those which involve not only the construction of plants but the building up of operating organizations. Essential at all times, this scrutiny is most necessary under existing economic conditions and will remain so until construction costs and interest rates have reached more normal levels.

WILL CARRY ON PULPWOOD OPERATIONS.

The Hawk Lake Lumber Co., Limited, with headquarters at Monteith, Ont., of which A. E. Wicks is president, has purchased the rossing mill and sawmill of the Monteith Pulp and Timber Co. at Monteith, on the Driftwood River in Northern Ontario.

The Hawk Lake Lumber Co., Limited, has obtained a charter and the name replaces the former one of the Driftwood Lumber Co., Limited. It is understood that the Hawk Lake Lumber Co. will carry on extensive pulpwood operations in and around Monteith.

Optimism Among Box Makers

Respecting Canadian conditions, I am in more close touch with the Toronto market than with the other parts of Canada, but Toronto being the largest paper box manufacturing centre in this country, it is probably a good criterion as to general conditions.

Present shipments continue good in volume, but there is a marked decrease in respect to new orders, this tendency having been noticed within the past month or six weeks.

On the other hand, costs not having been reduced, the price of board in fact having been increased 10 per cent September 1st last, generally speaking, the present range of prices on paper boxes is being upheld, and the paper box manufacturers with whom I am in touch, take the philosophic view that if there is only so much business to go around, they can only expect their share of what is going, and that to attempt to increase such share, by reducing prices where costs do not justify a reduction, would only check business instead of stimulating it.

Viewing world conditions generally, all indications point in the direction of the peak of high prices having been passed. Involved in the present world movement of prices is a curtailment in the purchase of luxuries.

This is a healthy sign, as while it results in unemployment in the luxury trade, which re-acts on business generally, it is a blessing in disguise, as this had to happen sooner or later in order ultimately to swing over the trades making essential goods, large numbers of work people who have been producing luxuries, thus at the same time stabilizing the labor market and helping to restore normal conditions.

The situation can be viewed with equanimity, as it only means that manufacturers and merchants will have to adjust themselves to the new conditions by striving for increased efficiency in manufacturing, sales and collections, the standard of efficiency having deteriorated during the extraordinary war time conditions.

An optimistic view is the only one that is justifiable. Yet at the same time calmness and good judgment are at present required in a marked degree. Caution, to a certain extent, is also necessary. A due sense of proportion needs to be maintained though, and caution not be allowed to degenerate to a point where instead of its being caution, it is really indecision and unnecessary fear. Nor should the manufacturer or merchant who now actually requires goods stay out of the market on the expectation that prices will decline. Such an attitude is against the true principles of buying and is simply gambling on the market. He, at the same time, runs the risk of letting his stock be reduced to a dangerously low point, too low for safety. Such an attitude also tends to make trade conditions worse, whereas everybody should be doing all he can to improve them.

If one now needs goods, it is his business to buy them, and let the market take care of itself. "Sufficient unto the day is the evil thereof." On a declining market, the buyer cannot always expect to hit the low point, and at the same time keep his stock up to the proper size. If he should happen to hit a high spot in the market, he must remember that that will have to be averaged against the many times in the past few years that he has had the advantage of a rising market.

The manufacturer and merchant who expects to stay permanently in business, and who—uninfluenced by what others are doing—carries out the above principles in both buying and selling, cannot go very far astray, and the length of time required for the restoration of normal business conditions will be determined to a very great extent by the degree to which such principles are carried out by the business world.

In conclusion, anyone viewing the situation in the proper perspective, cannot, notwithstanding any temporary slackening, take any other than a cheerful view of prospects for trade in the future in countries possessing such vast resources as do Canada and the United States.

Reproduction of article contributed, by request, to the "Shears," organ of the Paper for Trade in the United States, by S. J. Frame, Secretary-Treasurer, Canadian Paper Box Manufacturers' Association.

SAFETY FIRST IN ENGLAND.

A safety first convention was held in London the other day and I heard some of the schemes adopted in Canada and U. S. A. eulogised by Government Inspectors. As five indispensible points of a safety first organization, Mr. Gerald Bellhouse, Deputy Chief Inspector of Mills, suggested that :

(1) The employer must put safety on the map and give it a dignified and recognised place.

(2) There must be one man authorised to supervise all safety work in a factory with duties of inspection and education.

(3) The co-operation of the Foremen.

(4) The establishment of a safety committee of representatives of the management of a mill and the workers, who would inquire into all accidents, and publish accounts of their inquiries and

(5) Bulletin boards for the exhibition of pictures and stories driving home what the workman can do to protect himself in a mill or factory.

Dr. John C. Bridge read a paper on First Aid in the Mill. He thought the reduction of fatigue by shortened hours of labour and rest pauses during spells of work would produce a diminution in the number of accidents. I heard another speaker state that there was a distinct connection between the personal health of the worker and his liability to lapses leading to accident. No mechanical devises could prevent the majority of accidents, which were due to insufficient alertness. Workers should be trained in hygiene, and precautionary measures might be taken to guard, for instance, against outbreaks of influenza in a mill during the winter. The convention was a great success and large millowners attended it.—J. B.

NOVEL ON PULP INDUSTRY.

Clay Perry, of Pittsfield, Mass., formerly of Oconto Falls and Appleton, Wis., is the author of a novel "Heart of Hemlock" which deals exclusively with the wood-pulp industry, of which Wisconsin is a centre. The book is one of the first, if not the only novel devoted entirely to this important industry and is of peculiar interest to those who are engaged in forest industries. Mr. Perry's inspiration for the book, which has just been issued by Bobbs-Merrill Publishing Co., Indianapolis, came through the reading of a report of a meeting of the Eastern Forest Products Association at Bangor, Me., in October, 1919, during which an address was made of which the general topic was "Paper, the Foundation of Democracy." In his book Mr. Perry deals with the problems and interest of the wood-pulp and paper manufacturing industry and, in a colorful story of business, love and adventure, suggests a solution of some of them.

BRITISH TECHNICAL SECTION MET.

The first general conference of the Technical Section of the Paper Makers' Association of Great Britain and Ireland, was held in Manchester on Friday, 8th October, 1920, when papers on the following subjects were submitted for discussion:—

Technical Education in Paper Making.—Maj. J. Erdington Aitken.

The Testing of Wood Pulps.—G. H. Gemmel, Esq., B.Sc.

Machine Strainers.—A. MacIvor, Esq., M.I.M.E.

The Economic Utilisation of Heat & Power in Paper Mills.—William Adamson, Esq.

Major Aitken's paper appeared in the Oct. 21st issue of the Pulp and Paper Magazine; Mr. Adamson's will be printed in an early number.

First List of Members.

Abel, J. G., Alex. Pirie & Sons; Adamson, W., C. Walmsley & Co.; Aitken, W. E., P. Dixon & Son; Allan, J. S., Piries Photographic; Arnot, J. M., J. Wrigley & Sons.; Allen, Wilfrid, East Lancs. Paper Mill; Baker, A., Empire Paper Mills; Baldwin, J. W., Smith, Stone & Knight; Ballantyne, J., Donside Paper Co.; Bates, M., Northfleet Paper Mills, Black, J., Donside Paper Co.; Blades, A. D., R. Fletcher & Son; Bolton, N., Sun Paper Mill Co. ; Bolton T., Sun Paper Mill Co.; Bone, A. John Dickinson & Co. Boyle, A. Smith, Stone & Knight ; Bowkes, J. U., Smith, Stone & Knight; Brennan, J., Hugh Stevenson & Sons ; Baldwin, G. D., Baldwin & Sons; Caithness, G. J., Chas. Marsden & Sons; Cardis, E., Wall Paper Mnfrs.; Cartman, J., Wall Paper Mnfrs.; Clapperton, R. H., Donside Paper Co.; Cunane, T. H., A. M. Peebles & Son; Cuss, W. A.; Crankshaw, C. T., Team Valley Paper Mill; Cotter, R., Arthur & Hinshaw; Collins, J., Stoneywood Paper Mill; Davidson, P. W., Fourstones Paper Mill; Dawe, A., H. M. Stationery Office; Dawe, E. A., H. M. Stationery Office; Denson, P. G., Edward Lloyd; Dixon, O., Peter Dixon & Sons; Dixon, W. H., Peter Dixon & Sons; Dobson, M. O., C. Marsden & Sons; Donside Paper Co., Aberdeen; Downey, P., Irish Paper Mills; Davidson, T., Davidson & Sons; Davidson, W. D., Davidson & Sons; Eccles, J. E., Empire Paper Mills; Emerick, G., Charles Marsden & Sons; Empire Paper Mills, Greenhithe; Evans, J. H., Wall Paper Mnfrs.; Fletcher, R., & Son, Kearsley Paper Mill; Forsyth, R. S., Smith, Stone & Knight; Fraser, W. G., Masson, Scott & Co.; Gemmell, G. H., Gemmell & Thin; Gent, G. H., Smith, Stone & Knight; Goldney, P. T., Donside Paper Co.; Govan, R., Golden Valley Mills; Greenhalgh, F. H. Wall Paper Mnfrs.; Gregory, C., Cooke & Nuttall; Groundwater, A. G., A. Pirie & Sons; Guild, E. J., W. & R. Balston; Gray, J. N., C. Davidson & Sons; Hadfield, T., Consulting Chemist; Hargreaves, J., Wall Paper Mnfrs.; Hart, H. W., Wall Paper Mnfrs.; Harvey, R. M., Isaac Warwick & Co.; Hoyle, W., Smith, Stone & Knight; Heckford, F. J. T., J. Dickinson & Co.; Henson, F. H., William Nash; Haigh, F., Brittains; Hill, Craig & Co., Balerno Bank Mills; Hodges, M. B., Wall Paper Mnfrs.; Hobday, Lewis, Wiggins, Teape & Co.; Holroyd, G. W. F., Tech. School, Blackburn; Holt, H., Engineer; Horne, A., Donside Paper Co.; Inveresk Paper Co., Inveresk; Irish Paper Mills Co., Clondalkin; Jackson, T. E., Smith, Stone & Knight; Jacques, R., Ford Paper Works; Jardine, J. L., James Brown & Co.; Jardine, E. M. R., James Brown & Co.; Jennison, J., Empire Paper Mills; Jennison, R., John Craig & Son; Kirkman, W., East Lancs. Paper Mill; Ketchen, T., C. Davidson & Sons; Leicester, A. E., Engineers; MacIvor, A., Wall Paper Mnfrs.; MacIvor, D. T., Empire Paper Mills; MacIvor, S. A., Wall Paper Mnfrs., Marx, R. J., Engineers; Makin, H. R., Golden Valley Millis; Mazey, C., F. Newby & Co.; Morgan, B. L., Thomas & Green; Mottershead, P., Grove Mill Paper Co.; Mowat, J. H., Peter Dixon & Son; Newcombe, G., Daily Telegraph Mills; Nuttall, T. D., Bentley & Jackson; Onion, G., Irish Paper Mills; Owen, T. & Co., Ely Paper Works; Ogden, A., East Lancs. Paper Mill; Page, H., Smith, Stone & Knight; Pirie, A. W., Pirie & Sons; Pollock, J., Donside Paper Co.; Porritt, W., Grove Mill Paper Co.; Potts, T. T., R. Fletcher & Son; Prestwick, J., East Lancs. Paper Mill; Redford, J., Smith, Stone & Knight; Rothwell, Mark. R. Fletcher & Son; Sedgwick, J. B., Smith, Stone & Knight; Shingles, T. H., John Dickinson & Co.; Sindall & Bacon, Consulting Chemists; Smith, C. K. Golden Valley Mills; Smith, T. P., Smith, Stone & Knight; Snape, F., C. Marsden & Sons; Snelling, C., Empire Paper Mills; Smart, E., Donside Paper Co.; Starnes, A. H., Piries Photographic; Stewart, J., Donside Paper Co.; Strachan, J., Donside Paper Co.; Sun Paper Mill Co., Feniscowles; Seddon, J., East Lancs. Paper Mill; Tosher, A., Alex. Pirie & Sons; Tootell, H. M., Chas. Marsden & Sons; Turner, J., Wall Paper Mnfrs.; Tod, A. K., Polton Mills; Wall Paper Mnfrs., Hollins Paper Mill; Walsh, George B., Wall paper Mnfrs.; Walsh, R., Wall Paper Mnfrs.; Wilkie, D., Donside Paper Co.; Winskill, J. W., Irish Paper Mills Co.; Wolstenholme, J., G. Walmsley & Co.; Woolley, E., Smith, Stone & Knight; Wright, W. S., Irish Paper Mills Co.; Walker, J., Iveresk Paper Co.

ABITIBI BONDS PAYABLE IN NEW YORK FUNDS.

It is announced that, as a result of arbitration, the decision has been made that the $1,000,000 Abitibi Power & Paper Company 7 per cent Convertible Debentures redeemed by the company at 110 and interest on April 1st last are payable in New York funds.

In accordance with the decision, it is understood that Montreal Trust Company will forward cheques on November 3rd to all debenture holders registered as of April 1st, 1920, for the amount of the premium on New York funds, as at that date, together with interest from April 1st to Nov. 3rd, the date of payment.

The legal point involved is both an important and interesting one. It will be remembered that at the time the Abitibi Company redeemed the debentures there was a divergence of legal opinion as to whether the company should redeem them, paying for them 110 and accrued interest in Canadian funds, or the same amount in United States funds which were then at a premium. Royal Securities Corporation, the original underwriters of the issue negotiated an arrangement on behalf of their clients with the Abitibi Company whereby the legal point involved was submitted for arbitration to Eugene Lafleur, K.C., of Montreal. A decision has now been given with the results indicated.

A NEW WATERMARK.

One of the most popular low-priced bond papers is Ferncroft Bond. Hitherto the manufacturers were unable to watermark it, but with those difficulties overcome our customers can now obtain this very desirable quality with the watermark "Ferncroft Bond, Made in U. S. A.".

British Trade News

(From Our London Correspondent)

London, 19th October, 1920.

"No profiteering in the paper trade," is the verdict of the Imperial Government. Inquiries recently instituted resulted in the decision. It was contended that because profiteering in regard to prices was going on in some of the other industries, the paper industry might be wanting to get rich too quick; but investigations have removed all disparagements and aspersions and the short and humble announcement is now made that there are no profiteers in paper.

Big Coal Strike—Mills on Half Supplies.

Today the United Kingdom is in the middle of a series of strikes and threatened strikes, the most damaging of which is the coal miners' strike. The men have now left the pits and paper mills are only allowed half their usual supplies. It is a very serious matter for employers and workers alike, and the hope is expressed that no delay will be lost in enabling the miners and their employers to come to a decision, satisfactory to both, with all possible speed. If they don't it means in the paper industry that unemployment will work out as follows:—

	Workers.
(1) Out of work in a week	4,500
(2) Out of work in 2 weeks	6,000
(3) Out of work in 5 weeks	34,500

These figures may look small on paper, but actual facts go to show that if these 34,500 workers are outside the mill in a month's time the distress will be something enormous, as the printing and publishing trades will be affected in their turn. It is true that most of the mills have fair supplies of coal in stock; but if the coal miners stop away from the pits for two weeks, say, that will mean four weeks before a mill could get replenishment as transport would have to be set in motion again and it would take sometime before the pre-strike output could be reached in the mines. The miners have it in their hands to ruin both themselves and the industries of the country. It is an intolerable state of affairs to think that because miners want an increase of wages—they are at present nearly double those of papers workers—34,500 workers in the paper industry should be thrown out of work and more particularly at a time when competition is keen and new improvements are being effected in mills to meet that growing competition. Everybody hopes before long there will be a path of conciliation and that the present crisis will be ended. The paper mills are at the mercy of the coal miners and being a horrible state of affairs, Canadians will readily see the advantage of being independent of the pits.

What The Three-Shift Means In A Mill!

Mr. Robert Gilroy, Messrs. A. M. Peebles & Son, director of mills, which are at Rishton, Whiteash, and other places, recently gave his views on the raw material market and the three-shift-system in the paper mills, to his co-directors. "The past year," he said, "must be regarded as memorable in the annals of the paper trade owing to one particular fact — the universal introduction of the three-shift system in our manufacturing departments. This change came at a most unfortunate time, when skilled men were very scarce—very few were available. This, in effect, meant that this third shift had to be drawn from the unskilled ranks, and during the probationary period it of necessity followed that our working results during the year were not so efficient or economical as they would otherwise have been. We have now got over that probationary period, and are now working under the new system very well indeed. As the result of the third shift our wages bills have been considerably increased, and under this heading, compared with the year 1913, we find that the difference in our wages bill alone is an increase of £35,000. After the national agreement recently expired there was a still further demand for increased wages, and, here, again, I am afraid this figure will be further increased by at least £6,000. On the whole, however, we have been able to meet all the requirements fairly well and I am glad to be able to report that your production has found an ever-ready market. Your customers are greater in number than probably they ever had been in the history of the company and I think this at least bears ample evidence that our production must be pretty well all right. Today I am also glad to report that despite the stagnation of trade generally, all our three mills are very well employed and we possess a very full order book—sufficient I think to keep us going for several months ahead, so that in regard to the current year we have a very good send-off."

Raw Materials.

Mr. Gilroy, commenting on the raw materials markets, said that during the past year it could not altogether be said that the river had run smoothly, for in common with practically every other industry in Great Britain Peebles & Son had their troubles and trials and ups and downs. In the early part of the year they experienced considerable difficulty in negotiating supplies of Esparto grass. It took several months, for some reason or other, to collect a few hundred tons, and he found in regard to that important material that we were months on end without a blade. The wood pulp market had also undergone another change since last year in the direction of higher prices and even to-day he found that still further increases are demanded.

Pulp-Making Plant Scrapped.

Mr. John Garnett, who was chairman of the old Hartlepools Company for 15 years, said he was delighted to know the present company in its first six months working is able, without touching the earned profits from the working of the mill to put before the shareholders resolutions increasing the capital and authorising the capitalisation of reserves. The question of profits for the years previous might be answered in this way: The old company was one manufacturing its own pulp as well as paper. For some years before the war, and for a year or two after the war was started we were suffering from very adverse circumstances in connection with pulp making; so much so that the directors of the old company decided to scrap the whole of the pulp-making plant, and they did so with fair advantage because although some of the plant was only two or three years old the price of lead and antimony rose to such an extent through the war that we were able to scrap the whole new plant and get, if anything, actually more than we paid for it as new material. During those years we were not able to make, in my opinion, anywhere near the profits that we should have made if we had been making our own pulp. In conclusion, Mr. Garnett, who is one of the oldest British papermakers, predicted great success for the new Hartlepools Paper Mill Company under the new conditions of working.

Forcing Down Newsprint Prices.

Every effort is being made by publishers and printers in the United Kingdom to force down the prices of newsprint. There appears to be a combined movement, irrespective of what raw materials are costing to produce and get shipped into the British market, and the results is that all sorts of rumours are flying about London. Some people suggest that in the near future newsprint will be brought in London for 9 cents a lb. Another "enlightened" Editor—we have many of them in London—says in his trade paper to publishers: "We think the paper merchants and agents have been largely in the hands of the mills, and the Profiteering Act is not, we regret to find, to be applied to the manufacturers as was believed to be the intention a week ago." There is no harm in thinking, but if the Profiteering Act does not apply to sellers of newsprint it stands to reason that they are trading legitimately and legally. If you asked a publisher to-day in London what ground wood was a ton it is doubtful if he could tell you; yet he will level the charge of profiteering against the newsprint industry because he pays nearly double what he had to in pre-war days—more if he buys in spot lots. It is stated in London that several mills in Sweden have ceased work or cut down their production of newsprint owing to the lack of British and other foreign orders. Mill owners have decided, however, not to cut prices as the majority of the mills allege that their English customers, with large stocks in hand, are purposely holding back in order to force Sweden to cut her prices.

FRASERS BUY MINTO COAL AREAS.

Following the recent announcement that the International Paper Company had purchased holdings in the Grand Lake coal areas, notice is published in the Royal Gazette to the effect that the Fraser interests, who now have two pulp mills in New Brunswick, and have been planning further development, have also recently taken an interest in coal holding at Minto.

Archibald Fraser who handles the pulp and paper branch of the Fraser Companies business, is one of the incorporators of the Welton and Henderson Limited, a new company with a capitalization of $75,000 which has just been granted letters patents for carrying on a general coal mining business with head office at South Minto.

The other incorporators are Harvey Welton, Minto, a well-known coal operator in that district, and John Henderson formerly manager for the Minto Coal Company, Limited, and who has lately been operating mines of his own.

The new company have taken over the Jeremiah Coekley mine, which was recently purchased by Mr. Henderson at a reported price of $40,000, as well as Mr. Henderson's mines, which were formerly owned by Smith and Merrithew, Limited. They control about 150 acres of coal areas.

WAS EX-MANAGER OF PARSONS LONDON OFFICE.

In John W. Stebbins, who died on the twenty-third of last month, there passed away one of the sunniest of men, at the prime of life.

Brought up as a thorough paper man, he joined Parsons Brothers, New York, and was in charge of their London Office from its opening in August 1900 to 1906, when he returned to his native land and rejoined the American Writing Paper Company.

MAKING PULP AND PAPER MACHINERY.

It will no doubt be of interest to the Pulp and Paper Trade of Canada to know that the well-known firm, Engineering and Machine Works of Canada, Limited, located at St. Catharines, Ontario, has begun the manufacture of pulp and paper mill machinery. They will manufacture three and four pocket grinders, diaphragm screens, six to eighteen plates inclusive, wet machines, deckers, cylinder moulds, and 48, 84 and 90" chippers.

W. R. Tidmarsh, formerly of the Union Iron Works, Bangor, Maine, is in charge of this work.

HELIN EXAMINES NELSON PROJECT.

H. Helin, the pulp and paper expert engaged by the board of trade industrial committee to make a report upon the possibilities of pulp and paper manufacture at Nelson, B.C., has completed a two-days' examination of conditions.

He went to Bonnington Falls and looked into the power situation; went out to the Baskin-Stedman Timber limits on Eagle creek, and examined the various sites on this side of the lake as far up the West Arm as Five-Mile. J. E. Annable, chairman of the industrial committee; W. M. Cunliffe, President J. R. Hunter, and Commissioner Fred. A. Starkey assisted him at one stage or another of his inquiries.

Mr. Helin was formerly general superintendent of the Whalen Pulp & Paper company, Vancouver, and is at present a director of the Western Canada Pulp & Paper company, Vancouver.

TECHNICAL COURSE AT IROQUOIS FALLS, ONT.

The technical courses for this winter, as planned by the Abitibi Power & Paper Co., are very comprehensive and include:—

Wood technology. — Physical and technical properties of wood from the pulp and paper point of view.

Groundwood Pulp. — Process from the wood to the finished pulp, with special detail of the grinder room operations.

Sulphite Pulp. — The manufacture of sulphite pulp from the chips to the finished product.

Paper Manufacture. — Newsprint paper manufacture from the refined pulp to the finished product, with details and theory of the process.

Acid Making. — The theory and practice of it with references to the chemistry of the subject.

Steam Plant. — Theory and practice of steam generation.

Screening and refining of sulphite and groundwood pulp.

The details of the courses have not been fully developed, but while of a technical nature they will be sufficiently popular that any man working in the mill will be able to get a great deal of information from the lectures referring to his department.

F. W. Nugent has been appointed as representative of McArthur, Irwin Ltd., paint and color people, with headquarters at 127 Wright Street, St. John, N.B. Mr. Nugent for the past nine years was associated with the jobbing firm of Robertson, Foster & Smith, St. John, and in his new work will cover the Maritime Provinces and Prince Edward Island.

When hurry interferes with Safety, cut out the hurry, says the Safety League.

BOOST FOR VOCATIONAL TRAINING.

By the gathering of representatives of the various Provinces, embracing the whole Dominion, at Ottawa, last week, technical education received a most decided boost. Ministers of education together with their chief advisers were present.

Perhaps the keystone for the holding of the conference was really to bring about such a state that would exert itself in an active force with the Department of Labor.

At the opening of the conference on Monday it was announced that the session would be in private. A publicity committee was appointed and its report said, Hon. G. D. Robertson, Minister of Labor, had briefly addressed the conference. Hon. G. P. Smith, Minister of Education for Alberta was appointed chairman. Mr. L. W. Gill was appointed secretary of technical education. The following subjects relating to technical education were listed for discussion: Teacher training, prevocational classes and vocational guidance, courses of study, text-books, condition for entrance to technical classes, length of school year, length of school day, educational reports, method of preparing, general supply of teachers and other subjects.

The conference on technical education will be followed immediately by a conference on educational statistics, which has been arranged by the statistics branch of the department of trade and commerce..

The earlier part of the days proceedings was devoted to a discussion of the broad question of the training of teachers for technical education. The discussion centered chiefly on a proposal to establish a central training institution to serve all the provinces of Canada. The function of this training school would be to train all the vocational teachers required in the various provinces, and the following were suggested as some of the conditions under which such an institution might be established:

(1) The Dominion Government to provide the building and equipment.

(2) Cost of maintenance to be borne by the federal and provincial governments on a fifty-fifty basis.

(3) Management of the central training school to be under a board of governors, representative of each province and the Dominion government.

(4) The institution to have a dual staff—French and English.

Junior Industrial Course.

Subsequent discussion turned on the question of establishing a junior industrial course as a preparation for definite vocational training. The opinion of the conference was that such a course offered pupils a better opportunity for educational development and for the choice of a suitable subsequent course of duty. Further, in the course of the discussion, the point was brought out that a system of vocational guidance ought to form an essential part of a junior industrial course.

A committee on resolutions was appointed under the chairmanship of Dr. F. W. Merchant, director of technical education for Ontario.

CHANGED THEIR OFFICE.

The purchasing of the Howard Smith Paper Mills, Limited, and the Toronto Paper Mfg. Company, Limited, is now conducted from the Head Office, 138 McGill Street, Montreal.

All correspondence and invoices should be sent, and calls made to this address in future.

PUBLICATIONS IN QUEBEC INCREASE.

Notwithstanding recent enormous increases in the cost of paper the number of publications issued in the province of Quebec has increased during the past year, the increase being the greatest in Quebec, of any province of the Dominion. This, and many other interesting facts regarding the publications of Canada, are given in the latest edition of Desbarats Newspaper Directory, just issued.

The number of daily newspapers in the Province has been increased by two, but the greatest increase is shown in weeklies and monthlies. Two years ago there were 97 weeklies and 56 monthlies in the province. The present directory shows 104 weeklies and 74 monthlies. The cost of newspapers to the reader has been increased in many cases, but the loss of circulation has been trifling, and although the advertiser is paying more for his publicity the volume of advertising is materially increasing.

The Rolland Paper Company has just sent out a very attractive sample book, showing the following papers—Donnacona, Canada, Columbia, Monogram, Arcadia, Maple Mills, Duplicating, Typewriter papers, Manilla.

NEW PAPER MACHINES — 1920 AND 1921.

There was recently printed in the United States Paper Maker a record of 100 new paper-making machines scheduled for installation in United States paper mills in 1920 and 1921. It is notable that of this number only five machines, with a combined capacity of 145 tons per day, are to be installed in wrapping mills. It was estimated that this would increase the annual production of wrappings by only 5 per cent over the 1919 production.

Sixteen new machines, with a daily capacity of 280 tons, are scheduled for installation in tissue mills. This, it is figured, will increase tissue production by 84,000 tons over the output of the year 1919, or 54.1 per cent.

GETTING RAGS FROM EUROPE TO MAKE BUILDING PAPER.

A considerable business is being done at the present time in the shipment from European countries of large quantities of rags for the manufacture of felt building paper, roofing slates and patent roofing. The rags are brought over in varying quantities by ships reaching Montreal, and this year a large paper concern has, in return, begun the shipment of quantities of rags of a different grade collected on this side of the Atlantic, for the purpose of manufacture into articles for which a demand here is not readily available.

ONE ON US.

Little Nelly told little Anita what she terms "only a little fib."

ANITA—"A fib is the same as a story, and a story is the same as a lie."

NELLY—"No, it's not."

ANITA—"Yes, it is, because my father said so. and my father is a professor at the university."

NELLY—"I don't care if he is. My father is an editor, and he knows more about lying than your father."—Blighty. And the editor was once a professor !

Mr. E. W. Tobin, M. L. A. of Sherbrooke, who is a director of the Brompton Pulp & Paper Co., has returned from Europe.

Technical Section

REVIEW OF RECENT LITERATURE.

A-12; K-10, 19. Notes on coating and tub-sizing. Papyro. Papeterie, **42**, 290-4, (Apr. 10, 1910), 352-9, (Apr. 25, 1920). In coating the quality of every shipment of gelatin or casein employed should be tested, as it is very variable. Methods of testing are given. The principal other factors to be regulated are the concentration of the temperature of the solution during coating, the solution, the temperature, at the point where the coated paper enters the drier, and the maximum temperature of the air in the drier. The main points to be considered in tub-sizing are the speed of the machine, the thickness of the paper, the amount of size, and the cleanliness and relative humidity of the air that comes to the drier.—A. P.-C.

C-5 G-0. Guarding against fungi in wood and wood-pulp. Otto Kress, C. J. Humphrey and C. Andrey Richards, Forest Products Lab., Madison, Wis., Paper, **26**, 675-7, 733-5, 787-8, (1920). As the results of comparative tests using clean and infected groundwood pulp, the latter was shown to have the following drawbacks: Decided decrease in fiber length, so affecting the yield, felting quality of the stock, strength of the finished paper, and slowness of the stock. 2) Infected pulp is too free. While groundwood pulp is often considered too slow, the extreme freeness of the infected pulp would offer difficulty in carrying the necessary water on the paper machine and in securing a good formation in the finished paper. 3) Infected pulp is much darker, thereby dulling either white or colored sheets in which it is used. 4) The yield of finished paper based on the percentage of groundwood used is decreased approx. 10 per cent. 5) The strength of the finished paper is decidedly reduced. In a groundwood-sulphite furnish this decrease in strength would necessitate the use of a larger per cent of the more expensive sulphite pulp in the furnish. 6) Infected pulp on the paper machine offers difficulty in sticking to the couch and press rolls and in excessive foaming. 7) Infected pulp will require more sizing. 8) Infected pulp will make a very dirty sheet. The deterioration of wood and pulp is due principally to 2 classes of fungi; viz., wood-destroying fungi and molds. The former cause a marked deterioration in the strength of the pulp while the latter do not. The distinctive characteristics by which the 2 classes can be distinguished are described. A series of tests have been undertaken to determine the value of treating the pulp with various antiseptics, but results are not yet available for publication. So far as known at present, the best remedial measure consists in proper sanitation conditions for the storage bot of wood and pulp.—A. P.-C.

D-4. Increasing efficiency by speed control of turbine driven pulp grinders. Adolph F. Meyer, Paper, 26, 721-9, (1920). The data respecting the effect of speed on power consumption of turbine driven grinders are so conflicting as to indicate no relation between these factors. Desirable speeds may therefore be determined solely from the point of view of the efficiency of the turbine driving the grinder. For a given head and gate-opening, there is a definite speed at which the turbine will work most efficiently and give maximum power. This speed varies according to the head and the gate-opening. Relatively small departures of the speed from the optimum speed cause appreciable lowering in efficiency, especially an increase in speed. Under ordinary conditions, there are very great variations in the total amount of pressure applied to the face of the stone and corresponding variations in speed, resulting in considerable loss of power. The author has devised a governor whereby the pressure with which the wood is pressed against the stone is varied so as to produce a uniform friction load irrespective of the no. of pockets momentarily in use, binding of the wood in the pockets, or size and character of the wood ground. It is claimed that the speed can thus be maintained within 4 R. P. M. of the desired amount about 90 per cent of the time, and within 5 per cent of normal for all but rare periods of a few seconds. The regulator can be set for any desired rate of speed by the mere turn of a hand wheel. Charts are given to show the performance of the instrument under actual mill conditions.—A. P.-C.

R-14 Research in papermaking. J. L. MacDonald. World's Paper Trade Rev.; Paper, **26**, 639-40, (1920). A discussion of the importance of pure and applied research in industry, with special reference to the English paper industry. The part of fundamental, or pure, research is shown to be of the very greatest importance, as it is the source of the information which is later applied, through the medium of technical research, to the actual operations in the industry.—A. P.-C.

E-1. Control equipment for sulphite mills. E. R. Barker. Paper, **26**, 362-6, (1920). A description of recent improvements tending to make acid-making and cooking as nearly automatic as possible: SO_2 recorders, recording pyrometers, automatic dry and melted-S feeds, sublimed S detectors, cooler water temperature regulator, Crandon system of acid control for regulating the flow of water so as to obtain constant acid composition, recording thermometers and pressure gauges for digesters, Dooley's acid filling system.—A. P.C.

E-1. Control of sulphite cooking. W. E. Byron Baker, York Haven Paper Co., York Haven, Pa. Paper, **26**, 310-2, (1920). A brief discussion of the importance of the following observations: 1) Gauge pressure (total pressure), 2) temperature, 3) gas tension, or pressure of dissolved SO_2, 4) density of the liquor in the digester, 5) concentration of total SO_2 present, 6) concentration of SO_2 combined as $CaSO_3$, 7) "changed S" concentration, 8) reversible or loosely combined SO_2 present, 9) CaO (and MgO) present in the liquor. Indications are given as to the manner of making the observations.—A. P.-C.

E-4. Advantage of liquid sulphur dioxide in sulphite pulp manufacture. Vance P. Edwardes, Engineer in Forest Products, Forest Products Lab., Madison Wis. Paper, **26**, 350-4, (1920. The advantages are of 2 classes; those which can be directly estimated in money, and those which, owing to lack of data or other causes, cannot be so estimated. The use of liquid SO_2 would do away with S burners and SO_2 coolers, smaller piping could be used, a stronger acid could be made in a shorter time, H_2SO_4 and sublimed S would

be eliminated, the cooling of the gas on expansion could probably be utilized for cooling the relief gas, and it might be possible to do away with the raw acid tanks. The elimination of H_2SO_4 would undoubtedly improve the quality of the pulp and at the same time decrease the cost of cleaning the acid system and piping of precipitated lime and the rapid depreciation of such equipment. The effect of using an acid containing 10-15 per cent total SO_2 remains to be investigated; but the results of experiments carried out at the Forest Products Lab. tend to show that the yield is increased and the time of cooking decreased, the increase in output amounting to as much as 37½ per cent. Economic factors must also be taken into consideration, and mills could hardly use liquid SO_2 economically of they are at a considerable distance from the source of supply. It is estimated that with S costing $24 a ton, liquid SO_2 at $15 a ton would be profitable. The method of manufacturing liquid SO_2 is briefly described.—A. P.-C.

E-5. The chemistry of sulphite cooking. A. Chambovet. Papeterie, **42,** 242-7, (Mar. 25, 1920); 294-6, (Apr. 10, 1920). Conclusion of art. abstracted in Pulp and Paper, **17,** 736, Aug. 28, 1919. After discussing the reaction between the liquor and the non-cellulose compounds other than lignin, and the formation and effects of SO_3, the author briefly summarizes his results which are that the SO_2 is used up by the formation of Ca lignosulphonate, of unstable addition compounds, and of H_2SO_4.—A. P.-C.

..**E-5. Value of Superheated steam in the sulphite process.** Robt. H. Wyld. Paper, **26,** 674, (1920). **Definite** test data are lacking to show the **exact** value of superheated steam. It eliminates the variations in quality of steam, reduces the dilution of the liquor in the digester, and consequently effects a saving of S. It is claimed that the use of superheated steam gives a better recovery of SO_2, enables a lower cooking temperature to be used, and that the cooking may be accomplished in a shorter time without sacrificing quality. Most of the value of superheated steam for the digester is probably obtained by a superheat of about 100-150 deg. F.—A. P.-C.

F-2. Fuel from sulphite liquor. Geo. Barsky and Ralph H. McKee, Columbia University. Paper, **26,** 368-72, (1920). A discussion of the amount of heat or power which can be derived from waste sulphite liquor. The liquor can be burned in the form of a pitch containing about 50 per cent solids, in an ordinary form of oil burner. Detailed calculations are given, both for raw liquor and for air-fermented liquor, showing that the solid material of the waste liquor has sufficient fuel value to evaporate the liquor, and enough in addition to supply some power or steam for other purposes.—A. P.-C.

F-4. Black ash leaching. Geo. M. Trostel, Champion Fiber Co., Canton, N.C. Paper, **26,** 390-2, (1920). The suggested method of treatment is essentially as follows: the black ash is crushed to reduce all lumps larger than 1″, mixed with enough weak liquor so that it can be handled by an open impeller centrifugal pump, ground in a tube mill, delivered to a receiving tank with an agitator, and from there to the rotary filters, water being added in the tube mill and receiving tank in such amounts as to give the desired strength of liquor. The advantages of this method as compared with leaching in cells under pressure are discussed.—A. P.-C.

..**F-4. Black liquor recovery process.** G. F. Enderlein, Brompton Pulp & Paper Co. Ltd., East Angus, Que. Paper, **26,** 356-60, (1920). A discussion of the source of loss and inefficiency in the recovery of black liquor which may be due to incomplete washing of the pulp, loss by foaming over in the evaporator and tanks, salts decomposing from the heat in the furnace, and salts carried away mechanically by the draft, loss of salts in the lime sludge from the causticizing tanks, loss in leaks at pipes, connections, valves, pumps and tanks, spattering out from tanks in making up the liquor. (See Pulp & Paper, July 15, 1920).—A. P.-C.

K-2. Recovery of colloids from paper mill waste water. Waldo S. Coulter, Industrial Wastes Engineer, New York. Paper, **26,** 590, (1920). The solids in paper mill waste water contain a considerable amount of colloidal matter which cannot be directly filtered out. This can be removed by means of a colloidor," or surface to which the colloid is attracted by absorption; but this requires either a relatively long time or a very large surface. The particles of intercepted sludge may be used as "colloidor", thereby furnishing a very large aggregate area. A flotation process may also be employed which requires no moving parts, whereby the suspended matter is concentrated, floated to the surface, and can then be filtered with a fine-mesh screen.—A. P.-C.

K-7. Jordan and beater in papermaking. Max. Zimmerman, Chas. Boldt Paper Mills, Cincinnati, O. Paper, **26,** 376, (1920). For high-grade lightweight paper long beating and shorter treatment in the jordan is the more satisfactory. For making heavier weights of high grade paper, it is best to use the jordan more extensively and do less work in the beater. For box board made on cylinder machines less work in the beater and more on the jordan has proved more satisfactory.—A. P.-C.

K-12. Sectional individual motor drive for Paper machines. Stephen A. Staege, Westinghouse Electric and Manufacturing Co. Paper, **26,** 382-8, (1920). Formerly the main defect which prevented the general application of sectional individual motor drive was the lack of proper speed regulation, which must be maintained to less than 0.1 per cent. The problem has now been solved satisfactorily. The advantages of sectional individual motor drive as compared with mechanical drive are set forth. (See Pulp and Paper 18, 616, (1920).

CORRECTION TO EXPORTS AND IMPORTS REPORT.

Just as our last forme was going to press, the following was received: Comparative statement of value of pulp and paper exports for first six months of fiscal years 1918, 1919 and 1920 should read as follows:—

Paper	$21,821,915	$27,119,246	$43,025,764
Chem. pulp . .	15,903,189	14,008,388	33,579,554
Mech. pulp . .	2,512,086	2,618,338	10,638,158
Totals . . .	$40,237,191	$43,745,972	$87,243,476

On page 1133 the figures given as those for the first six months of 1918 covered merely the month of September. The correct returns are shown above. Consequently, exports for the first six months of 1920 were about 105% greater in value than were those of the corresponding period of 1918.

UNITED STATES NOTES

Figures on newsprint imports given out at Washington last week show that Scandinavian nations have become active competitors with American concerns for the print paper market of the United States. Total imports in August of this year amounted to 73,513 tons against 47,131 in August, 1919, and of the total 71,222 tons were received from Canada, 780 from Norway and 2,213 from Sweden. A year ago imports came from Canada exclusively. Since August Germany has swelled the volume of imports from Europe by approximately 3,000 tons. Finland, according to Hjalmar Gronvik, managing director of the Finnish Paper Mill Union, is preparing to put about 210,000 tons of print paper on the American market during the coming year. Mr. Gronvik and an associate, Walter Graesbeck, managing director of the Finnish Cellulose Association, arrived in New York City recently from Gothenberg, Sweden. Both say that their visit to America is being made with a view to making the most of the opportunity afforded by the critical newsprint situation in the United States. This growing volume of print paper imports from European countries is having its effect on prices. During the shortage some months ago publishers had to pay as high as 16 cents a pound to jobbers. The current quotation is 9½ cents. German interests, it is reported, expect to lay print paper down in New York at 7½ cents.

Walter S. Taylor, of Elizabeth City, N.C., is named as chairman of the board of directors in articles of incorporation recently filed with the Secretary of State of North Carolina by the Consolidated Pulp and Paper Company. The capital of the company is put at $1,500,000, and its object is declared to be the manufacture of paper and paper pulp.

Business houses and stationers throughout New York city who may have need of calender pads and diaries, 1921 editions, are likely to find that these articles will be hard to procure around the holiday season this year. Officials of the Royal Ribbon and Carbon Company of New York see in the white paper shortage and in the consequent under-production of certain kinds of printed articles an indication that there will be a dearth of the calender pads and diaries required for the holiday trade. Stationers are being advised to stock up on these articles immediately in order to obviate any possibility of running short at the first of the year.

Hearing of a rain-making experiment at Battle Creek, Mich., that was reported to have met with success, officials of the St. Regis Paper Company are arranging to meet future drouths in the Black River region of New York by using a similar system for producing rain. Citing the Battle Creek experiment, Mr. C. C. Burns, general manager of the company, declared that the innovation would not prove expensive considering the results obtained. The plan is to employ the services of an aeroplane which will fly to a very high altitude and explode bombs, affecting the air so as to cause a condensation of the moisture into clouds which give forth the rain necessary to flood the streams. It is claimed that at Battle Creek a three days rain was brought on through the application of the system at a time when all other sections of Michigan were dry.

The Specialty Paper Box Company, manufacturers of general lines of paper boxes and specialty carbon paper boxes, has removed from its plant in Mercer street, Manhattan, to a new factory at 84-90 Evergreen Ave., Brooklyn. This move was made necessary by the firm's growing needs for greater operating space. Much additional equipment has been installed in the new plant, greatly increasing the capacity and facility of the company's output.

John A. Dix, former Governor of New York State, is reported to be planning the construction of a pulp and paper making plant at Ogdensburg, N.Y. Mr. Dix, who has been prominently identified with paper manufacturing for years, recently visited the Maple City accompanied by Mrs. Dix and Thomson Douglas, a business associate, for the purpose of making a preliminary survey of the possibilities for a suitable mill site on the water front. Mr. Dix is believed to have in mind the locating of a mill on the St. Lawrence River because of the accessibility of Canadian wood pulp. While no announcement has been made, the former Governor is said to be partial to the Ogdensburg location. Just who is associated with Mr. Dix in the project is not yet known.

Probable earnings of the Union Bag and Paper Company this year are being estimated as high as $20 a share on the common stock. On the basis of the statement for the first six months, the company should make the best showing in its history this year. Production and sales during the usually lean summer period are said to have reached a new high mark. Gross sales are expected to exceed $16,000,000 against approximately $12,000,000 in 1919 and $11,600,000 in 1918. The company receives an income from its investment in the St. Maurice Paper Company, its Canadian subsidiary, equivalent to $2.60 a share. This stock was recently put on an $8 a share dividend basis, an increase of $3 a year, and has paid this year 30 per cent in stock and $5 extra.

While prices of most papers are continuing to maintain the same level, paper boards in the Philadelphia market have declined to $60 and $65 a ton. Quotations a week earlier showed prices of $80 and $100 for this same commodity. The slump is attributed to the almost complete suspension of activities by paper box makers. The prevailing rate, Philadelphia board makers say, is actually below the cost of production, but was made because of the flood of commons which have come into this market. Buying, they believe, will be stimulated by the low-price, which, everything considered, can be but temporary. The board decline of course has had its effect on the paper stock market.

Plans for a Statewide organization on Pennsylvania to be known as the Forest Guides and to be part of the Boy Scouts have been worked out by Forestry Commissioner Gifford Pinchot and Solon Parks, Boy Scout executive of Reading, Pa. Co-operation of all scout masters and executives in Pennsylvania will be asked. The idea will be to have boys enroll to protect and conserve forests and wild life and to prevent and extinguish fires.

PULP AND PAPER NEWS

A fire, which broke out in one of the power houses of the Hydro Electric Power Commission caused a shut-down of the Hydro's pulp mill at Campbellford last week. A large force of men quickly got the plant under way and shipments of pulp have been renewed. The mill was got running again this week.

Mr. John Martin, of Winnipeg, ex-president of the Canadian Paper Trade Association, was in Toronto this week on his way back to Winnipeg after visiting the Laurentide, Provincial and other mills with which his paper firm in the west does business.

A meeting of the committee on text books for the paper industry was held in Toronto this week under the chairmanship of Mr. George Carruthers when a number of details connected with the movement were discussed. Excellent progress is being made with the preparation of the text books. The first of the series is expected to be on the press at the beginning of the year.

Mr. William Banks, editorial writer and former news editor of the Toronto Globe, is leaving the staff of that newspaper after twenty-one years service, to take charge of the literary department of the British and Colonial Press, Toronto. Mr. Banks was at one time a reporter on the Mail and Empire, leaving that paper to take a similar position on the Globe, where he has successively filled the posts of cable editor, city editor, news editor and editorial writer. Early in 1919 he covered some of the opening sessions of the Peace Conference in Paris. He is a frequent contributor to Canadian and American periodicals.

The current issue of the Ontario Gazette contains a notice of incorporation of the Welland Tribune and Telegraph, Limited, a company formed as the result of the amalgamation of the two papers in Welland. The capital stock is $125,000.

A new company has been formed in St. Thomas, Ont., to be known as the St. Thomas Box Company, Limited. The new organization, which has been granted a provincial charter, will manufacture, sell or deal in paper, cardboard and other boxes, and paper and cardboard products. The capital stock is $40,000 and the provisional directors are T. J. Agar, L. J. Phelan, D. P. J. Kelly, I. Levinter and Frank Cronin.

The Miller Lithographic Company, Limited, has been incorporated by Toronto laywers, with a capital stock of $91,000 and with power to carry on business as printers, lithographers, process printers, publishers, etc.

Mr. H. F. Weld of the Farmer's Advocate, Winnipeg, was in Toronto this week on business.

Mr. Fred Smith, of Smith Davidson and Wright, paper jobbers, Victoria, B. C., was in Toronto calling on the trade during the past week.

The many friends of Mr. H. B. Donovan, sales manager of the Canada Paper Co., Limited, will be pleased to know that his condition is somewhat improved and that he will likely be able to resume his duties before the end of the year. Mr. Donovan's illness appears to be the direct result of too close application to business for years without a real rest and the Canadian paper trade generally will be glad to greet him when he is permitted to rejoin the fraternity. He is at his new home in Oakville Ont., which he recently purchased.

The death took place at Ingersoll, Ont., on Oct. 31, of Mrs. Joseph Gibson, wife of Postmaster Joseph Gibson, of that town and the mother of Lieut. Col. Thomas Gibson, Vice-President of the Spanish River Pulp and Paper Mills, Limited, and of Mrs. J. C. Gibson, Secretary of the same company. The late Mrs. Gibson died following a stroke of paralysis which she sustained about ten days ago. Col. Gibson had just returned from attending the regular monthly meeting of his company when he was summoned to his mother's bedside where he remained until she passed away. The many friends in the paper trade, particularly, will sympathise with the Spanish River officials in their sad bereavement.

Colonel George Ham, publicity commissioner of the C. P. R., was the guest of honor at a dinner given by the Toronto Women's Press Club this week.

Addressing the Empire Club in Toronto this week Hon. Louis Athanase David, K.C., L.L.B., Provincial Secretary and Minister of Education for Quebec, severely criticised the policy which permitted the exportation to the United States of Quebec's pulpwood to be manufactured into paper. Pulpwood thus exported, he said, became worth $75,000,000 annually under the industry of the United States workmen. In this conversion of pulpwood into wealth on the other side of the border he estimated that there was a loss of $66,500,000 to Canada, of which amount the Canadian workmen would have received about $25,000,000 had the raw material remained in Canada and been manufactured into paper in Canadian mills.

Mr. David F. Robertson, General Manager of the Canada Box Board Co., Limited, Montreal, spent several days in Toronto this week calling on the Company's customers, along with the local representative Mr. James Logie. Mr. Robertson reports that the work of installing the new boilers and other repair work at the Frankfort mill is proceeding satisfactorily and that the mill is now running again after a couple of weeks shut-down. It is expected that the pulp mill will be in operation by December 1st. the grinders and other equipment now being pretty well advanced in their installation.

The many friends in the paper trade of Mr. L. E. L. Harvey will be pleased to know that he is back again in the Toronto office of the George H. Mead Company after several weeks in hospital in Montreal where he was operated upon for a recurrence of trouble due to a wound received while on active service overseas.

The Toronto office of the Howard Smith Paper Company, Limited, report the installation of three

new digestors in the Cornwall mill and that three more will be added which will double their pulp production capacity. The mill will be running early in the new year.

Mr. F. L. Ratcliffe, of the Ratcliffe Paper Co., Limited, Toronto, was in Brantford this week attending the annual convention of the Baptist denomination of Ontario and Quebec.

The Toronto Carton Club held its regular monthly luncheon at the King Edward Hotel, Toronto, this week, and discussed routine matters pertaining to the trade.

Mr. S. J. Moore, President of the F. N. Burt Company, manufacturers of counter check books, was elected President of the Baptist Association of Ontario and Quebec at the annual meeting this week in Brantford, Ontario.

Lieut.-Col. T. Gibson, Vice-President of the Spanish River Pulp and Paper Mills, Limited, is the returning officer for the Northeast Toronto by-election and has appointed twelve women to be deputy returning officers.

The Gaspereaux River Light, Power and Heat Co., of Wolfville, N. S., was recently incorporated. The company intend to erect a pulp mill to produce 2,500 tons a year. At present the Wolfville Electric Light Commission is being supplied with power and light by the Gaspereaux Company of whch C. H. Wright is president and R. A. Jodrey secretary-treasurer.

Work has been commenced on an addition to the paper box factory of A. E. Lond and Co., Limited, 357 Gerrard Street, Toronto.

Members of the Niagara Peninsula Branch of the Engineering Institute of Canada made a visit of inspection to the works of the Ontario Paper Company at Thorold a few days ago where they were shown the process of making paper. The output in newsprint of the company is 240 tons daily. The Beaver Board Company's plant was also visited.

The Canadian Daily newspaper Association at its annual meeting in Toronto a few days ago elected the following officers: President, P. D. Ross of the Ottawa Journal: Vice-President, J. Burd of the Vancouver Province: Treasurer, George E. Scrogie of the Toronto Mail and Empire.

Messrs. James A. Conners and Edward W. Conners, of the James W. Sewall office, timberland cruisers and forest engineers, Old Town, Maine and Washington, D.C., have begun a systematic land examination of some of their holdings for Williamson & Crombie, Kingsbury, Quebec. This same office is also making a detailed estimate on the lands of McLachlin Bros. Co., Ltd., of Arnprior, Ontario, Mr. Lewis T. Calhoun being chief of party in this latter work, which is of considerable scope, the lands being situated both in Ontario and Quebec. Mr. W. H. Wentworth, another of Mr. Sewall's chiefs of party, has just completed an examination of a considerable tract for the Sissiboo Pulp & Power Co. of Weymouth, Nova Scotia. Other crews besides the ones mentioned are now out in Quebec, Nova Scotia and Maine. This concern has covered so far in the neighborhood of 1,500,000 acres of land both in the north, as well as in Tennessee and North Carolina. One piece of work undertaken was the entire land examination of 1920 for the State Assessors of Maine.

In regard to the report recently sent out that John R. Booth was to be included in the pending big merger of Canadian eastern paper and pulp companies by British interests, Mr. Jackson C. Booth informed the Pulp and Paper Magazine that his company was not concerned.

The lowest water in the history of Ottawa lumber, pulpwood operators which has been experienced within the last two decades is now asserting itself at Ottawa, and has resulted in the John R. Booth paper mill being practically shut down. The mill is between four and five thousand tons behind its normal production.

The Canadian press despatch and other newspaper reports to the effect that McGuire, Patterson, and Palmer, had purchased certain limits owned by the Bronson Company, supposed to be situated near Chelsea, Que., was denied by both Messrs. Frank and Fred. Bronson. According to the Bronson Company statement to the correspondent of the Pulp and Paper Magazine at Ottawa, the Bronson Company disposed of its last limits about two years ago.

E. H. BRONSON DEAD.

Attended by citizens of all walks of life, including many representatives of the Ottawa lumber, pulp and paper interests, and others, the funeral of Hon. Henry Erskine Bronson was held at Ottawa late last week. With his passing not only the Bronson Company, and the City of Ottawa lost a valued member, but the whole Dominion loses a most respected and representative citizen.

Hon. Erskine Henry Bronson was born at Bolton, in Warren county, New York state, on September 12, 1844. He was a son of the late Henry Franklyn, and Edith Pierce Bronson. His father came to Ottawa first in 1849 and afterwards moved his family here in 1852 and built the first sawmill in the Ottawa Valley, to supply the export trade, which business grew to a point where thousands of men were employed.

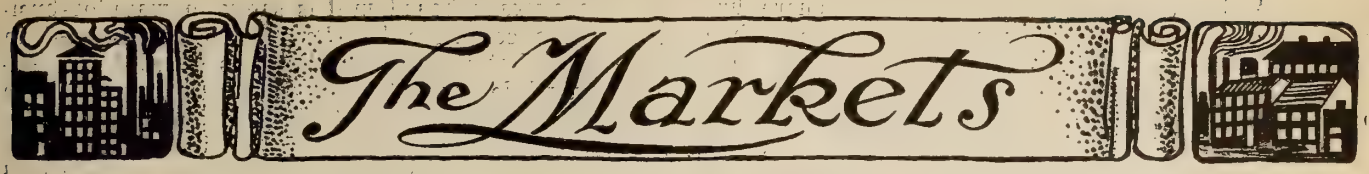
On his father's death in 1898 he succeeded to the presidency of the Bronson-Weston Lumber Co. He was one of the inaugurators of the Ottawa Electric Company. He was president of the Bronson Company, water power and manufacturers of ground wood pulp; vice-president of the Ottawa Light, Heat and Power Co.; president of the Ottawa Power Co., and a director of the Ottawa Electric Co., and the Little River Redwood Co., which is at present carrying on extensive lumbering operations in California. He was a member of the Royal Ottawa Golf Club. He was for 47 years an elder in St. Andrew's Church.

EWING IN CHARGE OF A. W. P. CO'S NEW YORK OFFICE.

Mr. R. D. W. Ewing has been appointed manager of the American Writing Paper Company's New York Office at 41 Park Row, succeeding Mr. L. F. Hayward, resigned.

Mr. Ewing who has been manager of the company's Bonds, Writings and Ledgers Section at the Holyoke office, will assume his new duties on October 15. His experience, his executive ability, and his knowledge of the paper trade eminently fit him for the important position.

The new head of the New York office acquired practical training in the mills of the A. W. P. Co., and later spent four years as a salesman in the office of which he now has charge. He served as lieutenant for two years in the United States Navy, and on his discharge resumed his duties with the large fine paper manufacturing organization in its Bonds, Writings, and Ledgers section.



CANADIAN TRADE CONDITIONS

Toronto, Oct. 30.—Conditions remain unchanged in the pulp and paper trade, as compared with the past week or two, with prices in almost every line holding firm and with freer deliveries from the mills in everything except book paper and newsprint. In these two lines there is an insistent demand which the mills have not succeeded so far in catching up with. This does not mean that there is any more paper in any department of the trade than there is a call for. But there are some lines that have been taken out of the shortage class and the jobber is not so persistent in his calls for some of the higher grades. High-priced papers are not selling so readily. For instance the printer now bucks at paying 70c a pound for superfine linen record and his customer is willing to accept the job on cheaper stock. And smaller lots of paper in most lines are being bought. The consumer feels that he is buying at a time when there is very good chance of prices coming down and he is not doing any more stocking up than is necessary. Even at that there is a surprisingly good demand for all paper products and there is no indication in the trade of falling prices. Here and there in the trade one runs across a paper dealer who cannot see how the paper trade can retain its prosperity with tumbling prices in many other commodities but, he admits that the trade is in a class by itself in respect to demand and under-production. It seems to be pretty generally conceded that the market may fall off some during the fall or winter months but no serious slump is looked for in the immediate future and in the meantime mills are not only busy on present orders but are working to capacity in an endeavor to get caught up on arrearages.

Jobbers Want Quotations.

Practically all through the paper boom and particularly during the past several months the mills have made their shipments at prices prevailing at time of delivery. Jobbers are beginning to get restive under this restriction and claim that the time has come for the mills to set a fast price and bring the market back to normal. "The situation to us, with no basic price to go on has been most unsatisfactory" said a leading Toronto distributor to the Pulp and Paper Magazine, "Naturally our customers want to know what the prevailing price is, and think that it is about time they were given the information. There is a general impression that the mills, if they would, could now abolish the proviso as to sales being made on the basis of the price prevailing at date of shipment and thus assist in bringing the market back to a normal basis. They ought to be in a position now to establish standard values, quote prices accordingly and raise or lower prices when necessary. It certainly would help the trade if this were done and I think all branches of the industry would welcome the change." It was stated that the jobbers would bring the matter before the mills and endeavor to have the change become effective for the fall buying.

PULP.—There is still a very pronounced shortage of raw material and there is practically no trading in either chemical or groundwood pulp. Dealers report that no groundwood pulp is available but a fair market price for it would be from $140 to $150. Contract prices for bleached sulphite are $190 to $200 and there are no spot lots offering. The same may be said of unbleached which is quoted at from $175 to $185. Production of both pulp and newsprint has been considerably reduced within the past week because of low water in the Ottawa River. The mills at Chaudiere are said to be operating far below normal and low water also caused considerable trouble at other mills. It is estimated that the production of paper, newsprint and cardboard was reduced by about two-thirds for a time but the situation is reported to be easing off through rain falls which have come at the head of the Ottawa River. Another factor in the pulp shortage is concerned with the big mill building operations in the north country which have attracted large numbers of lumber jacks from the woods to the centres of building activities.

NEWSPRINT.—There is still considerable speculation as to what price newsprint is going to bring during the first quarter of the new year, but conservative opinion places it at 7½c as compared with the present average price of 5.35c. a pound. It is generally conceded that an increase is coming and that it will be announced very shortly, but as to exactly what it will amount to it is not definitely known. As far as can be learned Canadian newsprint circles do not take seriously the threat of a German invasion of the Canadian and American newsprint fields. The statement was made during the week that large quantities of German newsprint were coming onto the American market and being offered at 6c, or $120 a ton, which, it was opined would weaken the Canadian newsprint market. In some circles there was a disposition to look upon the story as part of a campaign of propaganda set in motion by certain newspaper proprietors in Chicago and backed up by a bear raid on International Paper and Union Bag. Taking the story at its face value it is pointed out that the German imports would only amount to about 35,000 tons a year, or less than enough to keep a paper like the Toronto Telegram going for twelve months. It is highly improbable that Germany could supply the surplus mentioned in view of the fact that the country's total production is barely more than one half of what it was before the war, as a large portion of its pulpwood supply was cut off when she lost part of Bohemia. The whole thing is viewed in the light of an attempt to influence the level of newsprint prices for the first quarter of 1921.

WRAPPING AND BAGS.—Aside from a slight increase in millinery bags the paper bag and wrapping paper branches of the trade were unchanged during the week. As indicating freer shipments from the mills, one jobber stated that his firm were now getting consignments through in two or three weeks time from the date of order whereas heretofore it would take that many months. Paper bag supplies are also easier to get although the demand keeps up fairly well and the jobbers report business as satisfactory.

RAG AND WASTE PAPER STOCKS. There has been an easier feeling in new cotton cuttings with a tendency towards lower prices. Some dealers have made slight concessions to mills in order to move stocks, though this has not yet become general. Old cotton rag prices are irregular and the demand is at a minimum. The market is in such a condition that it is impossible to state just what prices really are. Trading between dealers is a thing of the past and orders from consumers for sizeable tonnages are as scarce as the proverbial hen's teeth. Pedlers and small dealers are badly affected and business is almost at a standstill with most of them. This condition has been further aggravated by the continual drop in the lower grades of waste papers. Newspapers slumped off $5 a ton this week with a like decline in mixed papers. Mills are buying only what they require for actual consumption and are playing a waiting game for additional stock. Prices cannot decline much further without curtailing production altogether. One Toronto dealer is responsible for the statement that with the cost of labor at its present level it will soon be more profitable for producers to burn paper than save it for the collectors. Shavings continue firm, due more to the scarcity of supplies than any additional demand from consumers. Books are moving slowly, with prices unchanged.

Following are quotations on rag and paper stock:

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$23.00—$24.00
No. 1 unbleached cotton cuttings	$17.50—$18.00
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$13.50—$14.00
City thirds and blues (repacked)	$3.75—$4.00
Flocks and satinettes	$1.40—$1.50
Tailor rags	$1.35—$1.45
Gunny bagging	$1.75—$2.00
Manila rope	$5.25—$5.50
No. 1 white envelope cuttings	$8.50—$9.00
No. 1 soft white shavings	$7.50—$8.00
White blanks	$5.50—$6.00
Heavy ledger stock	$3.75—$4.00
No. 1 magazine	$3.00—$3.10
No. 1 book stock	$2.65—$2.75
No. 1 manilla cuttings	$5.50—$5.75
No. 1 print manilla	$2.40—$2.50
Folded news	$2.00—$2.25
Over issue, news	$2.50—$2.75
Kraft	$5.50—$6.00
No. 1 clean and mixed papers	$1.50—$1.60

NEW YORK MARKET.

New York, October 20 — (Special Correspondence). —The decline in box board values, which reached such drastic proportions last week, has continued throughout the current week, and quotations on most grades of board are now on levels denoting a drop of very nearly 50 per cent from the levels obtaining a fortnight ago. Plain chip board is offered by mills down to as low as $65 a ton at shipping points, while news board is quoted at $80 a ton f.o.b. mills. Despite the severe decline in prices, demand is developing very slowly, and the average board mill is sadly in want of business. This condition has become so accentuated in some cases that at least one plant has closed down temporarily, while reports allege that several mills have shut down one or more of their board machines.

Paper boxmakers are doing very little purchasing of board, and, of course, on this hinges the entire board situation at present. The primary fault is that box manufacturers are suffering for want of business themselves, the general dullness affecting nearly all lines acting to diminish demand for paper containers, and naturally these consumers of board are not taking very much supply from mills for the reason that they have no present need for it. Moreover, with prices dropping as rapidly as they are, the average buyer of board would obviously refrain from purchasing as far as possible in anticipation of securing supplies later on at further recessions.

Fortunately, it can be stated that the paper market does not share in the conditions obtaining in the board field. Paper manufacturers are not beginning to get the business with which they were favored up to a short time ago, and the market appears to becoming quieter every day, yet there has been no sharp decline in prices on any kind of paper. Quotations are changing, it is true, and invariably in a downward direction, but papermakers are keeping their composure and are not slashing prices in a vain effort to stimulate buying. Everyone nearly on the paper end contends that prices on the finished product cannot go a whole lot below prevailing levels unless raw material or labor costs come down. There are no indications of this pending, and consequently sellers of paper are mostly pursuing a waiting policy in the firm belief that demand will soon increase and that the market will right itself in due time.

The newsprint situation shows no important change. There is not a very keen spot demand, but the fact remains that most of the supply offered for prompt delivery is finding an outlet among consumers, and at fairly steady prices. Domestic newsprint in standard rolls is fetching around 9.50 cents a pound at mills, and there is little sizable tonnage to be had at less than this price, although occasionally an offer of newsprint imported from Europe at cheaper figures is recorded. The contract basis is maintained at from 6.50 cents upward, and it is definitely known that some publishers of big city newspapers are willingly making contracts for newsprint for delivery next year at as high as 7.50 cents f.o.b. mills. This would certainly indicate that publishers do not look for any material decline in prices.

Book papers hold quotably steady. There is little supply of any grade of book paper offered for prompt shipment, and jobbers report having difficulty placing orders for additional tonnages with mills. At the same time, instances have come to light where machine finished and super book papers have been sold in the open market at slight reductions from the prices prevailing not long ago. Coarse papers are quiet and prices incline toward lower levels. With kraft wood pulp on the decline, manufacturers of wrappings are booking some orders at concessions, and quotations on jute wrappings also are moving downward. Tissues are in narrow demand and tending off in value.

A consensus of opinion among paper men is that activity in the market will pick up to a substantial extent during the next couple of weeks. It is commonly felt that the national election out of the way, business



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generally will spruce up, which automatically will lead to heavier consumption and increased demand for paper or nearly every kind. The usual pre-holiday developed and it is believed that this at least is bound to come, and if it does it must arise during the next week or two.

GROUND WOOD.—Numerous rumors are heard of cheap lots of ground wood being offered for sale off and on, the prices mentioned ranging down to as low as $100 a ton, yet investigation among representative members of the trade reveals that there is very little domestic spruce pulp of No. 1 quality to be had at less than $125 per ton at grinding plants. There seems little doubt that there are sizable amounts of imported mechanical pulp in the market, some of which is wanting a buyer, and it evidently is this pulp that is being offered at the low figures heard talked about. Pulp dealers declare they have to pay from $120 to $123 per ton at mills for domestic ground wood of prime grade, and state that consumers therefore can hardly obtain supplies at under $125. A strong factor in ground wood is the lack of surplus stocks which most producing mills have at this time of the year. Pulp has been moving into consuming channels in consistent fashion in recent months and grinders have been unable to accumulate stocks, ad the opinion prevails that when freezing weather sets in and hampers grinding operations, values will certainly undergo enhancement.

CHEMICAL PULP.—Aside from kraft pulp, which is easing off under the bearish influence of a lack of demand from board mills, quotations on chemical wood pulps are holding their own. Current demand is rather light, consumers in general confining their buying to supplies actually and immediately needed, yet producers and importers are not pressing customers and are naming steady prices. Sulphite is distinctly hard to locate in sizable quantities for prompt delivery. This applies especially to bleached sulphite, which is quoted at from 12 cents upward for No. 1 domestic and between 13 and 14 cents for bleaching sulphite imported from Scandinavia. Soda pulp also is hard to find for spot or future shipment. A local dealer this week told of canvassing the entire trade and of being unsuccessful in locating any available soda pulp. Domestic No. 1 kraft has sold down to 6 cents a pound at pulp mills, while Scandinavian kraft is offered at around 6.50 cents on the dock.

Importations of pulp at New York during the present week included 5,000 bales from Christiania.

RAGS.—There is a marked lack of trading activity in papermaking rags. Mills are evincing very little buying interest, apparently having ample supplies on hand to take care of present requirements and not being desirous of augmenting their stocks while prices are on the downtrend, and sales have been recorded at new low price levels. Roofing rags are particularly weak and No. 1 packing is selling at 1.40 to 1.50 cents a pound at shipping points and No. 2 roofing stocks at as low as 1.30 cents. Old whites are quotably easier at around 11.50 cents for No. 1 repacked, and old thirds and blues are offered at 3.75 to 4 cents per pound with few takers in sight. New cotton cuttings hold relatively steady in value, due to the comparatively light stocks of such rags in dealers' hands and to the low production by clothing establishments. New white shirt cuttings are a strong item and are readily fetching 26 cents and higher a pound in sales to paper mills.

Imports of rags at this port this week included 983 bales from Antwerp, 223 bales from Manchester, 96 bales from Havre, 139 bales from London, 828 bales from Rouen, 152 bales from Marseilles, 1,010 bales from Alexandria, 316 bales from Barcelona and 536 bales from Genoa.

PAPER STOCK.—Waste paper prices continue to decline and business has been done in most grades during the past several days establishing values on new low levels. Demand from box board mills is very close to a standstill, and other consumers are buying solely in hand-to-mouth volume, with the result that with the strike of collectors and sorters in New York over, more old paper is being collected than there is an outlet for. Shavings are about the only class of stock showing steadiness, and dealers are firmly quoting No. 1 hard white shavings at around 9 cents a pound at shipping points and No. 1 soft whites at 8 cents. Folded news is selling at 1.20 to 1.30 cents f.o.b. New York, No. 1 mixed paper at one cent per pound, heavy No. 1 books and magazines at 2.25 cents, and old No. 1 kraft paper at 4.75 cents.

Importations of miscellaneous paper stock at New York this week included 580 bales from Antwerp, 160 bales from London, 130 bales from Dundee, 29 bales from Glasgow, and 25 bales from Liverpool.

OLD ROPE AND BAGGING.—Demand for old bagging is almost nil and prices are nominal in the absence of an established market. No. 1 scrap bagging is offered at 2.25 cents a pound and less, roofing bagging at a cent per pound and No. 1 gunny at 2.50 cents. Old rope is steady and in moderate call at 6 cents a pound at shipping points for No. 1 manila rope.

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THE IMPORTANCE OF A GOOD EXAMPLE.

Example must come from the top, from those who have assumed or who have been given leadership. It is as much a duty in business as in government, in private as in public life, in small as in big things. To take the most obvious instance: Whether we like prohibition or not, it is the law. Whether we resent the loss of our liquor or not, it has been legally taken from us. If we do not like the Volstead Act there is a perfectly proper and lawful way to abate the severity of its provisions. But so long as that law is on the statute books its open and flagrant violation tends not only to breed contempt for this particular law but for all law. And some of the petty offenders against it are the men who, no matter what their personal likes and inclinations, should be the last ones in the community to countenance any lawbreaking.

Unless the boss sets an example we cannot blame the workman for patronizing the bootlegger. If the employer wants sober men on the job, if he wants them to pass up rum in the evening, it is up to him to lay off the old stuff too. Getting his from the bellboy or the club steward does not put him in a different class from that of the lawbreaker who sneaks up a dark alley and hands a dark brother ten dollars for a quart of rotgut. So long as leaders in business, big or little, indulge in any form of law-breaking that happens to suit their palates or their purposes, they have no just cause for complaint when those who look to them for an example indulge in other forms of lawbreaking that hurt the morals and the business of the community. "The best people" are sometimes the worst citizens.

Again, when a man's employees, whether in a retail store or a great business, find that the boss is grabbing thirty, fifty or a hundred per cent profit on a prime necessity of life, what possible reason is there to expect them to refrain from following his example and demanding exorbitant wages? If a concern is putting out adulterated or short-weight goods, by what logic can it expect a full day's work from its men? Instances of bad examples in politics, business and the professions could be multiplied. And though it is by no means true that our laxness is as general as one would gather from a reading of the press that specializes in sensation it is still widespread enough to call for a sharp tightening up all along the line, from the top down.

Loose morality in our social life and our amusements is a natural sequence to a breakdown in leadership. It is a symptom that will disappear with a return to right thinking on the part of those whose duty it is to set an example. When the strong profiteer, the weak grab; when the strong decide that they will not be bound by one distasteful law, the weak decide that they will not obey any distasteful laws; when leaders decide that they are superior to the old conventions and rules, they have plenty of followers who will go their limit one better.—From The Saturday Evening Post.

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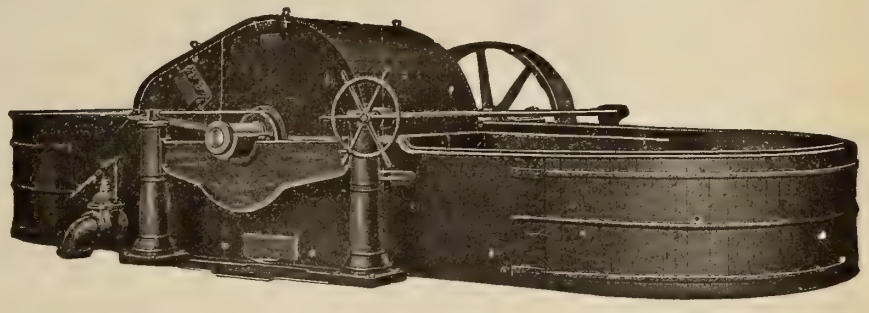
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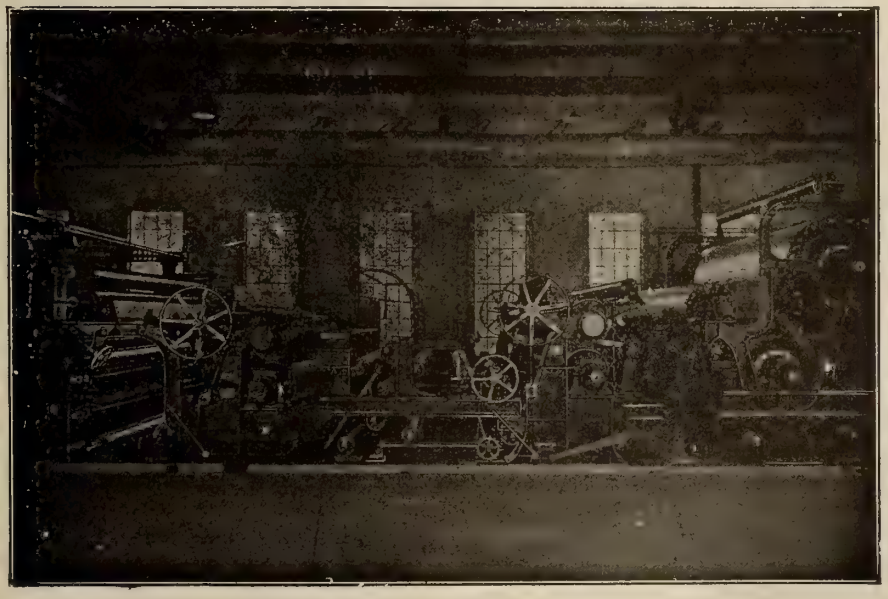
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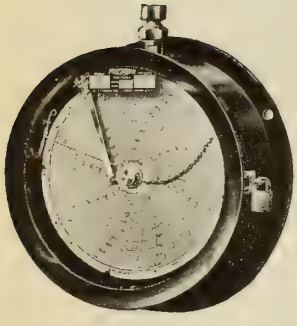
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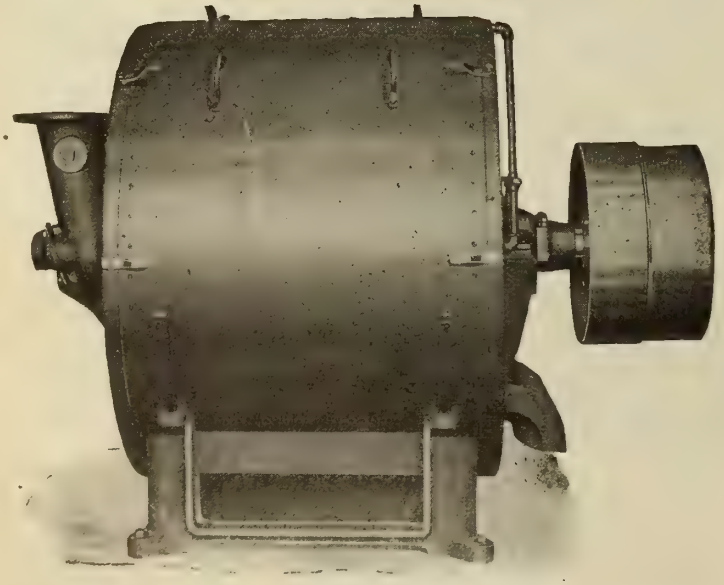
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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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That is why Fairbanks-Morse machine tools should always be specified. There is behind each lathe, grinder, shaper, planer, and so on down to the smallest tool, the dominating spirit of The Canadian Fairbanks-Morse institution, the never-relaxing effort to give 100% quality of produce and service.

FAIRBANKS-MORSE QUALITY F M 100%

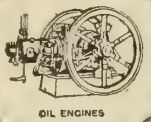
The Canadian Fairbanks-Morse Co. Limited

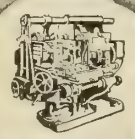
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PULP AND PAPER MACHINERY

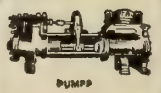

TRANSMISSION


RAILWAYS SUPPLIES


CONTRACTORS' EQUIPMENT


MACHINE SHOP SUPPLIES


AUTOMOTIVE EQUIPMENT


PUMPS


DYNAMOS AND SUPPLIES


SCALES

EDITORIAL

THE VALUE OF AN IDEA.

We have heard it expressed by workmen in pulp and paper mills, that their efforts to improve on apparatus and processes by thought and suggestion, is seldom, if ever, appreciated and recognized. In some cases we have heard the complaint that a man's ideas have been developed and used greatly to the advantage of his employers, but without any recompense to the man. Many inventors, of course, have suffered discouragement and loss through the want of application of their inventions, and a study of patent office records will show numerous notions which are obviously doomed to oblivion. Many of them are for the sole purpose of serving as dogs in the manger so as to prevent their use by someone else to whose product or process they might possibly be applied. Then, too, there are doubtless cases where ideas are practically stolen.

A very happy incident in the way of inventions, however, recently occurred at the plant of the Abitibi Company at Iroquois Falls, Ontario. In this case the workman saw the possibility of improving the trucks and presses used in the hydraulic pressing of the wet laps of pulp. The Abitibi Company in its desire and effort to make the work in its pulp and paper mill of the greatest interest to the employees in order that they may be happy in their work, has instituted a Suggestion Committee whose duty it is to receive and pass on the suggestions of mill men which would tend to improve on the conditions of the plant and the quantity and quality of product. This committee has been kept fairly busy with the examination of suggestions received from the men. Most of the suggestions are purely local, having to do with the operating conditions of the Abitibi plant. One which had a wider field was that of Mr. T. E. Dowse.

Mr. Dowse observed certain difficulties in the operation of the hydraulic presses. Doubtless many men in the industry have observed the same difficulty and probably swore at it rather than thinking about how it could be improved. This man's practical mind conceived a scheme which looked so feasible and practical to the Suggestion Committee that they, hoping to improve a machine which is widely used in the industry, not only advised the adoption of the suggestion by the mill, but explained the matter to the manufacturer of the press. This company also recognised the value of the idea and sent the thoughtful man a substantial cheque.

We believe that Mr. Dowse was more pleased by the fact that his idea was appreciated and put to a practical use, than by the receipt of the money although that feature, of course, is an important one. The fact remains that the man who thinks about his work and tries not only to do it as well as possible with the tools at hand, but endeavors to improve upon present conditions, has a sure reward in the pleasure that his work is certain to give him. There are many disappointed ones on such an occasion as the receipt of the cheque by Mr. Dowse, who will say. "Why did I not think of that?" Some such men occasionally feel that they are being ill treated and occasionally a man will make a suggestion to which he has given considerable thought but which does not meet the approval of an impartial committee, or which cannot at the time be made use of. Such men should not be disappointed in not being immediately recognised since thought expended is never wasted if it is of a constructive nature and the more thinking a man does the better he is. A man's brain needs exercise as much as his muscles and once a man begins to have ideas he will find that thoughts come more easily. The pulp and paper industry needs men who think and the man who will make suggestions, even at the risk of having them occasionally turned down, is the man who will make the best progress. It is true that men are usually not born to high position, they attain it by their own efforts. No man need expect promotion who does not have constructive ideas by which it is shown that he deserves it. His ability to conceive and work out practical ideas will be greatly increased by a knowledge of Mathematics and Elementary Science as well as of his particular industry. This knowledge is an indispensable factor in making improvements in equipment and processes. It is as much a tool, and as necessary, as a lathe or forge. Several Canadian pulp and paper companies are giving their employees an opportunity to get this knowledge. They are to be commended, and the men are to be congratulated at having such an opportunity. It is one the editor would have appreciated when he had to attend the Physics class in the local High School every other week after working the night shift from six p.m. to seven a.m. We sometimes wonder if there is sufficient realization and appreciation of the blessings of the eight hour shift.

The big question across the line, and elsewhere, is, "How soon will the United States join the world's greatest Forward Movement, the League of Nations?"

PAPER SECURITIES ARE SOUND.

Under date of October 24th, the Sunday Express of London, prints a dispatch from Montreal, dated October 22nd, in which it is stated under the heading of "Climax of the Paper Boom", "A heavy wave of liquidation is sweeping over the Montreal Stock Exchange. It is due to fears that the paper market must break sooner or later....The market for groundwood and sulphite pulp is already flattened out and the price is declining although the price of newsprint is still keeping fairly steady." The statement goes on further to mention the number of points that some paper stocks had dropped at that date. It is now four weeks since this dispatch was sent to London and while we would not impute an ulterior motive to the correspondent of the Sunday Express, we cannot feel that he was very enthusiastic regarding the future of Canada's pulp and paper industry, nor could be have been very familar with the fundamental strength and soundness of the foundation on which this industry is based.

The permanence and success of the industry is not based on ticker reports nor the fluctuations of stock prices which are sometimes in great demand and consequently increase simply because the public has a notion that a still higher price could be obtained and therefor rush to buy it. The result of a large immediate demand in every line is almost sure to raise the price; people will pay for a thing what they think it is worth and prices of stocks are not always true indications of the earning power of such securities as an investment. We venture to say that there is not an industrial security bought and sold on the Montreal Stock Exchange, or any similar place, which has a firmer foundation or a more certain prospect of continued prosperity than Canada's pulp and paper industry. We doubt if any of our paper mill stocks at present prices will not return a fair dividend to the investor; some of them have exceptionally good prospects. Unfortunately there are people who persist in gambling with stocks instead of buying them for investment purposes, and the result is sure to be disappointing to somebody and occasionally brings a perfectly legitimate enterprise into temporary disrepute.

Our English friends have no reason to fear for the future of investments in Canada's pulp and paper industry. Let them select wisely and their money is safe.

COBWEBS.

"Bologna riots"—Newspaper headline. You bet it does!

Little drops of water
Little flakes of snow.
When they reach the pulp mill,
Make the grinders go.

In a picture of the children's sports at Iroquois Falls, Ontario, we notice an Ernest Hydro among the participants. So there really is an earnest Hydro in Ontario.

Senator Harding, having been elected President of the United States, puts the Republicans once more in charge of the government after eight years of Democratic administration. The Americans can now be certain of the prosperity that was sure to come anyway.

After one of the most remarkable Octobers in history, we are beginning to get a bit of rain. As the song says "Every little bit helps" and every inch of rain that comes before the rivers freeze up, will be a distinct advantage to the producers of groundwood, and the manufacturer requiring this raw material.

Now is the time for everyone to buy, at least, as much as current production requires; as the only way to prevent a serious slump in business is for everyone to contribute as much as possible to keeping business active. If we do not buy other fellow's goods neither he nor his unemployed workers can buy ours.

" THE BEST FRIEND ".

"After all, a good job is a man's best friend. It keeps him busy and away from mischief. It feeds, clothes and shelters him and his family. It offers him an opportunitiy to save and thus provide for a rainy day.

"It is better to hold on to a good job, to acquire the habit of industry and thrift and to be able to look calmly to the future than to shift about to seek new jobs every so often, to squander all savings and always live a hand to mouth existence.

"Find a job which suits you, which suits your qualifications and your disposition; a job which you like and which likes you, and stick to it faithfully, studying, learning, advancing. A good job is your best friend.' —Nowy Swiat, Polish weekly of Chicago, Ill.

This advice is good for every worker (foreign-born or native-born) who is forming the habit of drifting aimlessly from job to job.

The drifter gets nowhere.

The way to prosperity, usefulness to the nation and finest citizenship is to become a valuable and permanent member of the community where you are profitably employed.

Don't drift. Stay aboard the good ship "Steady Job" and get somewhere!—Inter-Racial Council.

RESULT OF PAPER SHORTAGE.

Waiter: "Your bill amounts to 4s. 7½d.

Parson: "How do you make that out? It only comes to 4s, 6d.

Waiter: "You've had two mutton chops at 1s, 6d., each, two threepenny cigars, and one shillings worth of vegetables and——"

Parson: "That's all I have had."

Waiter: "And three halfpence for the paper to write the bill on."

Benefits and Uses of Graphic Charts

By GRELLET N. COLLINS, Dill & Collins Paper Co., Philadelphia.

The idea of using charts to plot curves representing numerical values is a very old one and has been used by technical men for a multitude of purposes. The application of the use of charts and graphic records is likewise a very old practice but there have been different forms of applications which have gone through an evolution that has finally developed some distinct characteristics in the methods used in industrial graphic records.

It is the bane of an executive's existence to have to sit down and intelligently analyse a mass of figures so as to be able to guide and control the mechanism of a large industry. This burden has been dissipated entirely by the use of charts. This great drudgery has been lifted from the executive's shoulders. One of the most important applications of records is in the presentation and analysis of costs.

When reports or statements have to be digested and analyzed, the figures which are an average or normal do not interest the executive as there is nothing unusual about them which needs his attention. If a departmental cost is excessively high or low the figures should be carefully analyzed and followed back to the smallest items. When the costs are high the causes should be determined and steps immediately taken to reduce them before the end of the next period or month. When the costs are abnormally low, the causes should likewise be determined and special effort should be directed toward increasing those influences which tend to lower costs.

If numbers alone are used for executive and control reports, it requires the most careful attention of the reader to take in the meaning of each figure and carry the comparisons in his mind. If these figures are expressed in graphic pictures by means of charts, the tendency of the figures is seen at a glance and the high and low spots are immediately noted. This allows the executive to omit the normal or average figures and he can immediately proceed to analyze the high and low spots to the minutest detail depending on the detail expressed by his records. In other words, the charts increase the executive's efficiency and saves him as well as avoiding the mental drudgery of reading myriads of figures.

Assistance to Operation.

The usefulness of charts is not limited to the executives alone, however, as they serve a purpose of even more material benefit in the case of the men in an organization who are confused by a mass of figures and who have not the education or mentality to analyze the meaning of the figures which are presented to them. A foreman of a department may be very skillful and be very capable of obtaining excellent results but if properly instructed in the analysis of his departmental figures, he can produce even more astonishing results by knowing where to direct his efforts to the best advantage. For example, if the waste in a department is increasing from week or month to month, a chart will immediately show this tendency while the mere figures would not be as apt to, particularly if the daily differences are slight.

The foremen have been of varying dispositions and their knowledge of their department has been governed accordingly. Some foremen are able to tell the works' manager, immediately when questioned, what the previous day's production figures were and the waste accompanying the production figures. Others have an idea it was up or down and some are entirely ignorant about items in their departments they should be entirely familiar with. Of course the extent to which a foreman is interested in his work depends to a large extent on the make-up of the individual. An intelligent man will think up means of keeping his own interest alive in his work. Charts may not pump many new ideas into the foreman's reservoir of interest but will enable him to discover with the minimum amount of mental effort the tendencies in his department, for example, whether the percentage of waste is increasing or decreasing.

We now come to the man who is the machine operator or the manual laborer. Why not arouse his interest to a greater extent and portray the figures he is the originator of so he will be able intelligently to comprehend their significance? Refer to "The Creative Workman" by Robert B. Wolf.* The more facts a man knows about his work the more his interest will be aroused and the natural sequence is greater production of better quality. Here again charts are used which are just as beneficial to the man doing manual labor as they are to the works' manager or plant superintendent. Instead of trying to educate all men to grasp the significance of a myriad of figures just teach them to absorb the graphic picture of figures and observe whether their results produce a line on paper which is pointing upward or downward.

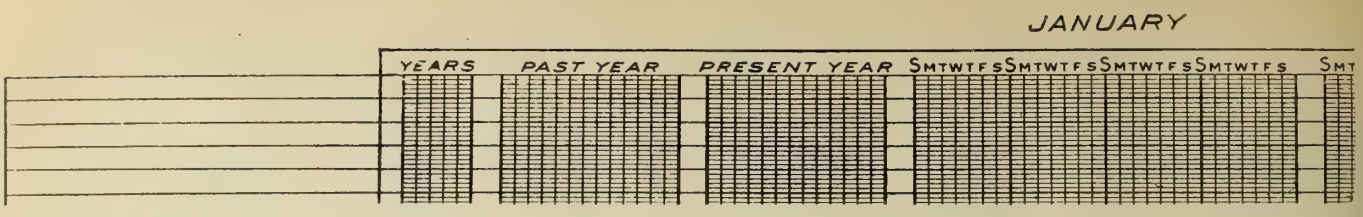
The one point which is an overwhelming argument for the use of charts is the fact that they require less mental effort to analyse than do a mass of figures.

The first Year-By-Day's charts familiar to the writer were drawn up on sections of paper of medium quality and mounted on linen cloth to make the necessary length. They were ruled up in four week periods.

The writer then had some special high grades of linen ledger paper made to order which was 100 per cent linen and very hard sized. These sheets are 56½" x 22" and were ruled and printed, with the dates across the top and bottom of the sheet for each day of the year. The advantages of these charts over the others are: erasures do not destroy the surface; they are one continuous sheet for a whole year; they are ruled on both sides; and most important of all they tie in with a cost account kept on a monthly basis which does not apply to the charts drawn up on four week periods.

A group of members within the Technical Association of the Pulp & Paper Industry, representing ten concerns, then got together and made a chart which is the latest development of Year-By-Day's charts. Special chart paper was made of the same quality as that used by the United States Government, Hydrographic Office. The dimensions of the sheet were kept the same as most of the users had cabinets which have been standardized. A stone was made for lithographing these charts which was an improvement over the ruling and printing. The

*Obtainable from the Secretary, Technical Association of the Pulp and Paper Industry, 542 Fifth Ave., New York; 25 cents per copy.



This chart shows year by 4—week periods and summaries for the past and present years by months.

lines and days, being made at one impression, were always completely in register. The new features are a distinct advantage over the previous charts as there are two new divisions added. Adjacent to the column for the title and scales are several columns for the summaries of previous years. Next to this division is a column for the summaries of the current year by months. The subsequent divisions embody the features of the other charts and include a year by days divided into 4 week periods.

Uses of the Charts.

It will be well at this point to mention the uses of Year-By-Days charts so that the reader can keep in mind his own application of these charts and formulate ideas applicable to his own work while digesting this article. The following list is by no means the limit of the possibilities of these charts but give an idea of the possible uses:—

1. Production records: 2. Routine chemical analyses; 3. Costs; 4. Cars moved, loaded or unloaded; 5. Labor turnover; 6. Attendance; 7. Efficiencies; 8. Waste figures; 9. Sales; 10. Weights; 11. Shipments; 12. Materials and stocks ahead of departments.

There are unlimited additional applications which will occur to the user to meet his individual requirements.

Methods of Plotting Curves.

The instructions as outlined are not the only ways of accomplishing results but have been put into practice and thoroughly tried. They have been adopted by most of the users of these charts.

The curves are drawn in pairs, one curve on top of the other, down the sheet as far as as the different scales and space will permit. Most charts have about 5 pairs of curves to a chart. The first pair are red, the second pair black, etc., alternating.

The Scale to Use.

The scale used is entirely optional but curves having certain characteristics are more practical than others. The first thing in deciding what scale to use is to determine the upper and lower limits. The daily or periodic variations should then be plotted for several points and a trial curve drawn. A scale showing too great a variation for a small change will have a jagged appearance which is very undesirable. The other extreme must also be avoided as a curve showing too small a variation for a small change will have more the appearance of straight line.

Considering the first pair of curves; one will be drawn in a solid line and the other super imposed will be of the same color but dotted. The solid line represents the daily reports as they jump from one point to the next while the dotted line represents the average-to-date lines which originate at the first of the month or period. The solid line shows the daily fluctuations up or down which does not convey much information if the fluctuations are large from day to day. The average to date curve shows at a glance whether the general tendency is up or down and is the indicator of true progress.

There are conditions occurring which cause a lack of records for a variety of reasons. When these conditions arise the methods of plotting indicate at a glance the reasons. When Sundays or holidays occur a very small circle of the same color as the curve is drawn around the point.

If there is a lack of records resulting in non-production caused by fire, flood, strike or some condition which does not occur normally, the daily or solid curve is dropped to zero and the zero is figured in the average to date curve. If the plant is producing but there is a lack of records owing to a clerk's absence on a certain day, the curve is continued to the next point and a circle of opposite color is put on the point representing the day of missing records.

These charts, after being drawn up and the curves plotted, should be shown to all the department foremen and those interested if they are to produce the desired effect. If they are merely plotted and kept in the cabinet they will do no more good than an expensive advertisement which is not properly put before the public.

If the results of an organization are put on charts so that they can be quickly comprehended, they cannot be surpassed by any other methods.

Those doubting the value of charts and graphic records need only visit a mill which uses them to be convinced of their results.

NOTE: The Editor was present at a committee meeting in New York when the matter of charts was the principal subject of discussion. The experiences described were so interesting that Mr. Collins was asked to prepare this description. It is understood the the companies who prepared these charts for their own use are willing to give others the benefit of their efforts and experience and will dispose of limited number of charts at $1 each for orders of 10 or more. The secretary of the committee is G. N. Collins, Richmond and Tioga Sts., Philadelphia, Pa.



Part of Chart for curves, according to months.

Economic Utilization of Heat and Power in Paper Mills

By Wm. ADAMSON.

Through our London Representative we publish this interesting paper by Mr. Wm. Adamson, who is a director of Charles Walmsley & Co. Ltd., Bury, England, which he read at a congress of the Technical Section of the British Paper Makers' Association held in Manchester, on October 8th. Mr. Adamson is recognised as an authority on the subject.

One of the most important, and, to many of us, one of the most interesting problems attached to the manufacture of paper is the economic utilization of heat and power in the mill. The time has come when it is very necessary that the source of heat and power, which in England is coal, should be economised to the greatest possible extent. Until recently coal has been so plentiful and so cheap, that the question of its economical use was not very pressing, but in view of the present shortage in supplies, the rising prices and our ever dwindling national reserves, the question becomes one of the greatest importance. If by the most modern plant, under scientific control, we can save even a small amount of coal per ton of paper produced, it is obvious that a considerable economy will be shown at the end of the year, and, of course, a reduced consumption of coal means diminished charges for handling both coal and ashes. The fuel cost per ton of paper produced is one over which the paper-maker has more control than he has over the other main costs of paper production, such as raw material and labor.

A very short time ago a census was taken of the coal consumptions of the different mills, and at that time the following results were considered as good practice:—

Table 1.

Paper.	Coal Consumption
News.—25% Chem., 75% Mch. Wood . .	18--20 cwts.
Cheap Printings.—50% Chem., 50% Mech. Wood, unbleached	26--28 cwts.
Printings.—All bleached. (Free from Mechanical Wood) . . .	37 cwts.
Esparto Papers.—Pure	3.5--4 tons.
Esparto Papers.—50% Esparto, 50%. Chemical Wood	2.5--3 tons.
Writings—100% Rag.	2.5--5 tons.
Writings.—50% Rag, 50% Chemical Wood	2.5 tons.

There are few mills, however, that reach this standard, but there is no doubt that with modern plant, lightly installed these results could be not only reached, but surpassed. A more correct way of comparing consumptions would have been on a B. T. U. basis, or from the commercial point of view, on an "£.s.d." basis, as the heat value of coals and the cost of same vary considerably. Fuel is wasted in most mills by inefficient boiler plant; by uneconomical steam plant; by unnecessary absorption of power in driving the plant; and by dissipation of heat in various parts of the mill.

Use of Heat in the Mill.

Heat is utilized in the mill for various operations:— (1) As an aid to the chemical disintegration of the fibrous raw material for the extraction of cellulose; (2) For the recovery of the active agents used in this chemical disintegration, e.g., the recovery of soda from the waste liquors in the digestion of grass, etc.; (3 For drying the web of paper after formation on the machine; (4) To warm the air used for absorbing the moisture evaporated from the paper during the drying; (5) As the source of the mechanical and electrical power by which the paper-making plant is driven (except where water power is used); (6) For various other operations, e.g., to accelerate hypochlorite bleaching; to "free" the paper stock, so that it may more readily part with its water on the machine wire, to warm the mill buildings, etc., etc.

The most suitable agent for distributing this heat is steam, principally owing to its large heat carrying capacity at convenient temperatures, tnd to its property (change of state) of being able to part with greater portion of this heat (latent heat) at constant temperature. These two properties of steam are of the greatest importance, when used for cases 1, 2, 3 and 4. The heat carrying capacity of steam, or "the total heat" varies very little with the pressure, the values at the higher pressures being only slightly greater than at the lower pressures. The "latent" heat also varies very little with the pressure, but is slightly greater at the lower than at the higher pressures.

STEAM FOR DIGESTIVE PURPOSES. — When steam is used to aid the digestion of rags, grasses, wood and other fibrous materials, temperature, pressure and latent heat are very important factors for successful operation. In practice the most suitable temperatures and pressures have been fairly well determined for the different raw materials and usually lie within definite limits for each material, boiling agent and desired product. To obtain these temperatures, steam is used either "directly" or "indirectly" in the digester. The advantages and disadvantages of both methods are fairly well known, but in either case the steam must supply the necessary heat to bring up the contents of the digester to the required temperature and pressure. Live steam is generally used for digestive purposes, but for low temperature boiling (e.g., rag boiling), exhaust steam could be more economically used. Even in the case of the higher temperature digestion, low pressure exhaust steam could conveniently, and with great economy, be used as a preliminary, and the final temperature attained by the use of either higher pressure exhaust, or live steam. Thus, for example, if the final digestion temperature be 300 deg. Fah., and the initial temperature of the digester contents be 60 deg. Fah., then exhaust steam at 10 lbs. gauge pressure would be able to supply almost 75 p.c. of the total heat required for the digestion.

STEAM FOR HEATING THE DRYING CYLINDERS.—To dry paper satisfactorily, the steam supplied to the dryers should lie within certain limits of temperature. If the steam is at too high a temperature, there is always the great risk of "cockling" and burning the paper; whereas, on the other hand, the temperature must not be too low, or the rate of drying will be considerably retarded. The usual range of tem-

peratures corresponds to absolute pressures of from 15 to 25 lbs. per square inch, but for some classes of paper, pressures up to 45 lbs. are used. Another factor affecting the rate of drying is the presence in the exhaust steam of oil. This is ultimately deposited as a film on the inner surface of the cylinder wall, and will greatly retard the rate of heat flow from the steam to the paper. To compensate for this, higher temperature steam is required than is necessary when exhaust steam free from oil is used.

HEAT AVAILABLE FOR DRYING IN EXHAUST STEAM.—When steam has done useful work either in a steam engine or steam turbine, and been exhausted at a lower pressure, the heat converted into work is only a very small percentage of the total heat in the steam, so that in this exhaust steam there is a large amount of heat than can be used for drying purposes. Suppose for example, we take 1 lb. dry steam at an absolute pressure of 200 lbs. per square inch. (185 lbs. per square inch gauge pressure). If this is expended adiabatically (i.e., at constant temperature)—say in an ideal engine—and exhausted from the engine or turbine at an absolute pressure of 25 lbs. per square inch (10 lbs. gauge), the heat units converted into work would be 155 B.T.U. If this steam be then passed into the drying cylinders of the paper machine, and discharged therefrom as water—say at a temperature of 240 deg. F.—the heat units available for drying will be 834 B.T.U. If, however, instead of using exhaust steam, live steam be used reduced to the lower pressure by means of a reducing valve, then passed into the drying cylinders of the machine, and exhausted therefrom as water at the same temperature, the heat units available for drying would be 989 B.T.U. A comparison of these figures will show that steam which has done useful work in the engine has almost as much heat available for drying as there is in the live steam. It is interesting to go further with this, by making a comparison of the value of steam used in the following ways:—

(1). 1 lb. of dry steam, expanded in an ideal engine from an absolute pressure of 200 lbs. per square inch to 25 lbs. per square inch absolute.

Heat Units available for work .. .. 155 B. T. U.

This steam is then passed into the drying cylinders and discharged therefrom as water at a temperature of 240 deg. F.

Heat Units available for drying .. .. 834 B. T. U.

(2). 1 lb. of dry steam expanded in an ideal engine from an absolute pressure of 200 lbs. per square inch to a condenser pressure of 28" vacuum.

Heat Units available for work .. .. 336 B. T. U.

(3). 1 lb. of dry steam is reduced by means of a reducing valve from an absolute pressure of 200 lbs. per square inch to 25 lbs. per square inch. (absolute pressure) and is then used for heating the drying cylinders.

Heat Units available for drying .. .. 989 B. T. U.

From these results it will be readily seen that 1 lb. of steam used under the condition (1) is equivalent to 1.30 lbs. of steam used under conditions (2) and (3). Similar results will be obtained with steam at other initial pressures, and also in the case of superheated steam, only in the latter case, more heat is available per lb. of steam both for work and for heating. These results demonstrate the great economy of using exhaust steam for drying in preference to fresh live steam.

SUPERHEATED STEAM AND PAPER DRYING.—Superheated steam has been suggested for drying paper, but there are many objections to its use. For instance, its heat carrying capacity is very little greater than that of saturated steam, unless the temperature be unreasonbaly high, e.g., saturated steam at 10 lbs. gauge pressure contains a total heat of 1155 B.T.U. at a temperature of 240 deg. F., and superheated steam at the same pressure and a temperature of 300 deg. F. (beyond which it is inadvisable to go) contains a total heat of 1184 B.T.U. —only 29 more than the saturated steam. Again, if superheated steam were passed into the drying cylinders, it would probably cause the overheating of the end of the dryer, and thereby damage the paper; and as soon as it came into contact with the water, its superheat would immediately be lost. Also, if the dryer **could** be filled with superheated steam, it would be unable to give up any of its heat without a lowering of temperature, and this lowering would take place until the steam became saturated. As previously stated, for successful drying, the temperature of the steam within the drying cylinders should remain constant. Another point against the use of superheated steam, especially in the case of the exhaust steam from reciprocating engines, is that with the usual type of oil separator, it is impossible to remove the bulk of the oil contained in the steam. In the case of steam by-passed from a "bleeder" turbine, however, there is no trouble experienced on this account, as it does not contain any oil, and if it be superheated at all, the degree of superheat should be only enough to ensure dry steam at the furthest point in the heating mains. If live steam, which is already superheated, be reduced in pressure by a reducing valve, it will at a lower pressure be further superheated, and before this is used as a "make-up" for heating the drying cylinders, means should be adopted to reduce its temperature.

STEAM USED FOR GENERATION OF POWER.—The very property of steam, i.e., its large latent heat capacity—which is so useful when steam is used as a drying agent—has nothing like the same value when it is used for power purposes. The value of steam for power purposes depends mainly on the range of pressure and temperature that can be worked, and very little on the total heat of the steam. Thus, if steam be used in the most economical engine, or turbine, there is always a large percentage of heat in the steam passed over to the condenser. Greater economy in steam consumption can be obtained by adopting higher initial steam pressure with further adoption of higher superheat, combined, of course, at the other end of the scale with the most perfect condensing arrangements. It is very common now to install plant with gauge pressures of 200 to 250 lbs. per square inch, superheated to a total temperature of 600 deg. F., and to work this expansively in the case of turbines to a vacuum of 28½" to 29" with the barometer standing at 30." It is interesting to examine the available energy in heat units that can be obtained in an ideal engine with steam at different initial and condenser pressures. From the total heat entropy curves for steam at different pressures and superheat, the heat drop by expanding steam in an engine working on the "Rankine" Cycle with adiabatic expansion, can be readily determined. In practice, however, no steam engine or turbine is capable of converting the same amount of heat into work as is shown for the ideal engine.

SUPERHEATED STEAM FOR POWER PURPOSES.—Superheated steam, although of little value for heating and drying, is, however, of considerable value in the generation of power. If the steam supplied to an

engine be superheated to only a small extent, so as to ensure its being dry at the engine, then for every 10 deg. F., of added temperature, there will be a reduction in steam consumption of not less than 1 p.c. Thus, with 100 deg. F. of superheat at the engine, a reduction in steam consumption of about 10 p.c. can be obtained, as compared with dry steam. Superheated steam used in the steam turbine also shows a marked decrease in steam consumption over dry steam. For example, 100 deg. F., of superheat reduces the steam consumption by 8.5 p.c., as compared with dry steam. For reciprocating engines, superheated steam as high in temperature as 500 to 550 deg. F., can be safely used and will show considerable economy and smoother working of the engine; for turbines, temperatures as high as 600 deg. F. are now in common use. The steam supplied to the engines driving the paper machines should only be superheated to a temperature which will ensure dry steam in the exhaust pipe. In order to avoid excessive wear of the cylinder, piston rings, valve rings and packings, when using superheated steam in the engines, it is very necessary to increase the supply of oil for internal lubrication.

CHOICE OF POWER UNIT.—The paper mill can be driven in many different ways, and by the use of power units of various types. In the case of existing mills, the "layout" of the plant generally determines the method of driving and the most suitable type of unit, but in the case of new mills the plant can be arranged in the most convenient way to suit the class of paper being manufactured, and the method of driving arranged accordingly. In determining the most suitable type of power unit, the first essential is to make a correct estimation of the power and heat requirements of the mill. If the heating load exceeds the power load then the thermal efficiency of the engines is of little importance, but if on the other hand the power load predominates, the thermal efficiency of the power units is of the greatest importance. The economy of engines, or turbines, in regard to steam consumption per unit of power will always be a most important factor in determining the relative value of different types of engines and turbines, and their application in mill driving. Apart from the steam consumption, loss through stoppages; cost of maintenance, attendance repairs and depreciation; and the initial cost, have all to be considered in estimating the real commercial economy. Reliability and efficiency are the most important factors, and should not be sacrificed in order to save a little in initial cost of the plant. In fact, reliability should come first of all in any power scheme for paper mill driving, ranking of more importance than steam economy. The loss of production by unreliable plant would soon counterbalance any saving in steam economy or initial cost.

STEAM ENGINE AS POWER UNIT.—The steam engine in one of its many different types has been universally employed as the power unit in steam-driven paper mills. The choice of type as main power unit has varied greatly, depending in some measure on the space at disposal in which the engine was to be fixed, and also on the speed of rotation. Where floor space was limited and the height permitted, the vertical type was the only alternative; but when the space was not limited, the horizontal slow speed type was generally preferred, being the more convenient of access; and as it occupied a larger floor area, the engine was more likely to be free from vibration. The economic use of the steam in the engine depends mainly on the ratio of expansion, the leakage past the pistons, valves and packings, and on the quality of the steam supplied. With regard to the ratio of expansion, it is possible to carry this too far in condensing engines, necessitating the use of very large cylinders; and beyond a certain point—while showing an improved result per I.H.P.—this does not show an improved result per B.H.P. The mechanical efficiency of engines varies according to the type. Slow speed horizontal engines will show an efficiency of only 80 to 85 p.c., whereas the quick revolution engines with forced lubrication will show an efficiency up to 92 or 93 p.c. The highest efficiency of any engine is at the full rated load, as the power required to drive the engine remains practically constant at different loads.

STEAM TURBINE AS POWER UNIT.—Within the last few years the steam turbine has become a very serious competitor of the reciprocating steam engine as the main power generating unit for paper mill driving. Two types of turbine readily lend themselves to paper mill service, viz:—(1) The "Extraction" type and (2) the "Mixed Pressure" type. The former, sometimes known as the "pass-out" or "bleeder" type, is arranged so that the steam, after passing through one or more stages of the turbine, can be by-passed at suitable pressures into the heating mains for heating purposes in the mill, and so that the excess steam can be passed through the lower stages of the turbine to the condenser, in those cases where the power load is greater than the heating load. This type of turbine can thus work as a high pressure machine, if no steam is wanted for heating; or as a back-pressure machine, if all the steam necessary for power production is wanted for heating. The amount of heating steam can consequently fluctuate between these limits. When working as a back-pressure turbine, there is always a small quantity of steam passed through to the condenser so as to keep a slight steam flow and eliminate troubles that arise when working in a vacuum. The steam bypassed into the heating mains can be readily controlled by a suitable valve operated by the governor gear of the turbine. When the heating or power requirements of the mill fluctuate, they are readily and almost instantaneously accommodated by the sensitive governing gear on the turbine. Thus, with constant load, if more steam is required for heating, it is automatically supplied by the governing gear admitting more live steam to the first stage of the turbine, and allowing less steam to pass through to the condenser. On the other hand, if the demand for heating steam is reduced some of the live steam is automatically cut off, and more steam passes through the lower stages to the condenser. Again, if the demand for heating steam remains constant, but the power load varies, the governor gear automatically controls the steam supply to the turbine and through the lower stages to the condenser. The steam can be by-passed at a fixed pressure, and this pressure maintained constant irrespective of the steam demand for heating, or the fluctuating power demand. When this pressure has been fixed, the design of the turbine does not very readily permit of its being altered without a sacrifice in steam economy, but if the pressure of the heating steam be fixed at the maximum that will be required in the mill, it can readily be adjusted by means of a throttle valve for the lower pressure requirements. This is the ideal condition for the supply of heating steam to the mill, and moreover, this steam being free from oil, can be

admirably used for the digesters, drying cylinders, hot air plant, or for any other heating requirements of the mill. Such an arrangement of "by-passed" steam permits of great economy, as the steam for heating purposes has already given up a portion of its energy in the turbine previous to its entering the heating main. This steam for the same pressure drop does not give out as much energy as is the case of steam used under the same conditions in a reciprocating steam engine, and this is one of the objections urged against the use of the turbine. However, having given up less heat in the form of energy than the steam from a reciprocating engine, it contains more heat available for drying. A well designed reciprocating compound engine working down to about atmospheric pressure is a more efficient machine than a turbine working under the same initial and terminal pressures; but between the atmospheric and condenser pressures the turbine is far more economical, as it is able to expand the steam down to an absolute pressure of less than 1 lb. per square inch, while the reciprocating engine working condensing does not expand to much below an absolute pressure of 8 lbs. per square inch. In order to expand to lower pressures, the low pressure cylinder would have to be inordinately large, and therefore, costly while the increased loss from cylinder condensation and radiation would more than counterbalance the gain due to a greater expansion. For example, in most condensing engines the saving over non-condensing conditions does not exceed 25 p.c. to 30 p.c. under the most favorable conditions of load, and on over-loads the saving by condensing is much smaller. From this it appears that a combination of an engine and a turbine will give higher economy than either an engine or a turbine working through the whole range of pressure. This leads us to the mixed pressure type of turbine, that can be readily used for paper mill driving.

MIXED PRESSURE TURBINE.—The mixed pressure turbine can be employed in conjunction with reciprocating, non-condensing engines. The engines could be used for driving the machine, the beater shafting, etc., and being compounded, would absorb the greatest possible amount of power from the steam before it is exhausted into the heating mains. The excess exhaust steam that would result from the use of these engines could then be used in the mixed pressure turbine for the generation of the electrical energy for the electrical load of the mill. In those mills where the power load exceeds the heating load, this is often the most economical method of driving as regards steam consumption, since the steam available for driving has been used through reciprocating compound engines, and the excess passed over to be taken full advantage of in the mixed pressure turbine. Any additional steam required for the electrical load is automatically provided by the governor and valve gear of the mixed pressure turbine. In many mills where the main power unit is a compound condensing engine, a mixed pressure turbine could be applied with considerable success. By working the engine non-condensing and passing the steam into the turbine, the power output by the combination might be increased 30 to 50 p.c. without any increase in the fuel consumption. This is especially so in those cases where the engine is working under over-load conditions. This combination is one of the most attractive methods of increasing the steam efficiency of an existing mill, as the exhaust steam from the engine could be used as a "make-up" supply for the heating mains and the excess passed into the turbine.

EFFICIENCY OF THE TURBINE.—The efficiency ratio of a turbine is closely connected with the size. Within the last few years great improvements have been made in the design of the turbine, and turbines are now built with efficiencies as high as 75 p.c. for very large outputs, but for lower powers the efficiency is not so good. Turbines of 1,000 K.W. and over show efficiencies up to an even higher than 66 p.c. Low pressure or mixed pressure turbines, working between 16 lbs. per square inch absolute with dry steam and 27" to 28" vacuum show a higher efficiency ratio—for machines of moderate output the figure runs from 68 to 70 p.c. at full load condition. (The efficiency ratio of a turbine is the ratio of the heat actually transformed into mechanical work to the heat available for mechanical work by the adiabatic expansion of the steam from the higher to the lower pressures.) The mechanical efficiency of the turbine is generally as high as 95 p.c. and sometimes higher. Generally speaking, below an output of about 500 K.W., a reciprocating condensing engine driven generator is more economical in steam consumption and less costly than a turbine driven generator, but above this output the turbo unit has the advantage.

UNIFLOW ENGINE.—The "Uniflow" engine has been applied to paper mill driving with considerable success, particularly for driving the beater shafting, either directly connected or through ropes. The development in the application of the uniflow engine principle for paper mill driving has been the introduction of a compound extraction type engine, having a high pressure cylinder for expanding the steam down to the low pressure required in the heating mains, and a low pressure cylinder on the "Uniflow" purposes, and expanding this to the fullest extent of the condenser pressure. The steam required for heating purposes is thus taken from the receiver between the two cylinders, and the balance of steam is passed on to the low pressure or "Uniflow" cylinder. If the demand for heating steam increases, a momentary reduction of pressure is caused in the receiver, and immediately the "Uniflow" cylinder valve gear comes into action, cutting off the steam supply to this cylinder and simultaneously the speed governor increases the "cut-off" in the high pressure cylinder and more steam is admitted. A reverse operation occurs when the heating steam demand is reduced, and a similar automatic adjustment of the steam supply takes place when the power load increases or decreases. This extraction type compound "uniflow" engine, therefore, in common with the ordinary compound engine, is able to abstract from the heating steam the greatest amount of heat as work for a certain drop in pressure, and it is also able to supply the exhaust steam necessary for heating purposes. In addition, the excess steam can be expanded to a far greater degree in the "Uniflow" cylinder than is possible in the low pressure cylinder of an ordinary compound condensing engine.

STEAM ENGINE DRIVES FOR PAPER MACHINES.—Paper machines are now almost universally driven in two main sections : (a) the constant speed portion, which includes the machine stuff chests, stuff, back water, vacuum and sheet pumps, with shake apparatus and strainers; and (b) the variable speed portion, which comprises the body of the machine from the breast roll to the reel. As machines vary considerably in size and speed, depending on the class of paper

being made, many points have to be taken into consideration before fixing the most suitable type of driving engine or motor. The most common practice has been to arrange for the constant speed portion of the machine to be driven by a constant speed engine, generally of the totally-enclosed, inverted vertical, simple expansion type; and the variable speed portion to be driven by a similar type of engine, arranged with a speed variation device, so that the paper machine may be run at varying speeds to suit the substance being made. Both these engines are of the back-pressure type, exhausting into a main manifold pipe, which feeds the drying cylinders with the heating steam. The usual range of back pressure for these engines ranges from 2 or 3 pounds up to 20 lbs., and sometimes even as high as 30 lbs. per square inch gauge. Up to a few years ago, the boiler steam pressures in paper mills did not exceed 100 to 120 lbs. per square inch, and with a back pressure of say 10 lbs. per square inch in the exhaust pipe, the simple expansion engine was, and is, the most serviceable type. Of recent years, however, paper mill steam plants have been renewed and the tendency has been to install steam boilers to work at higher pressures; and many mills today are putting in plant for pressures as high as 20 lbs. per square inch. With these higher steam pressures, compound engines on the machines are worthy of consideration, being more economical in steam consumption. Generally speaking, however, these compound engines do not pass enough steam for drying purposes, and the exhaust has to be supplemented. If it can be supplemented by exhaust steam drawn from some other source — say from the main mill engine or turbine, then it is decided economy to install compound engines, provided, of course, that the initial steam pressure permits of compounding. If, however, live steam would have to be used as a "make-up", it is advisable to retain the simple expansion engines. Another factor must be taken into consideration with regard to the use of steam engines, viz : — the variable amount of exhaust steam. The power required to drive the constant speed portion of the machine varies very little, being practically independent of the speed of the machine; but the power for driving the variable speed portion varies almost directly as the speed of the machine. For instance, when the machine is making heavy substances, its speed is low, and generally speaking, the power required to drive it is also low, consequently, the amount of exhaust steam passed is relatively low; while when light weight substances are being made, the speed of the machine is considerably increased, and the power taken to drive the machine is proportionately increased, with a consequent increase in the amount of exhaust steam passed. Now, the steam required for drying remains practically constant and independent of the speed of the machine, as the output of paper from the machine varies very little between the lowest and highest speeds. Therefore, with simple expansion steam engine drives, we either get on the one hand, too little steam for drying purposes, or too much — there being only one position of equilibrium, where the steam passed by the engines is equal to the amount required for drying. This position is rarely attained, and generally a "make-up" supply of live steam is blown away to atmosphere when running at the higher speeds. From an economical point of view, both practices are bad, and the ideal scheme would be to be able to draw on a constant amount of exhaust steam for drying purposes in the former case, and to find a use for the excess exhaust steam in the latter case.

INTERNAL LUBRICATION OF STEAM ENGINES. —The oil used for the internal lubrication of the engines is carried over into the heating mains by the exhaust steam, and should be removed by some efficient type of oil separator, before it is allowed to pass into the drying cylinders. It is possible, but not generally advisable, to dispense with internal oil lubrication. For instance, graphite can be used where the wearing surfaces are soft and porous, as it fills up the pores and acts as an efficient lubricating medium, but it is less successful where these surfaces are of hard, close grained cast iron. Bronze piston and valve rings may be employed, especially when using saturated steam, but this means increased steam consumption, due mainly to leakage of steam past the valve and piston, owing to the absence of the seal ordinarily produced by the oil film. Even then it is necessary to fit oil flush taps for service in starting up after the week-end stoppage.

(To be continued.—Distribution of Power, etc.)

INDEX BRISTOLS.

The following trade customs have been effective since July 1, 1920, and have also had the approval of the majority of the Card Index System manufacturers in the United States:

1. Sealed in packages of 100 sheets for all sizes not larger than 25½x30½ inches.
2. Priced per pound.
3. The Trade Customs Stock Sizes are:

20½x24¾ 22½x28½ 25½x30½

Any order other than in a stock size must be for not less than one ton in an equivalent weight and regular color.

4. Weights: Index Bristols are made in the following weight bases:

25½x30½—110, 140, 170, 220 lb. /500 sheet count.
20½x24¾— 72, 91, 111, 143 lb. /500 sheet count.
22½x28½— 91, 115, 140, 181 lb. /500 sheet count.

5. The variation of 5% in weight constitutes a good delivery. Standard stock sizes are billed at nominal weight.

6. Special weights lighter than 25½x30½—110 lb. /500, base weight, and all intermediate special weights carry the same ream price as the next heavier base weight, and are not made in lots of less than three tons.

For lots of 25,000 lb. or more of one basis of weight, this rule does not apply.

These Trade Customs have been adopted by

The Pulp and Paper Board Specialties Association.
The National Paper Trade Association.
The Writing Paper Manufacturers Association.

Certain of the mills, however, do not stock all the authorized stock sizes and weights.

BANK ARGUES INDUSTRIAL IMMIGRATION.

The reasons why American Manufacturers are establishing plants in Canada at the rate of one a week, are summarized in a booklet just issued by the Union Bank of Canada entitled: "A Canadian Plant—Why?". In the face of the growing strength of the "Made-in-Canada" movement and the extension of the British Preferential Tariff, Canada, the booklet claims, is the logical location for a plant with which to handle British and Canadian trade. The argument is good but we question some of the figures in the table of comparative rates for electric power.

THE PAPER TRADE IN BELGIUM.

(By Special Correspondence)

Belgium, Oct. 11, 1920 — The paper market is still very quiet. Orders are scarce and are only placed to cover immediate needs. Most of the mills are running at reduced output by shutting down machines or by working only five and less days a week.

Prospects seem to be somewhat better for the export trade, especially for the better classes of printings and specialties.

A German consortium, whose headquarters are established at Cologne, is overflowing the country with offers of all grades of paper, at prices which, compared with the current prices, are exceedingly low. Ledger is being offered at 16 marks ,printing at 4-5 mk,. ordinary wrapping at 3-4 mk., which at the present rate of exchange of the mark, represent respectively 3.70 fr., 0.92-1.15 fr., 0.70-100 fr. per kg.

Pulp and Paper Imports and Exports of Belgium for the first eight months of 1920, as compared with the corresponding months of the previous year.

Origin Imports / Destination Exports	Wood Pulp Free 1919	Wood Pulp Free 1920	Wall Paper Duty 1919	Wall Paper Duty 1920	Newsprint Duty 1919	Newsprint Duty 1920	Board Duty 1919	Board Duty 1920	Non Denominated Paper duty 1919	Non Denominated Paper duty 1920
			Imports (in Metric tons - 2204 lb.)							
Canada		896						329		20
Finland										
France		16	362	460	185	1	25	110	532	1850
Germany	311	425	31	240	19	31		539	208	3873
Gt.Brit:			590	582	983		518	628	1497	2315
Hamburg		653						47		62
Holland	4011	944	12	88	3882	5061	2051	1186	2078	2021
Luxemb'g:									6	79
Norway	9807	36696					69	171	453	528
Sweden	8453	26882					267	276	560	1257
Switzld:			21			137			58	72
U.S of Am:	150	307					36	110	50	331
Othr: Ctrs:	4	157	61	2	387	240		8	5	58
Total	22736	76977	1377	1374	5456	5460	2965	3412	5447	11910
Year Total	54978		1889		8136		4515		10827	
			Exports							
Argentine				66					7	68
Australia										91
Belg:Congo									17	45
Brazil										98
Brit:India										201
Canada										64
Chile				26						65
Cuba										21
Denmark									16	33
Dutch Ind:										134
Egypt										143
France		9973	21	989		170	13	71	98	5866
Germany		200								125
Gt: Brit:				15		54		230	491	3015
Greece										184
Holland		467	14	123				87	37	1215
Ireland										128
Japan				5						92
Luxbg:				36	38	15	51		47	120
Norway									4	115
S.Africa										37
Spain		51	23						14	37
Straits										15
Sweden										56
Switzld:			15	84					27	206
Tunis										21
Turkey				19				4		60
U.S of Am:				8						132
Uruguay										54
Othr: Ctrs:			1	165		47		14	2	156
Total		10691	110	1563	15	322	13	546	956	12614
Year Total.	1445		929		100		52		5475	

Recapitulation.

Wood Pulp Quany: Kg.	Wood Pulp Val: Fcs.	Wall Paper Quany: Kg.	Wall Paper Val: Fcs.	Newsprint Quany: Kg.	Newsprint Val: Fcs.	Board Quany: Kg.	Board Val: Fcs.	Non Denom: Pap: Quany: Kg.	Non Denom: Pap: Val: Fcs.	Gen.Total not includ: Pulp Quany: Kg.	Gen.Total not includ: Pulp Val: Fcs.
Imports											
Total of 1919.											
54978	87264	1889	5307	8136	8026	4515	4641	10827	18901	24667	36875
First 8 Months 1919.											
22736	13732	1377	3737	5456	5460	2965	2858	5447	9542	15254	21597
First 8 Months 1920.											
76975	97449	1374	5576	3470	6388	3412	5248	11910	29973	20136	47188
Exports.											
Total of 1919											
1445	7414	829	1967	100	151	52	62	3476	10292	4156	12472
First 8 Months 1919											
		86	242	15	19	13	7	763	3086	872	3354
First 8 months 1920											
10691	12956	1563	6170	322	983	346	794	12614	44213	14845	52061

As nearly all the paper houses are disposing of a more or less expensive stock of paper, the situation created by this unexpected invasion is causing much alarm. However, mills do not show any inclination to reduce the present prices. Varying from 2.80 fr.-3.20 fr. for ordinay papes, to 5, 6 and 8 fr. per kg, for the better and the best classes, these prices are now ten times higher than before the war.

It cannot be denied, however, that considering the dependency of the Belgian paper mills of the foreign markets for all their raw materials excepted for coal, their present position, owing to the more and more defavorable rate of exchange and the high freight, is not a favorable one, and that as long as they will have to pay for their coal 125 fr. a ton, bleached and unbleached sulphite 460 and 270 fr. per 100 kg., mechanical pulp 185 fr., rosin 225 fr., it will be very difficult to meet the present foreign competition.

BUILT SULPHITE MILL IN SEVEN MONTHS.

The new sulphite mill of the Consolidated Water Power and Paper Co., at Wisconsin Rapids, Wis., has been erected in seven months and is a record which will probably stand in the paper industry as a record for speed in building operations for many years to come. The building is absolutely fireproof being of brick, tile, concrete and steel construction throughout. It is connected by tunnel with the new wood room and with the mill proper by another tunnel. The new wood room is one hundred and eighty feet in length and seventy feet wide and is equipped with the most modern devices for barking and conveying the wood to the chippers, handling all the hemlock wood for the chippers to be used in the sulphite mill in one eight hour tour and the other eight hour tour will be used for the barking and sawing of spruce for the grinders. The capacity of the wood room is 130 cords of wood each eight hours. It will be in operation only two tours daily.

Special attention has been paid to the housing of all shafting, belts, etc., in such a way as to prevent injury.

No Accidents.

One significant fact is that in the speeding up of construction of the work on the new sulphite and other parts of the mill, not one serious accident has occurred, much credit being due to the work of C. K. Boyer, safety man for the company who has worked unceasingly against accidents and removed causes for accidents on the job.

There were no labor troubles or disturbances, all men co-operating with the superintendents and the foremen in getting the work done quickly and efficiently.

A. E. Millington, who has had complete charge of the construction and installation of the equipment for the mill was given special mention by the officials for his untiring efforts and splendid work. Mr. Millington was, for several years, manager of the Whalen Mill at Swanson Bay, B.C.

Kraske Superintendent.

William Kraske, well known young local man is the superintendent of the new sulphite mill. Mr. Kraske is experienced in the sulphite work having been employed prior to the war at the Nekoosa-Edwards paper company. He entered the service and went overseas and upon his return entered the employ of the Jenssen company in New York, makers of the Jenssen acid towers used in the mill.

The Training of a Forester

By Dr. C. D. Howe.

Acting Dean, Faculty of Forestry,
University of Toronto

The Pulp and Paper Magazine has constantly preached the need for better educated men in the mill. Perhaps we have over emphasized that need in comparison with the need for more intelligence in the forest. Canada's industry and welfare call for both. We are glad Dr. Howe wrote the following article for the Canadian Forestry Journal. It is important to every pulp and paper mill to begin intelligently in the forest.

The education of a forestry student centres upon and revolves about a living tree, since the chief object of the forestry profession is the production of trees for utilization by the various wood-using industries. So long as nature unaided produces trees in quality fit for the manufacturing arts, in quantity as great as that used by lumbermen and destroyed by disease, fire and wind; there is no economic necessity for creating trained brain power to be applied to the production of trees in order to supply the manufacturing industries. Such need develops slowly, and is dependent upon many economic and is industrial factors. The realization of the need comes even more slowly, for public opinion is lethargic, often insensible to the solution of problems whose effects lie beyond the present, and the making of trees for pulpwood spans one generation, and the production of good saw logs spans two generations of men. Of necessity foresters have been more propagandists than foresters in the strict interpretation of the word. After thirty years of unremitting toil the tide is beginning to turn in their favor. The oft-repeated statements that over one-half the commercially forested area of Canada, about 1,000,000 square miles, has been burned, and that forest destruction by fire still continues practically unabated, except in wet seasons, in some of the most valuable forest regions in the country, are bearing fruit, and the significance of such facts in relation to the future prosperity of Canada is beginning to penetrate the public consciousness. In order to maintain at reasonable cost continuous supplies of wood for the industries, forestry should begin with forests which nature has made and not with deserts that man has made. It is both illogical and expensive to destroy and build anew after many years what might have been kept continuously productive under intelligent direction. It must be admitted, however, that recent events such as the soaring prices of lumber and newsprint, the disclosures of callous indifference to the just dues of the people on the part of those charged with the administration of the forests in certain portions of the country, the possibility of strained international relations over pulpwood exports, the scramble for supplies in far remote regions of the country on the part of certain great wood-using industries have focussed the attention of the public upon the necessity of conserving our forest resources. In fact, some of the conditions foretold by propagandists are already upon us, conditions which we are in a measure unprepared to meet because we have not developed a sufficient number of men properly trained to solve some of the most urgent problems, and a good portion of these very problems are concerned with the habits and peculiarities of our most valuable trees.

The Tree as a Starting Point

With this introduction, I will come back to my first statement. For the actual practice of forestry, the tree or rather an aggregation of trees, the stand, is the nucleus about which all knowledge revolves. In the first place the forestry student is introduced to trees as individuals. He studies their characteristics as reveal by their flowers, fruits, leaves and bark and he learns how to recognize them and call them by name when he meets them in the forest. A tree is a plant, and in many ways the most successful plant nature has ever produced. Thus in order that the student may gain a proper perspective he is given a course in Botany, where he learns about the long series of experiments and trials by which nature finally perfected our modern tree. All through his work in forestry he will come in contact with other plants which influence to a greater or less degree the lives of trees, and he gets acquainted with them in his course in Botany. In a similar manner there are animals, particularly insects, that affect trees often disastrously. These are not studied in the first year, but the foundations for such study are laid by the course in Zoology. In most forestry schools a kind of introductory course to forestry is given to the first-year students, in which the forest conditions of the country and methods of lumbering are described, the principles of forestry are laid down, and the work of the various forestry organizations is presented.

Mathematics and Forestry

Unless a practising forester is thoroughly grounded in mathematics he is handicapped throughout his professional life, since the principles of estimating and measuring timber, topographic and land surveying, making roads and trails, etc., are based on mathematics, and so this subject is stressed in all forestry schools. Chemistry and Physics are fundamental subjects, and they are studied during the first year. The forestry student usually takes French or German in the first year, and at Toronto the language he selects he must continue for three years.

By this time the student, if successful, has completed his first year. His summer holidays are taken in the bush, where he carries chain or calipers trees in a timber crushing party, or assists in land classification and reconnaissance surveys, or work in a sawmill, in a paper mill, or on a log drive or acts as a camp cook; in fact, he takes any job that will give him practical experience. He may fight flies or other pests continously; he may sleep on the ground in wet blankets during two weeks of continuous rain; he may spend his time on his knees in a forest nursery; he may repeat the same operation over and over again until the monotony of the thing nearly drives him frantic, but it stiffens the backbone and it is all good for the soil; it weeds out the non-courageous and the non-persistent. Those who come back to us after the first summer we no longer call boys, but men.

In the Second Year

During the second year the forestry student gets a still more intimate knowledge of trees both as individuals and their economic aspects. He learns how trees come into existence, how they live and work and, not least, how they get along with their neighbors. He studies the methods of determining the contents of single trees and stands of trees in terms of cords or board feet. He learns how the rules for determining the board feet in a log were made, and is shown why some of those in use are so unjust to the

seller. He is taught how to make volume tables according to the diameter of the trees or to the diameter and height or according to the diameter and the number of logs in the tree. He is throughly grounded in the methods of cruising and estimating timber and the application of the various methods to the different parts of the country. The student counts the rings on stumps or at the ends of logs and determines the present volume of the trees, and the contents ten, twenty or thirty years ago, and he predicts what the contents will be ten, twenty or thirty years hence. Grouping the trees together according to diameter and rate of growth, he can predict future yields on a given acre or on a larger tract.

The course in Surveying begins in the second and continues through the third years. The forestry student is made familiar with the general principles of surveying and the instruments used, such as the compass, chain, plane-table and transit, with practice in their use. The student in his second year also learns how the earth has been made as well as the making of the trees that grow upon it. The origin of the various Canadian rock formations is described and their distribution is determined. At the same time he is taught to distinguish at sight the common minerals and rock. The course in Chemistry is continued from the first year, and the course in tree description, and indentification extends down through the scrubs and other woody plants that are found growing beneath the forest.

The second year students in their summer work usually get positions of increased responsibility—and they get more pay.

We have now gotten the student half way through his course, and we will leave him there until a later issue.

(To be continued).

INVINCIBLE PAPER AND PULP CORP., AGENTS FOR MAINE PULP AND PAPER CO.

Arrangements have just been completed by the Maine Pulp and Paper Company with A. George Lutz, President of the Invincible Paper & Pulp Corporation of 135 Broadway, New York City, whereby the latter shall act as exclusive sales agents for the Maine Pulp and Paper Company, Skowhegan, Maine.

It has only been a few months since the Maine Pulp and Paper Company took over the plant, power rights and good will of the Savage Manufacturing Company who since 1908 were making colored papers and specialties. In a remarkably short time the new owners, in the face of many obstacles, have modernized the plant and are now turning out some 60,000 lbs. of wood pulp per day and in the neighborhood of 30,000 lbs. of newsprint. The mill is also equipped to make hanging, novel news, railroad writing and specialties.

Among other new equipment they have added four new grinders, several new dryers and are rapidly completing arrangements to double their output which will include a fourdrinier machine. An ample and steady flow of raw materials, particularly wood, is assured to take care of greatly increased output because of the fact that the Company now owns a large tract of growing spruce timber.

The officers of the Company, Mr. Wm. O'Hanlon, President, Mr. J. B. O'Brien, Vice-President and Mr. C. C. Hullinger, Secretary and Treasurer, offer this new arrangement for the distribution of their output as an added service to the trade.

SHOULD NEVER HAVE ANOTHER PANIC.

A business panic in this country would be chargeable to gross inefficiency and dereliction of duty on the part of business men and bankers, under the improved banking system now in force, it was declared the other day by James S. Alexander, president of the National Bank of Commerce in New York. He spoke before the eleventh annual convention of the American Manufacturers' Association, in New York. Answering the charge that bankers fail to co-operate with business in times of financial stress, he said that the action of the banks in conserving credit was the best co-operation they could extend under recent financial conditions.

The country's credit structure was never better built than it is today, he said, and in view of the elasticity given business conditions by the Federal Reserve System, the country need never see another panic. Principles governing the domestic situation, particularly the duty of banks to readjust the credit situation when necessary, apply with especial force to the export trade, he said. He also expressed the belief that American manufacturers should market raw rather than finished products to Europe if a sound basis is to be laid for equalizing the existing adverse trade balances.

"The peak of credit expansion must soon pass," he said, "but this does not mean that there are not ahead of us many serious and necessary adjustments. There must be established stable price levels so that business can be conducted on a basis of confident judgment rather than of guess and speculation. There must also be adequate production, primarily in the more substantial lines of goods, so that we shall not continue to live on a narrow hand-to-mouth margin which is responsible for unstable prices. We must conserve credit so that there will be ample funds for long time investments to provide for the rehabilitation of essential permanent equipment, railroad building and repair, and necessary housing construction.

ORIGIN OF THE WORD "SHAWINIGAN."

CHAWANIGANE, as it should be spelled, is an Algonquin word and is the name given to the falls and to our town. The Algonquins pronounced CHAWINIGAM. This word, says Father Lemoine, derives from "achawe" (it is angular, there is a ridge) and "onigam" (portage); therefore, it means "the angular portage," "the portage on the ridge."

The British have modified the spelling of this Indian word and write either Shawenegan or Shawinigan. Abbe N. Caron thinks that the spelling Chawinigane should be adopted, as it is nearest to the original word formation and more in accordance with the French spelling.

Mr. Benjamin Sulte (Bulletin of Historical Research, 1898) epresses the opinion that Chawinigane might also stand for "drill," "needle," "any tool moved by hand."

However, Abbe N. Caron (Bull. Hist. Res. 1898) reverting to the etymology of the word, is firm in his assertion that Chawinigane should be understood as meaning "ridge" and he explains that the Indians were obliged to ascend the ridge of a rock during their portage across the falls. This opinion being shared by Father Lemoin, "ridge" should be accepted as the translation of Chawinigane.—Shawinigan Falls Review.

First find out who are the fools and the sick men and then don't argue with them.

British Trade News

(From our London Correspondent)

London, October 25th, 1920.

The President of the British Paper Makers Association (Mr. W. Leonard Tod), has been presented with his portrait in oils—a gift from the paper mill owners of Scotland. During the war Mr. Tod did a great amount of work in looking after the interests of the members of the Association and it is in recognition of his services that the presentation has been made. Mrs. Tod also received a souvenir. The painting is by Mr. Fred. Whiting, and next month it will occupy a position in one of the London galleries for view purposes.

Attempt To Force Newsprint Price Down Fails.

The buyers of newsprint in London have failed in their attempt to force the price of newsprint down. Some one bought a cheap spot lot and instantly the newspapers and buyers commenced shouting that in a couple of weeks newsprint would be bought at 8 or 9 cents a pound instead of 14 and 12 cents. Naturally the people who were shouting did not understand the market conditions and once again newsprint prices are left to rest, thanks to the coal strike, which drew more attention than the paper market did. As things stand at present, the smallest incident regarding newsprint is magnified into three times its importance and large buyers adopt every means to beat down the market price.

This week a message from Montreal states that "It looks as if the great boom in Canadian paper stocks has seen its climax...." The daily papers tried to make much out of it in big head lines. One came out as follows:—

CLIMAX OF THE PAPER BOOM.

Market in Canada on The Point of Breaking.

If the message is true, well and good; if it is not, steps should be taken to conteract it. It must be remembered that at the present time a great effort is being made—and the "Pulp and Paper Magazine" is playing no small part in it, as it is being widely quoted from here—to engender interest in Canada and divert the attentions of Capitalists to its great natural resources and industries, including pulp and paper.

The British Paper Market

Apart from newsprint, the British paper market is firm and there is no sign of wavering on the part of the mills. It is true, however, that foreign paper is being offered in the market below the British prices. The idea of foreigners is to create a market. No first class foreign paper mill has come down in its price and the cheap selling is largely on the jobbers side, many of whom are today running about London picking up to the few crumbs that have remained untouched. The demand for paper of all kinds has slightly fallen off within the past month, and jobbers and dealers have suffered in consequence. Wholesale merchants are now taking their prices into consideration and something must be done in view of the determined attitude of buyers.

The Miners Strike.

The coal miners strike for more wages has upset the paper mills considerably and the railway workers are now "seeing red" in sympathy with their pit-colleagues. A great effort is at present being made to keep the rail-road men at their work and personally I don't think they will come out as there is a "split" among them, one section being for fight and the other for peace. At all events between the lot the paper mills and the workers are receiving a serious set-back and unemployment is increasing. Mills are now only allowed 50 per cent. of their usual weekly coal supply and all stocks of coal in the country are under the control of the Government. Most of the paper mills have fair stocks on hand, so that at present they are working cautiously and economically.

Presentation.

Mr. Robert Gilroy, the chairman of the Northern section of the British Paper Makers' Association, has just completed quarter of a century with A. M. Peebles & Son, Ltd., the papermakers, and has been presented with a handsome gold watch in recognition of his long services. He is Peebles's mill manager and a first class man in the position. Mr. George J. Maddick, the chairman of the company made the presentation and after it there was a most enjoyable dinner.

Obituary.

Death has removed two well-known paper men, who have more than once visited Canada. They are Mr. William Dedrick, the managing director of Messrs. C. Townsend Hook & Co., of London, and Wm. John C. Potter, only son of the late Mr. J. G. Potter, one of the founders of Wall-Paper Manufacturers Ltd. Mr. Dedrick was a great man in the newsprint trade and some of the London papers pay a great compliment to to his memory and refer to the pleasant dealings they always had with him.

Decreased Exports.

For the nine months ending September, the exports of British mills show a decrease. This is an indication of the unsettled state of the colonial and foreign markets. The shipments for January-September were 1,590,281 cwts. which is a decline of 1,089,302 cwts. when compared with the same period of 1913.

The imports into the British market from foreign mills, Newfoundland, and Canada, show an increase of over 10 per cent. when comparing the first nine months of this year with the corresponding period in 1913. Newfoundland newsprint occupies a prominent position in the imports, no less than 669,885 cwts. being shipped.

The relative values of the exports and imports, of course, considerably exceed those of 1913.

Papermaking Materials.

While the exports of paper from the United Kingdom show a decrease on the nine months figures, it is interesting to note imports of papermaking materials show an increase as the following returns depict for 9 months, viz. January-September last:—

1920	981,334 tons
1919	716,312 "
1913	896,198 "

These figures show that 85, 136 tons of raw materials were received over the nine months in 1913 when mills were pretty brisk with an overseas trade. The increase is due to larger dealings in pulps, chemical showing an increased importation of 140.237 tons, esparto rags and waste paper being on a decline.

Swedish Mills "Shut-Up Shop".

From time to time I have been giving some straight hints at the state of things in Sweden and Norway, although some reports would lead one to believe that Scandinavians were full up with orders and work. For some time past all the mills in Scandinavia have been

suffering, if not from labour troubles, they have had dull markets, or coal troubles. Today some of the Swedish mills are closing down for a rest and in Norway there is a deadlock. The facts are verified in London. The rate of exchange is also complained of and the dullness in England is also reflecting itself in Scandinavia. Newsprint in Sweden is 7½d. per lb.; in England it is 5½d to 6d. per lb. Norwegian paper mills are not, however, so badly off as the Swedish.

The Pulp Situation.

Good shipments of groundwood and chemical are arriving here from Canada. Supplies from other countries are on a fair scale.

Export of coal having beep stopped from England, the Scandinavians pulp mills have received a rude shock. A good many rely on English coal and there is talk of closing down.

The English pulp market is lifeless and nothing else could be expected in the midst of a huge strike in the coal mining industry and threats of other strikes all round. Groundwood quotations are firm, but sellers of chemical pulps are inclined to accept slightly lower values to encourage trade and they will make contracts for 1921 delivery.

Prices today are about as follows:—

Bleached Sulphite	£82	10s.	—	£84	0	0
Easy Bleaching (No. 1)	52	10	—	56	0	0
Newsprint Sulphite	50	0	—	53	0	0
Unbleached Soda (No. 1)	47	10	—	49	0	0
" " (Kraft)	40	0	—	42	0	0
Groundwood (moist)	17	5	—	17	10	0
" (dry)	33	10	—	34	0	0

Imports of Boards.

During September there was a falling off in the imports of cardboard, pasteboard, and leatherboards received from Canada while the shipments from U.S.A. increased remarkably. No leather boards were received from the Dominion and only a 1,000 odd cwts, of cardboard and pasteboard arrived. These branches of the British market should be carefully watched as there is a growing increase in the consumption of boards, although it may not be directly brought to the notice of Dominion manufacturers. Canada already enjoys, and has done for sometime, a good trade in mill boards. Out of the total imports of millboards received in September last amounting to 116,571 cwts., Canada sent 47,618 cwts., the balance of 68,953 cwts. being shared between U. S. A., Norway, Sweden, Netherlands, Germany and Finland. In regard to strawboards no supplies were received from Canada or U. S. A.

OTTAWA MILLS NEED WATER.

There is said to be fear that, if the Ottawa River should freeze over, without its present low level being raised by much-needed rains, the industries, which rely upon its water for the power with which to run their plants, will be placed in a serious condition.

An instance of how the low water situation is affecting these industries is furnished in the case of the J. R. Booth plant of the Chaudiere. Here, for the past five weeks, only one paper-making machine is said to have been in operation instead of the normal number of three machines, and the company is about 5,000 tons of paper behind its normal output.

Don't blame others for dangerous conditions, says the Safety League, help to correct them.

FOUNDRY AT THE SOO RESUMES GRINDER MANUFACTURE.

The Northern Foundry & Machine Co.'s plant, Sault Ste. Marie, is again busy on the manufacture of pulp mill machinery. During the war they turned out their share of shrapnel and high explosive shells, afterwards when the armistice was signed, they, like many others, got busy to help replace some of the shipping that was destroyed by the enemy. They turned out their share of ship's auxiliaries, specializing in steering engines, cargo winches and circulating pumps.

Now that the shipping trade has somewhat subsided, they are making rapid strides on pulp mill machinery; and while before the war their chief activity was on machines for mills in the vicinity, to-day their sphere of activity has been extended greatly. The demand for their machines has necessitated their making extensions to their plant and they have recently added a large concrete extension to their iron and brass foundry, as well as installing equipments to handle their increased centrifugal pump trade.

Stock, acid and general service pumps, hydraulic presses, grinders, acid coolers, valves, split pulleys, etc., are among the lines manufactured.

They have recently added to their staff of engineers to cope with the design of these important machines. This, as well as the co-operation of some of the leading pulp mill engineers, enables them to give their customers complete and up-to-date data on pulp mill machinery.

Their sales end is being taken care of by Clayton, Neil & Jones, Limited, a firm of engineers having a wide and practical knowledge of pulp mill requirements.

INDUSTRIAL IMMIGRATION.

Many firms are establishing in Canada, and more will come. As far as the paper supply is concerned, I am of the belief that, with sane management and careful cutting, Canada can supply the demand of this Continent for much longer than has been estimated. It is sure that from year to year the operation is likely to be more costly as the mills move further North. At one time the mills were all tributary to the St. Lawrence and the Great Lakes; some already are operating on the waters which drain into Hudson Bay, and more will follow. Dr. C. D. Howe, an eminent Canadian authority, after pointing out that we may have to adapt our mills to the use of such substitutes for spruce as poplar and birch, goes on to show that there is "another alternative before the pulp companies, when the supply of 12-inch spruces gives out, and that is to operate in the Hudson Bay region, where small undersized trees are found. Thousands of square miles of wood that has attained its growth will never be any larger, and might as well be cut." It may be worthy of remark, that when that time comes the cost of production will be greatly increased, as the cost of running the camps alone in such districts will be extremely expensive."—C. Price Green before the National Editorial Association, Boston, Mass.

WHY FOR?

On a mule we find
Two legs behind
And two we find before
But we stand behind
Before we find
What the two behind be for.

UNITED STATES NOTES

Richard Sheldrick, resigned as Secretary, Director and Sales Manager of The Kalbfleisch Corporation, after a connection of fifteen years, and is now Vice-President of D. A. Himadi & Co., Inc., 51-53 Maiden Lane, of which Mr. Himadi is President. Mr. Himadi has been in the chemical business for a long term of years and is President of the Lodi Trust Co., of Lodi, N.J. For the present they expect to do a general business as jobbers and manufacturers' agents, with offices at this address and at Lodi.

A 100 per cent increase in the capital stock of the Kalamazoo Paper Company has been authorized by the company stockholders. Through this increase, bringing its capitalization frob $1,605,000 to $3,210,000, the Kalamazoo Paper Company ranks close behind the Bryant Paper Company, the largest paper manufacturing concern now operating in the Kalamazoo River valley, which boasts a capital of $5,000,000 common and $300,000 preferred. The stock issue, it is said, is being made solely to bring the capital to a point within a reasonable distance of the company's gross revenues. No enlargements or additions on any extensive scale are being contemplated at this time.

Alva Snyder, who has headed the Paper Section of the Federal Trade Commission since April, 1919, has resigned to become associated with the California Fruit Juice Company. F. X. Patterson, who connection with the Commission began with its organization, has been appointed Mr. Snyder's successor as head of the Paper Division.

The Kimberly-Clark and the Neenah Paper Company mills, pioneers among Wisconsin industrial establishments in accident prevention, observed "no accident week" November 1 to 7. For the benefit of the 25,000 employees in the eight mills of the two companies at Appleton, Wis., an elaborate programme was presented. This comprised talks by industrial safety experts, special safety meetings and many other features. It is claimed by officials of both companies that the number of accidents in the plants has been materially reduced due to the intensive safety campaigns.

F. G. Crane, founder, and until recently, manager of the Wardway Paper Mills at Fort Madison, Ia., has joined the executive staff of the American Seamless Container Company. The latter concern are the manufacturers of practical containers designed for extensive use in the candy, confectionary and printing ink industries. When he established the Wardway Mills, Mr. Crane started the first white paper manufacturing plant operated in Iowa.

Nearly one hundred trade executives formerly identified with the old National Trade Organization Secretaries gathered recently at Lenox, Mass., and revamped the old organization, forming a new nation-wide body to be known officially as the National Trade Executives' Association. The delegates present came from all parts of the country and represented all sorts of trade organizations.

The gathering of trade statistics by the Federal Trade Commission will be suspended for the present in all industries except the paper industry, according to an announcement given out by the Commission last week. It was decided to discontinue the taking of these figures with reference to the coal, steel, and lumber industries, until the legality of requiring such statistics can be determined by the courts.

The regular quarterly business meeting of the News Print Service Bureau was held at the Waldorf-Astoria Hotel, New York, Nov. 9.

George P. Berkey, who has been in charge of various plants of the Consolidated Water Paper and Paper Company, is to become manager of fall the company's mills in Wisconsin. Mr. Berkey has been identified with the Consolidated people since 1908 and he is now manager of the Interlake Pulp and Paper Company's mill at Appleton. He will leave his place with this subsidiary concern to take up hearquarters in Wisconsin Rapids. George W. Mead, head of the Consolidated Company may gradually retire from the active supervision of the company properties.

The Bagley & Sewall Company, of Watertown, N.Y., manufacturers of paper making machinery, are reported has having turned out a Fourdrinier machine capable of running off 1,000 feet of paper a minute. This is over 200 feet per minute ahead of the best previous records. Since establishing a world's record in 1890, when the company installed its first machine in the Ontario Paper Mill, Watertown, running off 325 feet of paper a minute, the Bagley & Sewall Campany continued to show the way in the production of record-breaking machines. 735 feet a minute was attained with a machine made in 1908 for the Pacific Mills, Ltd. The latest machine was built for the Wausau Sulphate Fibre Company of Mosinee, Wis. The achievement of 1,000 feet per minute in the production of 20 pound kraft paper is claimed for this machine, the actual record production having been made on October 23.

Figures compiled by the U. S. A. Census Bureau and the Electrical World show that from 1907 to 1920 there was more water power capacity developed and installed in Georgia than in any other state of the United States.

Elimination of the public drinking cup and the statutory demands for sanitation in all drinking fountains has resulted in the develpoment of the paper cup as the solution of the problem of providing efficient yet sanitary drinking methods. A practical cup, needing no special equipment for its installation at fountains is being made by the Royal Paper Goods Company, New York City. This paper cup, it is claimed, is the least expensive of any on the market. It is packed in cardboard cartons and made so that a number of them in the cartons can be hung on the wall of office or factory or attached to the top of the water bottle by means of a small collapsible wire rack.

SOURCE OF PAPER.

Editor.—I can't understand where you get all the paper to write your poetry on when there is such a scarcity of the material.

Poet.—Oh, I use the backs of all the bills I receive.

In climbing the ladder of Success, remember two things—Do not lick the heels of the man above you —nor kick the face of the man below.

Technical Section

REVIEW OF RECENT LITERATURE.

A-1. Direct determination of lignin in cellulosic materials. E. BECKER. Papier fabr. 17, 1325-1327(1919); One gram of the finely divided material is mixed with 10-20 cc. of 72 per cent. sulfuric acid by means of a glass rod. When the mass becomes gelatinous a further 80-100 cc. of the acid is added, and the mixture allowed to stand for 24 hours. It is then diluted with 1-5 parts of water, passed through a Gooch crucible, washed with hot water, dried to constant weight, ignited and weighed, the difference between the two weights giving the amount of ash free lignin.—C. J. W.

A-15. Lignin and reactions of lignin. P. KLASON. Ber. 53, 706-711 (1920). The naphthylamine lignin-sulfonate described previously has been investigated further. Its formation is considered to indicate the presence of the group RCH: CHCHO in lignin. It is formed in greater quantity from old than from fresh sulfite liquors and it would appear that the group $CHR:CHCH_2OH$ is present in the latter and that the aldehyde, in part, at any rate, is gradually formed in them by atmospheric oxidation. It is concluded that coniferyl aldehyde and alcohol are the principal constituent groups at any rate of the lignin of conifers.—C. J. W.

A-15. Absorption capacity of cellulose. Electrometric micro-analysis of chlorine. P. RONA and L. MICHAELIS. **Biochemische Zeitschrift** 103, 19-3-(1920). Cellulose does not appreciably adsorb surface-active non-electrolytes (keptyl alcohol, secondary octyl alcohol). Only in the case of extremely active substances (normal octyl alcohol) can very slight adsorption be established. The more marked adsorption of electrolytes (dyes) by cellulose is due to the mineral content of the cellulose, principally calcium silicate, which is present in small quantities, sufficient to account for the adsorption observed, even in so-called ash-free filter paper. The estimation of chlorine by the electrometric method with a calomel electrode is described and discussed.—C. J. W.

K-12. Sweeping the air and water out of driers on paper machines. F. C. Farnsworth. Paper **26,** 559-60, (1920). A description of the Farnsworth differential system of heating the driers, whereby the pressure in the return header is always kept lower than in the steam header, thereby ensuring the continual and efficient sweeping out of the air and water from the driers. —A. P.-C.

L-4. Machinery for making cardboard tubes. Fr. patent No. 499,238, Feb. 21, 1919. Jas. Steedman Holmes, England. Papeterie, **42,** 359-62, (Apr. 25, 1920.)

L-5. Nitrocellulose from woodpulp. R. G. Woodbridge Jr., Experimental Station, E. I. du Pont de Nemours Co., Wilmington, Del. J. Ind. & Eng. Chem., **22,** 380-4, (1920; Paper, **26,** 394,404, (1920). A. P.-C.

L-7. Paper as a textile material. Camille Lion. Bull. Soc. Ind. Rouen, **47,** 203-9, (1919). Review of an art. by P. Petit in the **Revue de l'Expansion Economique,** June-July 1918, giving a description of the development of the paper textile industry, more especially in Germany.—A. P.-C.

M-1. Pneumercator gauge. Paper, **26,** 405, (1920). A brief description of some of the many uses to which the pneumercator gauge can be put in a pulp or paper mill.—A. P.-C.

M-4. Standard sizes for shafting. Paper, **26,** 678-9, (1920). A committee of the Am. Soc. of Mech. Eng. has adopted as standard 14 sizes of transmission shafting and recommends a large reduction in the no. of sizes of machinery shafting. The standard sizes of transmission shafting are: 15-16, 1 3-16, 1 7-16, 1 11-16, 1 15-16, 2 3-16, 2 7-16, 2 15-16, 3 7-16, 4 7-16, 4 15-16 5 7-16, 5 15-16 inch. (One of the standard sizes has been omitted in the article, evidently 3 15-16. Abstractor's Note).

N-10. Colloidal fuel. M. Desmarets. Rev. Gen. Sci., **31,** 146-7, (1920). Owing to increased consumption of oil by the Allied navies during the war, attempts were made to prepare an emulsion or "colloidal solution" of coal in oil, which would stand up indefinitely. Theoretically this can be done in 4 ways: 1) Grinding the coal finely enough that an absorption compound will be formed between the coal and the oil, resulting in a true colloidal soln.; 2) Thickening the oil so as to decrease the rate of settling of the coal; 3) Adding light particles which act as flocculating agent; 4) Adding a "fixateur" in small quantities, 1 p.c. of the mixt. The last is the only practical method; but for military reasons the nature of the "fixateur" has not been disclosed. The addition of the coal increases the viscosity of the oil very appreciably, decreases the B. T. U. per unit weight, but increases them slightly per unit vol. Up to 40 p.c. by weight of coal and 59 p.c. of oil, the fuel remains liquid; with increasing proportion of coal it thickens, but up to 65 p.c. of coal it can be pumped and burned in the usual oil burners. A 3 months' test on an American war vessel equipped for burning oil showed practically the same consumption of B. T. U. per effective H. P. as oil, no appreciable wear on the burner nozzles, no deposit in the piping, but some deposit (easily removed by injecting steam) in the nozzles when shut down for more than 2-3 min. at a time. The saving in oil was about 27 p.c. In so far as can be judged by data published to date, colloidal fuel is intermediate between fuel oil and pulverized coal and does not seem to offer any great advantage over either of these.—A. P.-C.

P-2. Report of the Committee on Vocational Education of the T. A. P. P. I. R. S. Kellogg, Secretary, Paper, **26,** 376-8, (1920). Text of the report presented at the annual meeting of the T. A. P. P. I., New York, Apr. 14-15, 1920.—A. P.-C.

R-2. Report of the committee on bibliography of the T. A. P. P. I. Henry E. Surface, Chairman. Paper **26,** 372-6 (1920). Text of the report presented at the annual meeting of the T. A. P. P. I., New York, Apr. 14-15, 1920, followed by a list of the contributions of the committee to date.—A. P.-C.

R-13. Annual meeting of the T. A. P. P. I. Paper, **26,** 470-96 (1920). A detailed account of the annual meeting of the T. A. P. P. I., New York, Apr. 14-15, 1920.—A. P.-C.

R-O. Pulp and paper research problems. Investigations planned and accomplished by the U. S. Forest Products Lab. Paper **26**, 312-20, (1920). A list of the more important and pressing problems of the pulp and paper industry, showing what progress, if any, has been made by the laboratory on the solution of these problems, covering raw materials, sulphite pulp, soda and sulphate pulps, mechanical pulp, paper mill problems, and specialties. A bibliography of the work already done is appended. (See Pulp & Paper, June 3, 1920.)—A. P.-C.

PHLOROGLUCINE AS A DETERMINATOR OF WOOD PULP.

Quantitative determination of wood pulp in paper by the phloroglucine process is possible only when all conditions prescribed are strictly adhered to, says Th. Blasweiler in an article published in the "Papier-Fabrikant," of which a translation appears in the Paper Trade Journal. Blasweiler found a divergence of figures when studying the result of phloroglucine absorption. These figures were affected by concentration of the absorbing phloroglucine solution. Cross and Bevan called attention to this peculiarity.

Lignine absorbs phloroglucine. The remaining phloroglucine is volumetrically determined in a thin solution of formaldehyde, after the Tuepfel method. Paper containing a large percentage of pulp serves as indicator.

According to the author's prescription 2 g. of rasped paper, well dried, is mixed with 40 ccm. of phloroglucine solution. The small amount of fluid, most of which is absorbed by the paper, protracts filtration and leaves only 10 ccm. of filtrate for each of the two determinations.

In order to expedite the examination, Blasweiler added 80 ccm. of a 12 per cent solution of muriatic acid to the 40 ccm. of phloroglucine. The larger amount of fluid accelerated filtration, after absorption had ended, and left 25 ccm. for each determination. The result was that absorption values in the latter case were higher by one-half or one-third than in the case where an undiluted solution of phloroglucine had been applied.

In order to determine the percentage of wood pulp in paper, after the Cross and Bevan method, the formula has to be followed very strictly, as any change of concentration will result in false figures, figures that disclose a percentage of wood pulp much higher than actually present.

Mode of Procedure

Blasweiler says in his first experiment he used the white margin of the Continental "Times". He rolled the paper into small hand cones and rubbed them against a rasp. The paper was then carefully measured. Blasweiler added to the phloroglucine solution of 40 ccm., containing 4.9913 g. of phloroglucine in 1,000 ccm., 80 ccm. of a 12 per cent solution of muriatic acid. After shaking well, he left the bottle standing over night. Before filtering he shook the bottle again. Of the fluid filtrate 25 ccm. each were retitrated in a bath of water, heated to 70 degrees C., with a solution of formaldehyde (1ccm. of 40 per cent formalin to 500 ccm. of 12 per cent muriatic acid. After the formula of Cross and Bevan he then figured out the pulp percentage of the paper. This is the equation :

$$H = \frac{100\ (x-1)}{8-1}$$

H stands for pulp percentage, x for the absorbed amount of phloroglucine, in proportion to 100 g. of matter.

The first determination resulted in :

Application : 2.0102 g. of rasped paper, air dry.

Consumption : 8.40 g. of phloroglucine to 100 g. of matter.

Phloroglucine figure x = 8.40.

The second determination resulted as follows :

Application : 1.9995 g. of rasped paper, air dry.

Consumption: 8.46 g. of phloroglucine to 100 g. of matter.

Phloroglucine figure x = 8.46.

Average phloroglucine figure: 8.43.

Applying the formula, as given above, the answer would be a percentage of 106, an obvious impossibility.

Results Obtained

When Blasweiler followed the original method, adding only 20 ccm. of 12 per cent muriatic, he obtained an average of 5.50 as the phloroglucine figure. In this case the answer to the equation, according to formula, is 65.71. Accordingly the paper of the Continental "Times" contains 65 per cent pulp to 35 per cent cellulose, which conforms to the actual facts.

Blasweiler, in another experiment, used the margin of the Berlin "Lokal-Anzeiger." Application of the modified method resulted in 97 per cent as the percentage of pulp in the paper, again an utter impossibility. The original method resulted in giving the figure 59.43. Accordingly the paper used by the "Lokal-Anzeiger" contains 60 per cent of pulp and 40 per cent of cellulose, which is correct.

PICTURES BY WIRE.

It has been some forty years since methods were invented for transmitting pictures and diagrams telegraphically, but like most inventions it had to wait for a generation before it could hope for general use. The telautographs are still new in our banks, hotels and railroad stations.

Within the last month or so newspapers have been experimenting rather successfully with the same idea in connection with telegraph and telephone wires.

The drawing is made through carbon paper on to a copper cylinder. The cylinder is then revolved while electrically connected with the telephone or telegraph line. The carbon lines of the drawing vary the current transmitted. These variations affect the receiving instrument which throws beams of light on an unrolling sheet of photographic negative paper. The different intensities of these beams of light, (resulting from the different intensities of current transmitted) result in a facsimile photograph of the original drawing on the carbon paper.

It is understood that the Italian Government intends to use one of these devices for the transmission of official signatures between Rome and Milan, and it seems reasonable to suppose that a few more years will enable newspapers to publish sketches of events on the other side of the world within a day or so after their occurrence. Like a large number of modern inventions, its carrying out depends on the use of specially prepared PAPER.—From "The Caravel".

Based on account in "Le Petit Journal," as reprinted in the New York Times.

To maintain order, excellence and harmony in the territory immediately under one's own hat will keep one fairly well employed.—The Hammermill Bond.

PULP AND PAPER NEWS

Mr. H. M. Mosdell, Managing Editor of the St. Johns, Newfoundland, Star, who is in Toronto just now, brought the information that active negotiations are now proceeding by Lorth Rothermere with a view to forming a one and a half million dollar company to take over pulp and timber limits in Newfoundland and to develop the huge water power resources there. It is stated that already options are being secured and it is expected that the project will take definite form very shortly.

The editor of the new Presbyterian Church weekly, the Presbyterian Witness, will be Rev. Dr. G. S. Carson, of Halifax. Dr Carson, who was for fourteen years editor of the Halifax Witness, is a native of New Brunswick, and prior to assuming the position of editor of the Halifax church paper, was pastor of Knox Church, Pictou, N.S. for nearly twenty years.

Mr. W. P. Bennett, of the Rudd Paper Box Company; Mr. G. Shaw of the Telfer Manufacturing Co. Mr. A. Jephcott of the Dominion Paper Box Company, Mr. A. Sproule of Collett & Sproule and Mr. James Logis of the Canada Box Board Company were in Montreal this week attending a meeting of representatives of the Canadian box board industry.

Mr. A. P. Costigane, secretary of the Ontario Pulp and Paper Makers' Safety Association, visited the Cornwall mill of the Howard Smith Paper Company, Limited, a few days ago, and also the Provincial Paper Co's mill at Mille Roches. Mr. Costigane reports that in spite of construction operations that are in progress at Cornwall, the company, owing to careful and farsighted management has been able to keep the accident record down remarkably low. It is expected that a meeting of the directors of the Association will be held in Toronto at the end of this month when various matters connected with accident prevention will be considered.

Mr. George Erskine, Toronto representative of the George H. Mead Company of Dayton, Ohio, is in Winnipeg calling on the firm's customers.

Failure to put a cap on a water pipe before the pressure was turned on was reponsible for a small flood in the warehouse of the Fred W. Halls Paper Company, Limited, on Adelaide Street, Toronto; a few days ago. Damage to stock amounting to about $2,000 resulted.

Mr. E. S. Crabtree, of the Bathurst Lumber Company, Limited, Montreal spent several days this week in Toronto on business.

A visitor to Toronto this week was Mr. W. E. Duncan of the Paper Export Association at Montreal.

Mr. W. J. Trimble, well known in Toronto and elsewhere as a paper mill constructor and contractor, was called to Philadelphia a few days ago to attend the funeral of his father who passed away at the age of 83 years.

Mr. D. H. Hudson, of the Hudson Paper Company, Winnipeg, was in Toronto this week on his way back from Brockville where he attended the funeral of his wife's mother.

Mr. J. M. Gardner, of Toronto, was elected to the Board of Directors of the Mail Advertising Service of North America which was organized in Detroit, recently.

The Provincial Paper Mills, Limited, head office Toronto, has received a word that the company has been successful in tendering for a timber berth of seventy square miles in the township of West Hele. It is estimated the limit contains about seventy-five thousand cords of pulpwood.

Mr. C. Blackett Robinson, one of the oldest journalists in Canada who for the past twenty years has been a resident of Ottawa, celebrated his 83rd birthday recently. Mr. Robinson's journalistic career started in Beaverton where in 1857 he ran the Post. He afterwards came to Toronto where he started the Presbyterian and later was associated with the late Goldwin Smith in the publication of "The Week". Mr. Robinson also started the Orillia Expositor.

The St. Lawrence News, weekly newspaper published at Iroquois, Ont., has suspended publication.

A meeting of the Canadian Pulp Box Manufacturers Association was held in Montreal on Wednesday, November 3rd when opportunity was taken at the same time of meeting the representatives of the board mills to discuss present trade conditions.

Mr. J. L. McNichol, former assistant Paper Controller has joined the staff of Porritts & Spencer (Canada) Ltd., manufacturers of paper mill felts, as Sales Manager.

LAURENTIDE TO INSTALL WIRELESS.

Plans are being discussed at present concerning the installation of a wireless telegraph station in the plant of the Laurentide Co., Grand Mere, P.Q., probably under the supervision of the Forestry Department, for the purpose of communicating with the company hydroplanes, and also to receive messages from the planes in emergencies. Both machines have wireless sets.

JAPS TO BUILD MILL IN B. C.

The rapidly growing pulp and paper industry of British Columbia is soon to be augmented by additional plants.

A New York Company, says The Daily Financial News, of San Francisco, will build a mill at Kitimat Arm, some miles north of Prince Rupert, and a Japanese firm has acquired a tract of lumber on Louise Island in the Queen Charlotte group, with the intention of erecting a plant as soon as the financial situation in Japan clears up.

RICE STRAW AS RAW MATERIAL IN THE PAPER INDUSTRY.

According to "Eastern Engineering", a combine of Dutch paper manufacturers proposes to establish a factory in the Dutch East Indies for the manufacture of paper from rice straw. It is stated that excellent writing paper has already been made from this material.

The Markets

CANADIAN PAPER TRADE CONDITIONS.

Toronto, Nov. 5.—The Canadian paper trade generally is looking for lower prices but as yet there are none to record, unless events of the week result in the lowering of box board prices. Some members of the Canadian box board industry are understood to consider that the present is the time to make a downward revision in the price list in order to meet the American competition. The consumers of box board are convinced that the product went altogether too high and that the manufacturers should be well able to shave the present prices down to a more normal level. Whether or not the industry will be able to retain the high price level will largely depend on the result of circumstances now largely operative in the United States although it is pretty generally predicted that there will be a downward revision in the near future, if not at once. All other paper products remain firm in price and in most cases somewhat freer in deliveries.

WHAT THE MILLMEN SAY.—As stated last week the jobbing trade is endeavoring to bring pressure to bear on the paper manufacturers to set a fast price on their product and by abolishing the proviso as to price prevailing at date of shipment. In reply to the contention that the manufacturers should now unite to bring the market back to normal one of the manufacturers made this statement to a Toronto jobber : " The situation, I am sorry to say, does not show any signs of clearing at the present time. In fact, we are just as much in the air as we ever were. However, I quite realize what you say about taking orders on fixed prices and I quite agree that there is a lot—a whole lot—in orders being paced on a fixed price basis. As regards American and British mills I am satisfied that they will not be able to export paper into Canada that can be made here and I know that as far as our mill is concerned, we will be in a position to compete, and it will be our constant endeavor to supply goods to the trade at a price at which there will be no possibility of foreign competition." Although the tone of this statement gives little hope of immediate relief from the disability under which the jobbers are operating in the way of the absence of fixed prices, the paper dealers declare their intention of following the matter up further.

U. S. PRICES TUMBLING. — Local dealers have been advised that prices on the other side of the line are on the downward grade. Tag manilas and tissues, for instance, have dropped 30 per cent. This drop, it is stated, is not on the part of the mills but by the jobbers who are evidently overloaded and are bent on price cutting. It is the general impression that this will eventually bring down the mill prices, although as far as can be learned little or none of the American product in these lines is being offered the Canadian market. As further indicating the possibility of serious American competition a Toronto jobber this week was offered one hundred tons of S. C. book, rolled, at 11c a pound, which would cost 17c laid down here as compared with 20¼c. the jobber is paying to the Canadian mills.

TISSUES AND TOILETS.—Prices in these lines are firm with no reduction in prices but buying is a little more conservative. The trade is not buying anything more than is required for immediate use, but the orders that are coming into the mills are for immediate delivery and use, although there are a few orders coming in for future delivery. All of which indicates that stocks are low. There have been practically no cancellations and no changes in prices are looked for six months at least.

BRISTOL BOARDS.—The trade reports that Bristol boards are coming in considerably more freely than for some time past and orders are being shipped promptly. There is a good demand in the trade for the goods and prices remain firm.

BLOTTING PAPERS.—There are fairly free imports of blotting papers from the States and according to reports brought by travelling representatives from across the line a drop in the price of the product is not looked for within a year's time. Not only blotting but other American papers as well are being freely offered and as an evidence of the changed condition in the trade it may be mentioned that one jobber handling imported stuff was this week called upon by four different mill salesmen. The local jobbers however, are showing a disposition to give the preference to the Canadian mills wherever possible without too big a sacrifice.

GLASSINE AND GREASEPROOF.—There is a fair demand for these products and the mills have all the order they can fill. Prices remain firm and the mills are getting caught up with back orders.

BOOK PAPER.—There is still a shortage of book papers and jobbers are unable to secure enough to meet the demands of their customers. Book papers are in a class pretty much by themselves as far as scarcity goes and have lagged behind in deliveries while other lines are getting fairly well caught up. Jobbers complain that some of the mills, after allowing orders to pile up and overlap, are now running the combined orders and will not accept cancellation of any part of the total. Naturally the jobber does not want to get too heavily loaded with stock and in some instances attempts are being made to get the mills to cancel part of the accumulated orders which the mills are not inclined to do.

BONDS AND LEDGERS.—Supplies of these lines are coming through from the mills spasmodically. The mills are running on whites and as the demand is for colors these are very hard to get. As in other lines of paper prices remain firm and unchanged.

BOX BOARD.—Late in the week the box board situation changed. The general tendency is to bring down the prices of various lines. Straw board, chip board and No. 3 pulp board will now be quoted at $108 per ton as against the old price of $133. All other grades of board, except specials have been reduced ten per cent which brings them back to the old price in effect at the end of August of this year. The new prices are good to December 31st. 1920. In this connection the last paragraph of our British Trade News will be of interest and may be suggestive.

NEW YORK MARKETS.

New York, November 6—(Special Correspondence)—According to all reports, the paper market is becoming quieter from day to day. Consumers in various quarters are doing very little new buying, and were it not for the fact that manufacturers and jobbers have contracts on their books, business would be practically at a standstill, so little current purchasing is being done. The market is in a waiting condition all around. Producers of paper are not endeavoring to press buyers with a view of stimulating demand, neither are they rashly reducing quotations in anticipation of attracting buyers into enlarging their operations. Sellers of paper, in other words, are pursuing very nearly the same policy as are buyers—that of holding aloof in the firm belief that prevailing conditions cannot last indefinitely and that demand for paper of all grades will soon revive to a more normal scale.

With the exception of those on box boards, prices are holding remarkably steady in the face of the narrow demand. Quotations are easy in most cases, as would be logically expected under ruling circumstances, but if it can be said in favor of manufacturers that such declines as have occurred have been in orderly fashion and have not shaken the equilibrium of the market. Paper manufacturers contend that the cost of producing paper of all kinds has decreased but slightly and that for this reason alone they are justified in maintaining quotations on the finished product. Moreover, many freely predict that when business activity broadens, prices on good many lines of paper will appreciably strengthen unless the cost of raw material and labor should decline in the meantime, which seems improbable.

New low prices are reported on newsprint in the spot market. There have been sales of roll news for prompt delivery rumored at as low as 7.50 cents a pound, while actual sales have been recorded at 8 cents. Whether or not print paper is available at less than 8 cents is questionable. Perhaps in some out of the way case a lot has sold this cheap but no one in the paper trade will acknowledge having offered out newsprint at such figures, 8 cents being about the bottom price quoted. The steadfast refusal of large publishers to buy in the open market, together with the increased offerings of foreign newsprint, are weakening factors. It is likely, too, that the reports concerning large tonnages of newsprint that Germany and Finland are planning to ship to the United States have had effect notwithstanding that a majority of the trade are decidedly skeptical regarding such supplies from abroad. The contract basis on newsprint rules firm at around 6.50 cents and it is significant that consumers not only are taking all the paper that is due them on contract but that they are trying to acquire additional amounts at the same price.

The book paper market is characterized by rather novel conditions. There is steady and voluminous movement of supplies toward consumption on contracts but little demand for spot shipments. In other words, publishers are absorbing all the paper they can get at the low market levels but are refraining from buying at the prices asked on spot deliveries, with the result that tonnage of both roll and flat stock is much easier to secure for quick delivery. Prices hold at about previous marks although reports are heard from time to time of lots changing hands at concessions from the quotations named.

Tissues and wrappings are a bit lower in price. No. 1 white tissue is quoted at around $1.85 and No. 2 white and No. 1 manila at $1.70 to $1.75, while No. 1 domestic kraft wrapping for prompt delivery is priced at 10.50 cents a pound and No. 1 jute wrapping at 13.50 cents. Demand for both kinds of paper is quiet.

Fine papers are moving slowly in so far as regards new orders, and while quotations on low grades of bonds and ledgers display a softening tendency those on high qualities rule strong. There is a feeling that fine papers cannot recede very much, if any, for the reason that production costs remain high and in some instances continue to rise.

Further weakening of quotations on boards has occurred. The lowest price named on plain chip board is $60 per ton at mills, and a more representative quotation is in the neighborhood of $65, while news board is quoted at $70 to $80 f.o.b. mills. Demands for boards is at an exceedingly low ebb and it is reported on high authority that several mills have shut down for a time while it is definitely known that most board plants have curtailed operations.

GROUND WOOD—Little change is recorded in the mechanical wood pulp situation . There is little demand of important character emanating from consuming quarters, but there is an undertone of steadiness in prices and producers are holding firm for $125 per ton at shipping points for domestic ground wood of prime quality for prompt delivery. Imported ground wood is available at lower prices than domestic, offerings down to $110 a ton ex dock being reported, but this pulp is sold on a dry basis and it is understood that only certain mills are using it. Authoritative reports state that stocks of ground wood at both producing and consuming points are at low levels, and members of the trade express the opinion that freezing weather will likely be accompanied by a strengthening of the pulp market because it is believed that if production is hampered at all prices will be forced upward solely by the law of supply and demand.

CHEMICAL PULP.—Buyers of chemical wood pulp are holding aloof and sellers are mostly pursuing a similar policy. Papermakers as a general thing, are eking out contract supplies in such a way as to enable them to keep out of the market for the present, yet manufacturers and importers are not pressing customers and are waiting a revival of demand in the confident belief that market activity will appreciably broaden in the near future. If anything, the undertone of the market has been firmer this week than before, the ending of the British coal miners strike being responsible for the more bullish feeling in the trade. While the coal strike was in progress pulp men here appreciated that should the strike last for any length of time doubtless considerable quantities of pulp would be diverted from England by Scandinavian shippers to this market, and now that the probability of this has been eliminated by the settlement of the strike, dealers here do not look for any larger supplies from Sweden or Norway. Prices are holding fairly steady although there is no denying that some lots of pulp are being obtained at recessions. Kraft pulp, in fact, is anything but firm in price and can be purchased at comparatively low figures. News grade sulphite is slightly off in value with revised quotations ranging from 7 to 7.50 cents per pound at pulp mills.

Arrivals of foreign pulp at the port of New York this week included 4,291 bales from Kobe, 16,247 bales



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INQUIRIES SOLICITED.

from Kotka, Finland; 10,220 bales from Trondhjem, and 245 bales from Halifax.

RAGS.—Extreme quietness obtains in the paper-making rag market. There are few buyers in view and prices on most kinds of rags are steadily moving toward lower levels. New cuttings are fairly firm, owing to the slow production of such rags at present, but old rags are to be had at almost any prices consumers are willing to offer. Sales of roofing rags have been reported down to 1.30 cents a pound at shipping points for No. 1 packing and at 1.20 cents for No. 2 roofing, and demand even at these figures is of negligible character. Roofing felt mills are in want of business and, having ample stocks of rags on hand to cover current requirements, are not buying excepting in a spasmodic way. Old whites are quotably lower at a basis of as low as 10.50 cents for No. 1 repacked, and thirds and blues are freely offered to mills at 3.75 cents f.o.b. dealers' points for packed stock. No. 2 repacked whites are available at 5.50 cents per pound, black cotton stockings at 3.50 cents, lace curtains at 7.75 cents and new washable at 11.50 cents. New white shirt cuttings are held with considerable firmness by packers at between 25 and 26 cents a pound for No. 1 quality cuttings.

Receipts of foreign rags at New York this week were: 151 bales from Hamburg, 721 bales from Bordeaux, 1,349 bales from Havre, 59 bales from Hull, 14 bales from Liverpool, and 43 bales from Rotterdam.

PAPER STOCK.—Dullness continues to prevail in the old paper market and prices on a majority of grades have fallen to new low points. Packers assert that the values obtainable for low qualities of waste paper do not begin to compensate them for collecting and sorting stock, and many are drastically reducing their production. This has little effect on the market, however for the reason that mills are not doing enough buying to make the shortage visible. Prices are largely nominal, but the following are approximate market values: Folded news, 1.20 cents; No. 1 mixed papers, 65 to 75 cents per hundred pounds; heavy No. 1 books and magazines, 2.15 to 2.25 cents; No. 1 hard white shavings, 8.75 to 9 cents; No. 1 soft white shavings, 7.75 to 8 cents; No. 1 manilas, 1.80 cents; white blank news cuttings, 4.50 cent, and old No. 1 kraft, 4.25 cents.

Imports of miscellaneous paper stock at this port this week included 1,692 bales from Rotterdam, 35 bales from Liverpool, and 8 bales from Glasgow.

OLD ROPE AND BAGGING.—There is an absence of demand for old bagging and prices are uncertain at a basis of about 2 cents per pound at shipping points for No. 1 scrap bagging. Old rope is in moderate call and mills are covering requirements at an average figure of 6 cents f.o.b. New York for No. 1 manila rope.

Arrivals of old rope from foreign sources at New York this week included 76 coils from British, and 80 coils from Hull.

THE SAD TALE OF TEN WORKMEN.

Ten healthy workmen, starting off so fine;
One biffed a motor truck, and then there were nine.
Nine healthy workmen reached the factory gate;
One stepped on an upturned nail, and then there were eight.
Eight healthy workmen, each scorned the Safety Code;
Ere the clock had moved a jiff, one in an ambulance rode.
Seven healthy workmen, one tried a crank to fix;
He didn't throw the belt off, and then there were six.
Six healthy workmen; it's a wonder they're alive,
For a thumping big electric shock reduced the crew to five.
The five men called a meeting. They were getting rather sore.
But failed to note a swinging crane, which brought them down to four.
The four men thought of Safety First and always careful be;
An object thrown upon the floor reduced the four to three.
The three looked at the warpings about the factory wall,
But soon the three was cut to two, as one had "took a fall."
The two bore bravely on; none else was to be done,
A flying chip and exposed eyes cut the roll call down to one.
The one was left dejected. "'Tis very cruel", he said.
An engine cut him right in two, and the last of the ten was dead.
Now this is a sad, sad story; I know you'll weep and curse;
But if these men had only thought, they wouldn't be in this verse.
Each thought that safety was a joke, just like the chicken roost,
When them as can come back to work, each will for safety boost.

Wingfoot Clan.

WHY MISTAKES ARE MADE.

Three-fourths of the mistakes a man makes are made because he does not really know the things he thinks he knows.—James Bryce.

Scandinavian American Trading Co.

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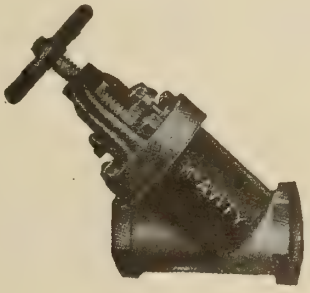
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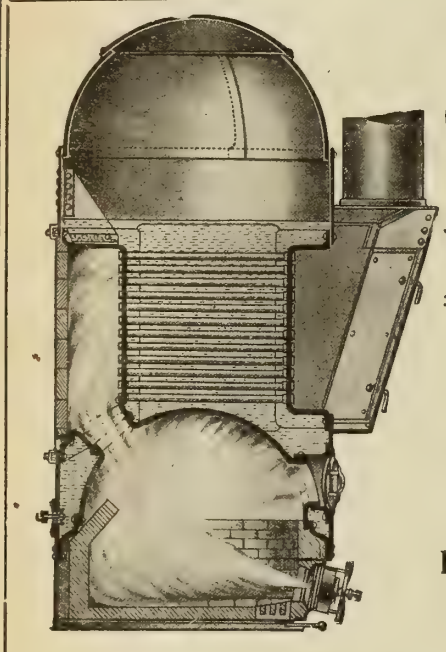
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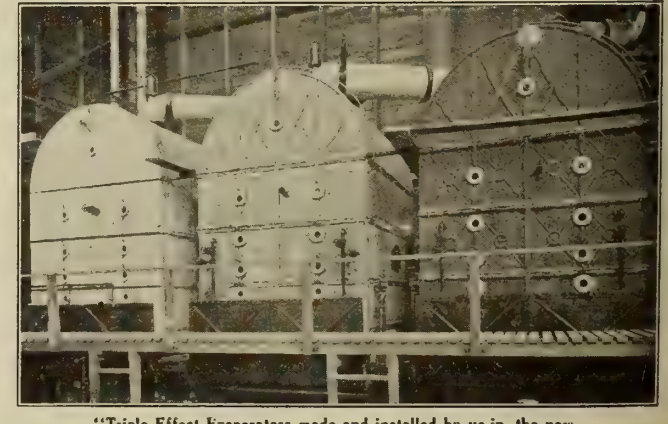
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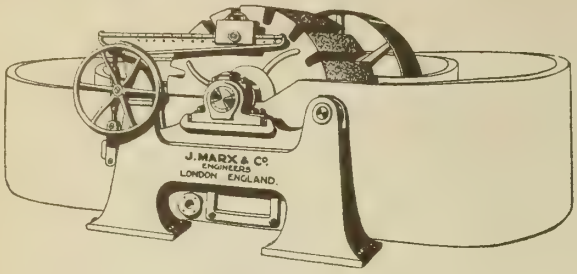
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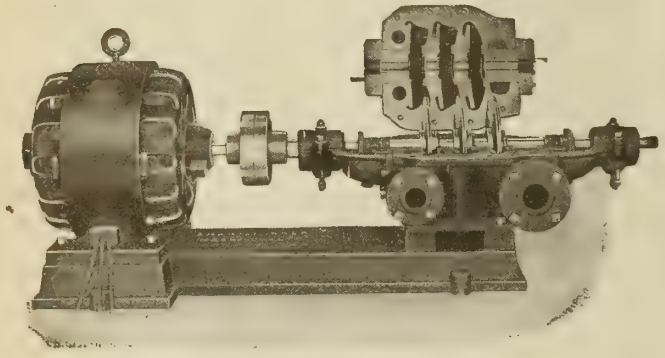
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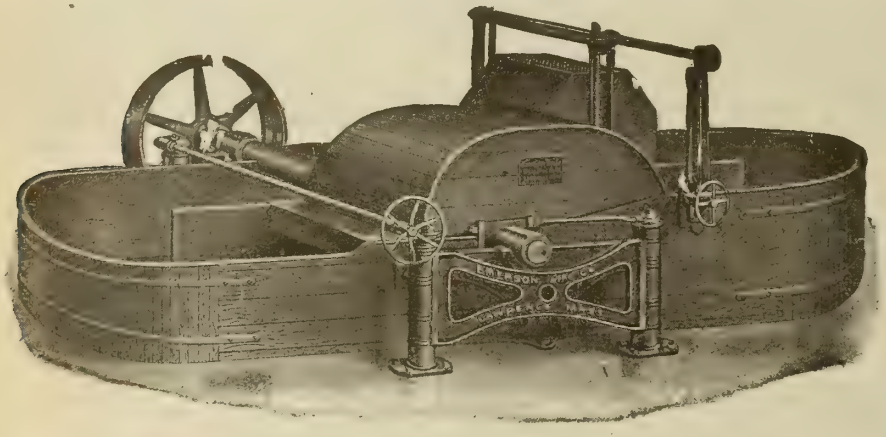
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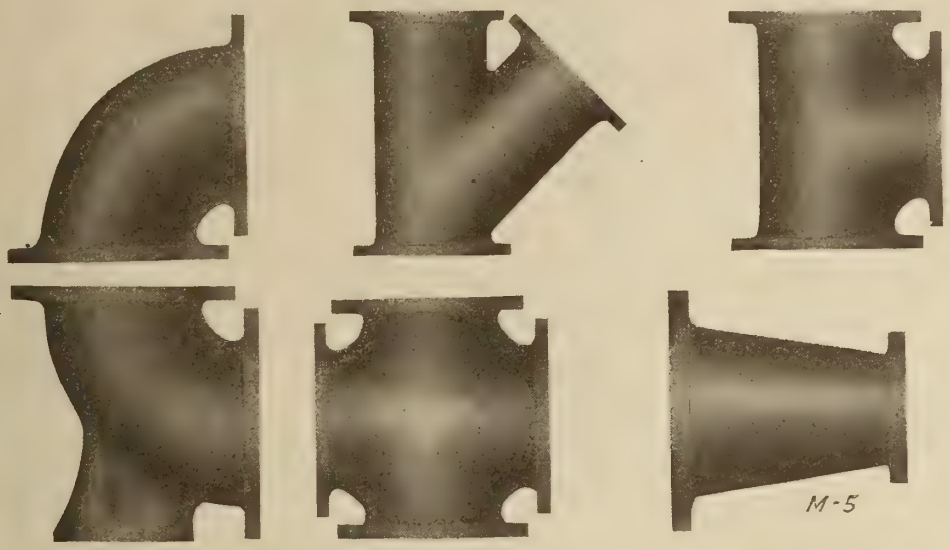
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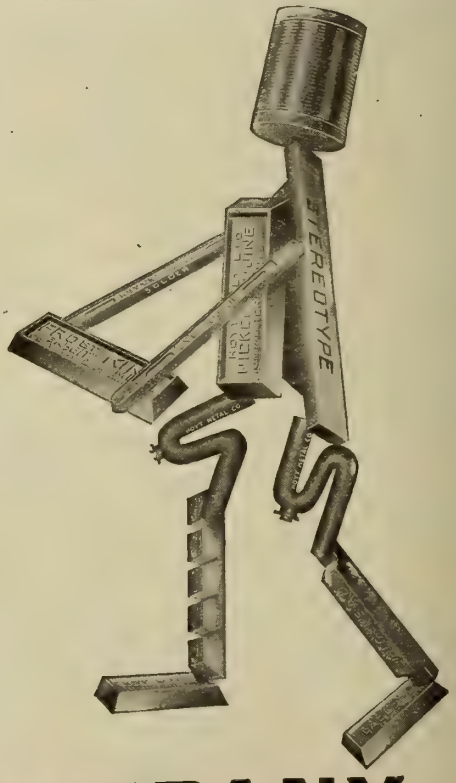
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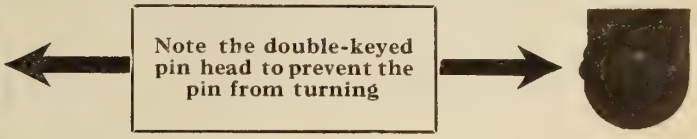


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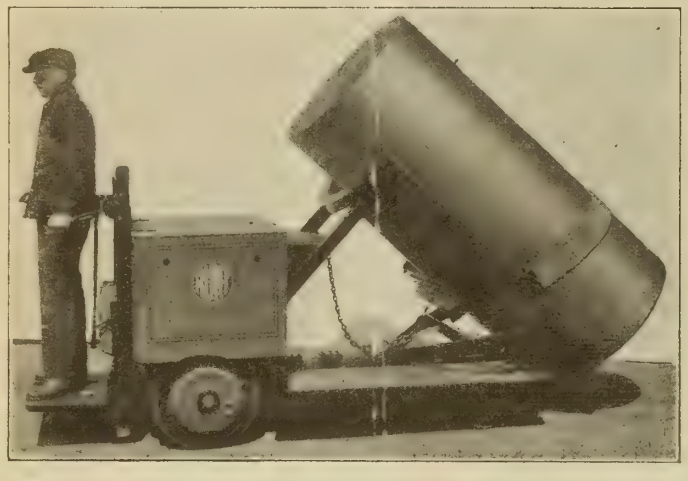
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Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. **GARDENVALE, P. Que., November 18, 1920.** **No. 47**

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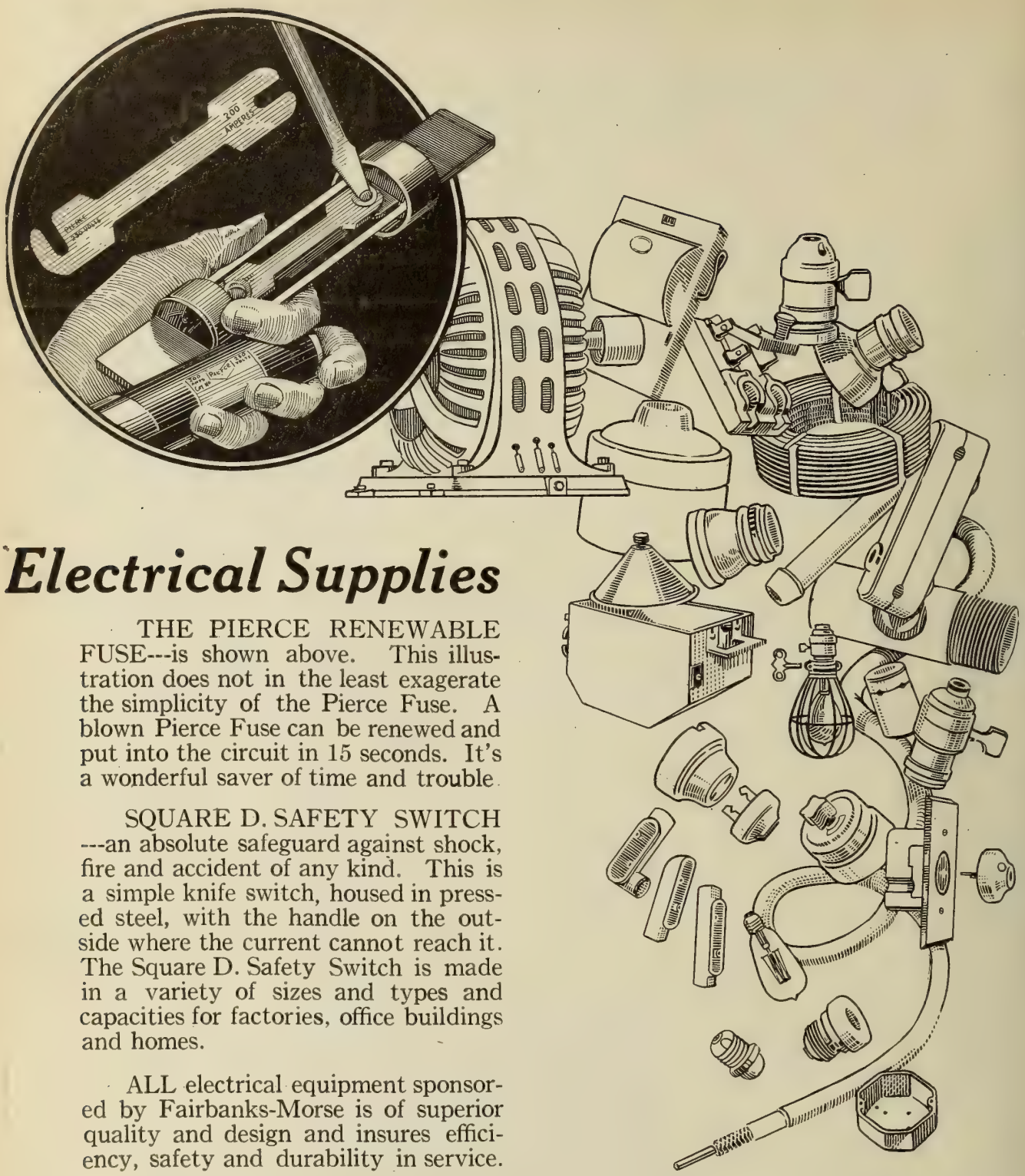
Official Journal of the Technical Section of the Canadian Pulp and Paper Association.

J. NEWELL STEPHENSON, M.S., Editor.

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-:- EDITORIAL -:-

THE DISCOVERER OF GROUNDWOOD PULP.

On another page of this issue, there will be found the result of a careful investigation by the London correspondent of the Pulp and Paper Magazine of the right of a Nova Scotian to be considered as the actual discoverer of groundwood pulp. In the Pulp and Paper Magazine for February 15th, 1915, there appeared an article which gave the honor to Charles Fenerty who was born in Sackville, Nova Scotia, in January, 1821, and died in that place in June, 1892. That article shows that there is not very good agreement as to the actual date of the discovery of this process by Keller. Since the appearance of the article referred to in 1915, investigations have been going on and the results are set forth elsewhere.

The Historical Society of Nova Scotia is interested annually in having such an honor properly recognized, zand it has been proposed to erect a suitable memorial to the actual inventor of the process which now means the conversion of thousands of cords of Canadian wood into millions of dollars in currency and gives employment to thousands of Canadian workmen in forests and pulp mills. The fact that the working out of the idea on a commercial basis should have been accomplished in Europe because the Nova Scotian's invention was not duly appreciated, offers no excuse for delaying further with preparing a suitable recognition of the genius of Charles Fenerty. Canada, and particularly Nova Scotia, may well be proud that a Canadian was the first to convert wood into paper by a mechanical process, particularly since the application of the great water powers of the Dominion to the product of her forests is the basis of Canada's most important manufacturing industry. Paper men thoughout the Dominion should be interested in, and support the proposed memorial to the youth who applied his knowledge and genius to this subject eighty years ago.

Canada had the first sulphate pulp mill on this continent, and probably had the first sulphite pulp mill, and one of the very early, if not the first, commercial pulpwood grinder. Fenerty's invention now gives the Dominion still another claim to distinction; and in spite of Canada being such a young country industrially, we see that the Dominion really comes in very early in the practical application of the principal processes for converting wood into paper pulp. This fact, together with the rapid growth and increasing importance of the industry in Canada, is cause for pride and should be an incentive to the erection of the memorial to the Nova Scotian who discovered that the mechanical grinding of wood could produce such a fibre as is suitable for paper making.

FALSE FEAR OF FINLAND.

Considerable attention has been given lately, by newspapers, to the growth of paper manufacturing in Finland and the probable effect of extensive purchase of this paper on the American market. The placing of such an order as 40,000 tons is spoken of as quite an event. As a matter of fact this quantity is less than a sixth of the total paper production of Finland although it is approximately 40% of the newsprint production. When this 40,000 ton order is compared with the 2,000,000 odd tons that American publishers consume annually we see that it amounts to only 2% of the total.

While this entrance of Finland into the American market is not particularly significant, as the approach of a rival of the Canadian pulp and paper industry, there are certain lessons to be drawn. The editor had the privilege and pleasure last week of meeting Mr. Hjalmar Gronvik, Managing Director of the Finnish Paper Mills Association, and Mr. Walter Graesbeck, Managing Director of the Finnish Cellulose Association. In the course of a conversation, it was brought out that there are thirty-one paper mills in Finland, producing about 250,000 tons of paper annually,of which 40% is newsprint. There are twenty-four chemical pulp mills with a capacity of about 300,000 tons, and of this amount about 75% is sulphite pulp. In addition there are groundwood mills producing 150,000 tons of mechanical pulp. Mr. Graesbeck estimates that something like 60,000 tons of sulphite pulp will be exported to the United States in 1921. Comparatively little of this is bleached, because of the difficulty of getting bleaching powder. This pulp has earned quite a reputation for its high quality. Previous to the war, when considerably less paper was produced, and in fact the whole industry may be said to have been in its infancy, about 90% of the product went to Russia. Concentration of trade with Russia in those days was due in part to the fact that Finland was politically connected with Czardom, and has resulted in an unfortunate economic effect on Finland because of the comparatively large credits that

piled up in Russia, and which it has not been possible to collect.

The new policy of the Finnish pulp and paper manufacturers is to put their eggs into several baskets, and consequently their paper and cellulose trade is found widely distributed over the world. Their principal markets are England, Denmark, France, Italy, United States, and South America. To most of these countries they have direct steamers. This policy of distributing the product, even though the capacity of Finland's mills should double in the near future, would quite prevent sufficient flooding of the United States with Finnish paper to have any material effect on that market. It must be remembered, however, that the Finnish paper industry is by no means restricted to the manufacture of coarse grades, only we naturally hear more about newsprint than other qualities. Finland produces some excellent tissues and some other specialties, and these will also find their way, to some extent, to this side of the Atlantic.

Canada should not look upon Finland so much in the light of a competitor and rival as in the nature of a friendly co-operator in supplying the ever increasing demand for wood pulp papers. In the accomplishment of this purpose, which is becoming really an obligation on countries possessed of soft wood forests, Canada may well take a lesson from the forest policies of Finland and the other Scandinavian countries. It was mentioned at the Convention of the American Pulp and Paper Association last week, that unless re-forestation and conservation measures are immediately undertaken, newspapers will have to stop publication within fifty years for lack of newsprint paper. Since newsprint paper amounts to less than one third of the paper production of the United States, and probably more than 75% of the paper used in that country is made from wood pulp, we see that future trouble is by no means limited to the newsprint publisher; it means that wrapping papers, book papers, box boards, most grades of sheathing and roofing and all grades of wall board, together with a large proportion of writing papers will be proportionally affected by a pulp wood famine.

We repeat that a country with forests, and no country is more richly blessed in this regard than Canada, has a distinct obligation to see that these forests are conserved so that future generations shall not seriously lack one of the most important contributions to culture and comfort. Finland can teach us a good lesson in the proper care of the forests. Finland, like Canada, must depend in a large measure on the product of the forest to maintain and improve her economic status. To neglect this source of wealth is to invite national bankruptcy. It is most astonishing to us that Canadians have so largely failed to realize the absolute necessity for a proper forest policy for the whole Dominion.

A SUSPICIOUS "WORLD."

Some people are never satisfied. After the newspapers of Canada have been "saved" thousands of dollars by reason of the Government throttling of paper mills at their instigation, the Toronto "World" says:

"The paper profiteers are trying to keep their courage up by talking of higher prices than ever, and of five-year contracts at six cents a pound! And, while they talk thus bravely, they see things going all the other way. And the Canadian publishers are growing more and more suspicious of those who misrepresented them in previous negotiations. Too many secret deals for their individual advantage are suspected to have taken place, and more than one noble patriot has fallen as a sacrifice to the luring words of the profiteers."

COBWEBS.

A Chicago dispatch quotes President Sisson, of the A. P. & P. A., as saying the United States will have to conserve paper resources because Canada and Argentina have not enough surplus to spare any great quantity. We fail to see where Argentina comes in as a source of paper while Canada sends the U. S. A. only a paltry million tons or so of pulp and paper, or a meagre 80 per cent. of our production.

A New Brunswick pulp wood operator is quoted as expecting a big slump in pulp wood prices another season, but in the next breath predicts a great curtailment in New Brunswick pulp wood operations. What does he means?

THE FUNGI MAN.

By U. B. WISE

Whst! whst! whst! here comes the fungi man
He's waiting in the basement and
he'll catch you if he can.
The room is dark and damp and low.
The pulp is soft and wet,
And it's all stacked up together where
it's hard for trucks to get.
And there's *fomes* and *lentinus*
creepy crawlin' all about,
And the **fungolins** 'll get ya if
ya don't watch out.

Whst! whst! whst! here comes the fungi man.
He's a hairy hoary member of a dark,
pulp-thirsty clan,
A sneakin' round the beams and joists
just waitin' for a chance.
And the wetter, and the closer stacked
the merrier the dance.
For there's *Roseus*, *Moerulens*
all others all about,
And the fungolins 'll get **you** if you
don't watch out.

Cheer up! Today is the tomorrow you worried about yesterday, and nothing has happened.

Ground Wood Actually Discovered in Canada

Fenerty, of Halifax, made Pulp and Paper from Spruce in 1838-1839.

By J. R. BOOTH, Special London Correspondent to The Pulp & Paper Magazine.

The poet Péguy once said that in heaven, as he understood it, there was room not only for the artist and the handicraftsman, but also for their works. Charles Fenerty, the Nova Scotian poet, author, and gold digger, may well come within that delectable border region depicted by Péguy, as the real inventor of ground wood and the first man to make paper out of groundwood apart from his artistic and literary ability. Canadians know little of the genius who lived wandering through a magic landscape, perpetually yielding to fresh enticements and discovery of new delights, or taking his mind in a concentration of thought as to what he could best do for the future of the spruce. Forests were dense and they appealed to Fenerty but they just lay beyond the fringes of his dream. Like Shelley, he had found in the "garden" the "Sensitive Plant", and his inventive genius, combined with his knowledge obtained when moving about among the workers of a ragpaper mill near his beloved home, was early at work in the field of discovery. In one of his little poems Fenerty wrote:

Then 'tis sinful to sigh for the joys that are gone.
They were earthborn, untrue, evanescent;
And teach us this lesson, ere yet it is flown:
For the future prepare by the present.

Fenerty was reading the future when he wrote these lines "back in the thirties" and today we hail him in memory as a great man, who made a great discovery, but unfortunately for Canada and her forests, "The West shut down a heavy eye" on him while the watch-stars kindled in the sky. In other words, he became discouraged and his discovery had a new birth in Germany.

History of Groundwood.

There are many claimants in the field for the first discovery of groundwood or pulp, and I think it will do no harm to enumerate them:

(1) In 1840 Keller is stated to have introduced the manufacture of mechanical wood pulp.
(2) Between 1840-1846, Lagrange Bull, of Martinique, made paper pulp from the leaves of the banana tree.
(3) In 1848 France introduced Keller's invention.
(4) Groundwood was made in U. S. A. in 1867, but earlier in Germany.

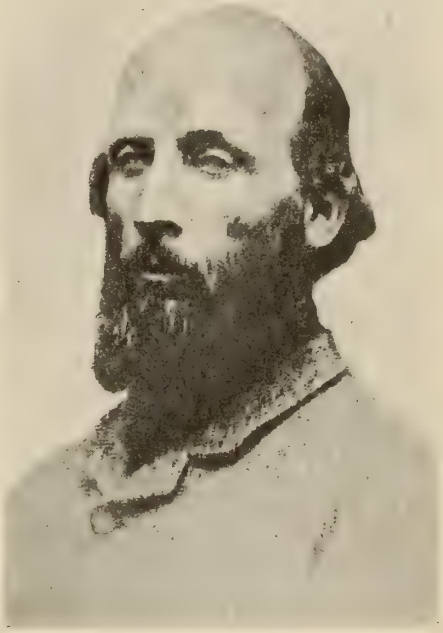
There are books and articles written on the introduction of wood pulp, or groundwood, but the only writer who gives any definite information is Mr. R. W. Sindall, in his work "An Elementary Manual of Paper Technology".

According to German paper and pulp writers Keller, from Hainichen, in Saxony, discovered woodpulp by observing that a piece of wood pressed upon a grindstone was ground into a porridge or pulp of fibre, which when mixed with rag pulp gave a durable and a very extraordinary raw material for producing cheap paper. For his discovery Keller did not receive any reward, financially, and he was discouraged. Another writer says that Keller after watching the formation of cells of a wasp's nest thought of wood as a pulp. When he made his discovery he allied himself to another discoverer with the result known to-day in the paper industry.

The original discovery, as set out by German writers, is interesting, when compared with Fenerty's case; but no one has up to the present date ventured to state that in Germany wood pulp was discovered prior to 1840. Indeed various writers on Keller's discovery are not all agreed as to how it was made and when. Early manuscripts I have seen put his discovery down to the wood pressed upon a grind-stone.

Fenerty's Discovery.

Charles Fenerty, a poet, student, and a young man of great inventiveness, was a constant frequenter of a rag paper mill situated about half-way between Springfield and Halifax (N.S.) and run by a stream flowing into Bedford Basin. Large mills now occupy the site.



CHARLES FENERTY, THE NOVA SCOTIAN WHO REALLY DISCOVERED WOOD PULP AND TURNED SPRUCE INTO PAPER.

It was around this small paper mill young Fenerty came to the conclusion that a change from rags, as a raw material, was necessary for something cheaper. He saw mill troubles; but his hobby was the mill and he played round it like a child would with a puzzle. Like the mill owner, he wanted to make paper and he was classed as a "dreamer".

Undaunted, Charles Fenerty devoted his attention to spruce. He wrote poems to it and in 1838 he turned it into paper. This is the earliest date we have in the pulp industry of groundwood being discovered, and it was only in 1913 and 1914 I discovered the mystery. There is no actual date as to when the groundwood was produced but the statements of those who saw the rough paper put it at 1838. Now, how did Fenerty

make his discovery of groundwood? Let me quote a statement made by one who knew Fenerty, and, who witnessed in those days the result of Fenerty's experiments:—

> "As to the date Charles Fenerty made his attempt that was successful at reducing spruce wood to a pulp and making a crude piece of paper on the bottom of a basket of fine material, the nature of a sieve, with the aid of an iron spoon to press out moisture and felt the pulp together, the date was 1838. Later in 1839 when he found he could produce paper he improved his home-made methods and implements until he had paper good enough to send to the publisher of the Acadian Recorder in Halifax."

The "dreamer" actually produced pulp from spruce in 1838 and then sent the paper made from it to a newspaper publisher. In Fenerty's discovery of groundwood it will be seen from the early German reports that Keller's, at a subsequent date, was made in a way similar to the Nova Scotian's, viz. by grinding or crushing.

I have made the discovery also that there is today in Sackville a lady who is just 90 years of age, mentally and physically alert—well educated and well-informed —who can trace back to 1839, by a series of events, as the date when her father first inspected paper made from spruce by Charles Fenerty. Her statement has been confirmed from another source, and from my own personal enquiries in Nova Scotia, I attach great importance to it.

The "Acadian Recorder" says that Charles Fenerty must be given the credit as the first to discover the art of manufacturing newsprint from the trees of the forest as he doubtless saw the difficulties which the successive proprietors of the old rag mill would encounter in keeping its wheels on the move.

Fenerty Finished Paper.

Between 1838 and 1844 Fenerty, who failed to get favor for his discovery, like Keller in Germany, worked at his new hobby, and to draw public attention to it, he sent a specimen of his paper to the proprietors of the "Acadian Recorder", Messrs. English and Blackadar (now Blackadar Brothers) with the following letter:—

"Enclosed is a small piece of paper, the result of an experiment I have made in order to ascertain if that useful article might not be manufactured from wood. The result has proved that opinion to be correct for —by the sample I have sent you, gentlemen,—you will perceive the feasibility of it. The enclosed, which is as firm in its texture as white, and to all appearance as durable as the common wrapping paper made from hemp, cotton or the ordinary materials of manfacture, is actually composed of spruce wood, reduced to a pulp, and subjected to the same treatment as paper is in course of being made, only with this exception, viz: my insufficient means of giving it the required pressure. I entertain an opinion that our common forest trees, either hard or soft wood, but more especially the fir, spruce or poplar, on account of the fibrous quality of their wood, might easily be reduced by a chafing machine, and manufactured into paper of the finest kind. This opinion, Sirs, I think the experiment will justify and leaving it to be prosecuted further by the scientific or the curious, I remain, gentlemen, Your Obedient Servant, (Signed) Charles Fenerty."

This letter proves that Charles Fenerty had a very fair knowledge of paper manufacture, and that when he was working at the production of groundwood in 1838 the knowledge he obtained in the rag paper mill was useful to him—although he never worked in the mill as an employee.

Conclusions.

It is unfortunate that some of the early papers relating to Fenerty's discovery are not obtainable in Halifax at present. Since 1914 I have had a keen search made for them, but Fenerty being a much superior man in education and experimental work than Keller, we may assume that in 1837 spruce was in Fenerty's mind as a raw material for paper. In 1838 he was experimenting with it and actually produced wood pulp and paper as the testimony of those who have seen it show.

Nova Scotians very naturally lay the credit of discovering wood pulp on Fenerty. Indeed, they gave him the credit of it long before Keller made his discovery in Germany in 1840.

I understand the Nova Scotia Historical Society also had Fenerty's name before them and there was talk of raising a memorial to his memory at the place where he converted spruce into pulp. The idea has not yet fallen through, as the war in Europe only gave it a temporary set back. Now, if Keller was entitled to the Order of Merit and other diplomas for his discovery in 1840, surely Charles Fenerty is worthy of recognition for his double discovery in 1838. Canadians, and Nova Scotians especially, must not allow the question of a memorial to rest, and if the Historical Society of Nova Scotia is encouraged, I am sure a suitable tablet will be erected.

Keller and Fenerty were in the same boat; they produced wood pulp, Fenerty being the first with it, but they were considered "dreamers" and discouraged.

I have no doubt Haligonians will do their duty to the memory of one who lived among them and whose relatives still occupy a prominent and honored position in the life of the place.

LAND SETTLEMENT AND PAPER MILLS.

Speaking at a meeting at Monteith, Ont., Mr. R. A. McInnis, manager of the Abitibi Power & Paper Company, Iroquois Falls, said that few people realized what the pulp industry meant to the North. The Abitibi Co. paid last year three and a half millions in wages alone. Then there were other mills at Smooth Rock, Kapuskasing and so on. In a few years the wages paid annually by these and new mills would run to the enormous total of $15,000,000.

Another sign of the importance of the forest was the Abitibi Co. had paid in freight to the T. & N. O. in the past year $950,000 and the other companies in proportion.

The investment in the past three years by pulp companies had been $60,000,000 in the North country and it was just beginning. That showed the enormous importance of the industry to the North.

Where does the farmer come in? The pulpwood industries must have settlers; they must have produce and labor. First comes the large industry, then must come the settlers; roads are needed. The companies and the settlers must work together. It is useless for the people of the North to act individually. They must first work out a programme for the North and then go to the Government and get what they want.

Testing of "Kraft" Pulp For Strength

By K. G. WILEN.

Chief Chemist, Wayagamack Pulp and Paper Co., Ltd, Three Rivers, Que.

The necessity of testing pulps in general, and kraft pulps in particular, for strength, is too obvious to need any further elaboration.

In the laboratory of the Wayagamack Pulp & Paper Co., Ltd, of Three Rivers, Que., the need of a method for testing pulp for strength became particularly pressing a number of years ago in connection with experimental cooking of pulp, undertaken with the idea of determining the optimum conditions of cooking with regard to the highest strength and best yield of pulp.

The method of testing sulphite pulp for strength published by the Committee on Sulphite pulp of the T. A.P.P.I. in "Paper" November 8th, 1916, was tried out on kraft pulp but proved to be unsuitable in several respects. The proportions of pulp, water and pebbles in a jar of given size, as published by the above Committee, did not give the most satisfactory results as regards heating, and according to our experience the hand mould leaves much to be desired with regard to the uniformity of the hand made sheets. There did not seem to be any obvious reasons for testing the sheets with the Ashcroft tester, as long as the Mullen tester is universally used for commercial purposes. It appeared to us more desirable to express the results of the strength test on a basis which would give a direct comparison with results obtained in actual practice on the paper machines, particularly as the method finally adopted could then be used for placing the blame for any paper not showing the proper test on the pulp mill or the paper mill.

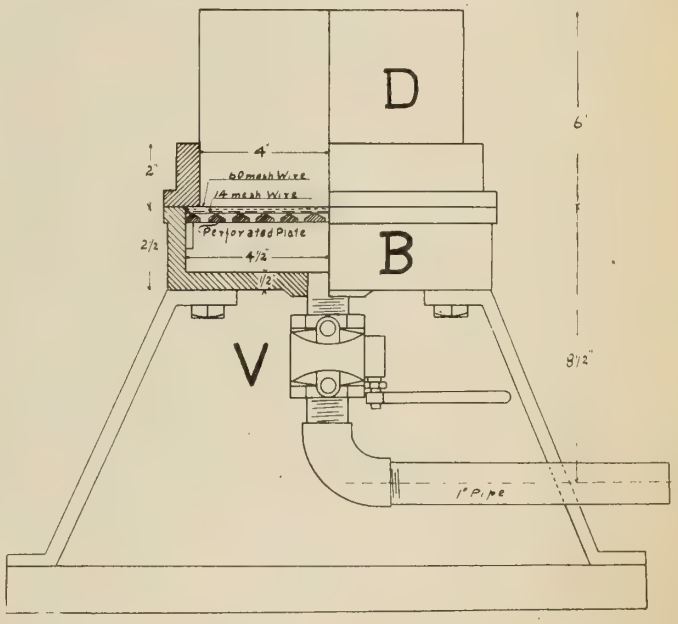
The method of testing pulp for strength which has been followed in the laboratory of the Wayagamack Pulp and Paper Co., Ltd for the last three years is briefly as follows:

25 grs. of air-dry pulp are thoroughly broken up by forcing the pulp through a screen with 1-16" round holes by means of a jet of water. The screened pulp is then collected on the sheet-machine described below, and placed in a tared weighing cylinder. The contents of the cylinder are then made up to 3 kgs. with water and transferred to the ball mill jar. The volume of the jar is 4.50 litres and it contains 2,500 grs. of pebbles of such a size that there are 250 pebbles in each jar. The pulp is beaten for one hour in the ball mill at a speed of 66 r.p.m. The beaten pulp is then washed out of the jar and made up to 10 litres in a vat from which three measures of 450 ccs. each are placed in a pail and made up to approximately 5 litres with water. After thorough stirring the contents of the pail are poured on to the sheet-machine.

The sheet-machine consists of a rectangular box, the upper surface of which is made of a perforated brass plate. A 14 mesh backing wire and a 60 mesh machine wire are soldered to the plate. When a sheet is made the "deckle box" is placed on the wire. A quick opening gate valve is used for draining the water from the machine. (Fig. 1).

The "coucher" consists of a square block of wood about 10" x 12". The under side of it is curved on a 30" radius. The thickness in the centre is about 1¼" and at the edges ½."

As soon as the pulp is transferred to the machine the drain valve is opened and the water allowed to drain off until the suction on the sheet is released by air entering the drain pipe. The "deckle box" is lifted off the machine and the coucher is covered with a wet felt and the front edge of it placed on the wire. The coucher is then pressed down rapidly until the back edge of it comes in contact with the wire. The sheet will then be firmly held by the felt. The felt is next removed from the coucher and placed on a board which fits into a letter press. In this manner 5 sheets are made and placed on the board. The top sheet is covered with a felt and the board is placed under the press. The sheets are pressed for about 15 seconds under all the pressure that can be put on the press by hand. The sheets are then transferred on to wire trays and placed in a drying oven and dried at 180 deg. F. When thoroughly dry the sheets are taken out and allowed to reabsorb the hygroscopic moisture for 1 hour. They are then cut to 6" x 6" and weighed to the nearest .05 of a gram. The weight of the sheets is calculated to lbs per ream of 480 sheets 24" x 36" i.e. the commercial weight-standard for kraft. The sheets



are tested on the Mullen tester in the four corners and in the centre. The average Mullen test multiplied by 100 and divided by the ream weight of the sheets is the expression for the strength of the pulp, in other words the strength is expressed as per cent of "point per pound."

Generally speaking, the results obtained by this method of testing pulp for strength, can be taken as a very fair indication of the strength to be expected from the pulp on the paper machine as long as the degree of hydration imparted to the pulp in the beaters is not materially different from the hydration produced in the ball mill. It is usually only in the case of extra soft kraft bag paper that the relation between the strength of the hand made sheets and the paper made on the machines varies from a definite figure.

In arriving at the above method of testing pulp for strength a number of experiments were made in order to ascertain the influence of the different factors involved, on the final result.

Some of the factors studied were:

(1) Dryness and methods of drying pulp samples before testing.

(2) Concentration of pulp in ball mill.

(3) Weight of test sheet made.

(4) Weight of pebbles.

(5) Duration of beating.

(6) Method of drying test sheets.

(7) Effect of smoothing wet sheets by pressing between sheets of heavy paper.

(8) Influence of pressure applied in couching sheets.

(9) Influence of pressure applied on wet sheets after couching.

The influence of the factors will be discussed in the same order as they are enumerated above.

DRYNESS OF SAMPLES BEFORE TESTING.—A sample of pulp was taken from the vat of a wet-machine when a lap was being made. The lap was then treated as follows: one part of the lap was tested wet, one part of the lap pulp was allowed to dry in the air and another part was dried in the drying even at 210 deg. F. The four samples of the same pulp were then tested for strength with the following results.

Sample from vat	1	hour	beating	142%
Wet sample from lap	1	"	"	141%
Air dried sample from lap	1	"	"	120%
Air dried sample from lap	1½	"	"	134%
Air dried sample from lap	2	"	"	137%
Oven dried sample from lap	1	"	"	108%
Oven dried sample from lap	1½	"	"	118%
Oven dried sample from lap	2	"	"	126%
Oven dried sample from lap	2½	"	"	125%

These tests have been confirmed a number of times and show clearly that the method of drying which pulp undergoes before it is tested for strength is of very great importance, in fact, some of the differences in strength obtained by quite radical changes in cooking conditions of kraft pulp proved to be much less than the differences caused by testing wet and dry samples of the same pulp. For convenience in breaking up the samples in the screen wet samples should always be tested whenever possible. The existence of a definite relation between the strength of the wet kraft pulp and the air-dry pulp has not yet been satisfactorily proved by us.

In testing a large number of dry kraft pulps it has invariably been found that these machine-dried pulps are weaker than the average run of wet pulp. While some of the dry pulps in their wet state, are undoubtedly equal in strength to most kraft pulps manufactured, the drying of the pulp on the machines apparently makes dry pulps less desirable than wet pulp when maximum strength is required, both for kraft paper and test board.

Below are given a few tests of dry pulps:

1	121	
2	130	
3	113	beaten 1½ hrs.
4	124	
5	115	
Wayagamack kraft average (wet)	155	beaten 1 hr.

CONCENTRATION OF PULP IN BALL MILL.—The following amounts of pulp were placed in the ball mill jars with the same quantity of water beaten for the same length of time. The variation in strength is shown below:

Grs.	% Strength
25	148
50	130
100	72
150	52
Unbeaten pulp	54

While it is easily possible to keep the quantity of pulp taken constant within 2 or 3 grams in each case, a large variation from the standard weight apparently does not influence the result very seriously.

INFLUENCE OF WEIGHT OF PAPER MADE. — For this experiment a sample of pulp was taken from the flow box of a paper machine when making 41 lb. kraft bag paper, in order to have the weight of the paper made as the only variable.

Weight of paper	Mullen test	% Strength
31 lbs	42	135
65 lbs	95	146
114 lbs	150	132

The strength of the paper made on the paper machine at the time the pulp was taken for the above experiment was 100% of "point per pound". From the above figures it is seen that variations of 100% in the weight of paper made do not influence the results by more than 10%. In actual practice, the weight of the paper made on the sheet-machine is allowed to vary from 55 lbs. to 65 lbs. per ream because repeated tests have shown that no variation in strength occurs with this variation of weight, with the machine used by us. It has been noted that if light weight sheets are made on the sheet-machine thin spots are likely to occur and a low average test results. If, on the other hand, heavy sheets are made they crease in couching and low results again result. From 50 to 60 lb. paper has been found to give the most satisfactory sheets as regards uniformity of formation, etc.

WEIGHT OF PEBBLES USED.—A variation of 100 grams in the weight of the pebbles used, with all other factors constant, does not influence the strength of the resulting sheets noticeable.

DURATION OF BEATING.—The influence of the time of beating was found to be very marked until maximum strength is obtained but after maximum strength is reached further beating has comparatively little influence. It is of interest to note, however, that the "slowness" of the pulp increases uniformly with the time of beating, even after maximum strength has been reached. The slowness was determined with the Standard Schopper-Klem Sedimentation tester 0.5 gram of pulp in 200 ccs. of water were allowed to drain off for 15 secs.

Beating Time Hrs	Mullen Test %	Sedimentation Test. ccs.
0	68	42
½	135	63
1	161	84
1½	168	103
2	166	120
2½	158	137

It should be noted that after beating for 1½ hrs. the pulp was too "slow" for the ordinary run of commercial kraft paper. Fig. 2 shows graphically the influence of the time of beating on the strength and "slowness" of kraft pulp.

INFLUENCE OF METHOD OF DRYING THE TEST SHEETS.—Repeated tests made by air-drying 2 sheets and oven drying 3 sheets at 170 deg. F. from the same set of 5 sheets, have shown that oven drying at

170 deg. F. does not influence the strength of the sheets, provided they are left in the air for about 1 hr. after drying.

The following experiment was made in order to determine approximately at what drying temperature the sheets were made from pulp taken from a paper machine. The sheets were then treated as follows :

(-) 3 sheets were dried in a drying oven and the temperature was then raised to 240 deg. F. for 15 minutes. The sheets were immediately tested.

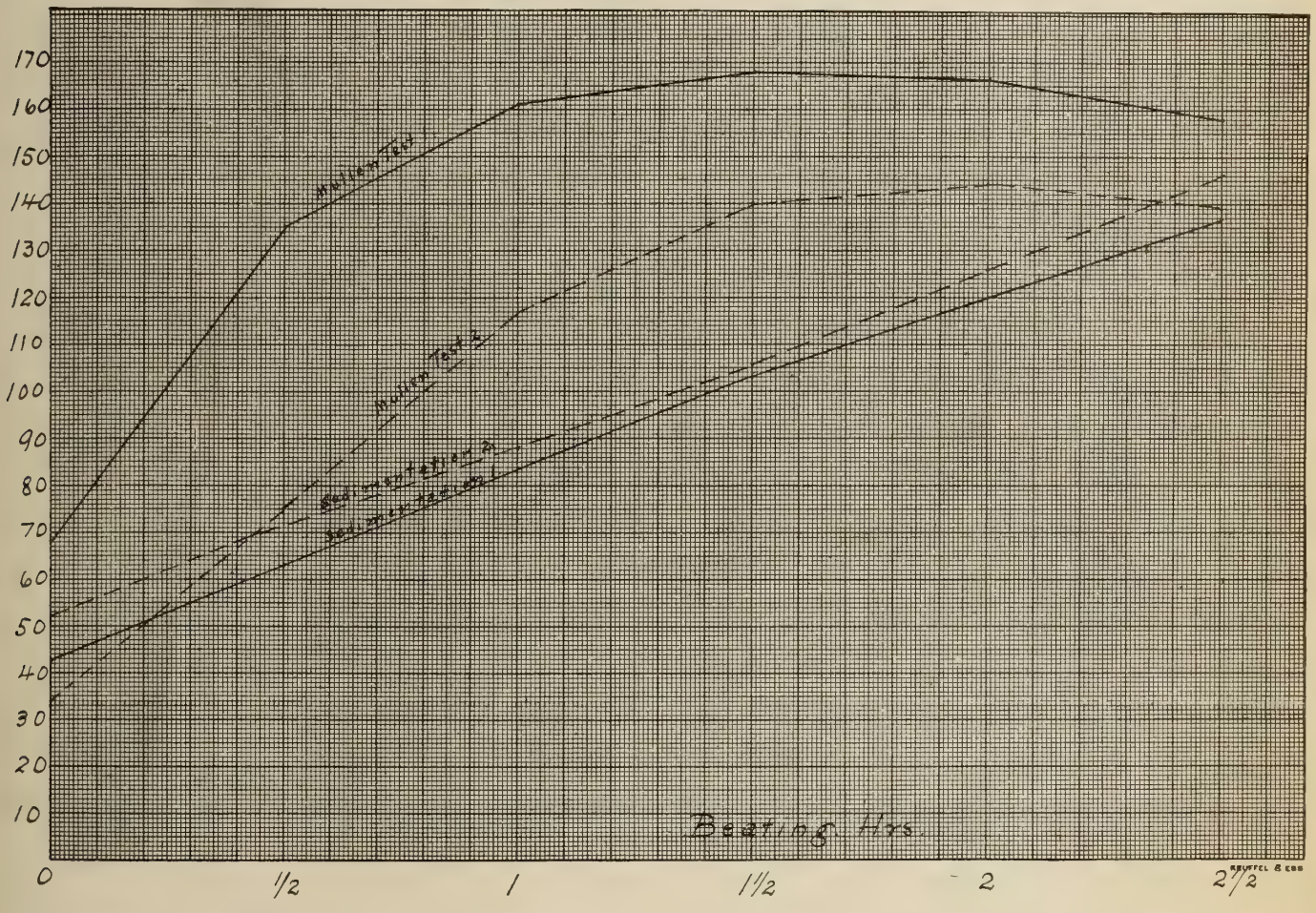
(2) 3 sheets were dried and heated to 240 deg. F. for 15 minutes and left in air showing a relative humidity of 60% at 80 deg. F. for 16 hrs. before testing.

(3) 3 sheets were dried at 214 deg. F. and tested after being exposed to air with 60 p.c. relative humirelative humidity at 80 deg. F.

(4) 3 sheets were dried at 180 deg. F. and tested after being exposed to aid with 60% relative humidity for 1 hr.

INFLUENCE OF SMOOTHING WET SHEETS BY PRESSING BETWEEN SHEETS OF HEAVY PAPER.—Attempts were made to improve the surface of the sheets by pressing them between sheets of heavy paper, but this procedure was found to increase the strength of the sheets very considerably, in some cases 25 to 30 points in 150. The smoothing had to be abandoned, however, on account of the irregularities in the increase of strength produced. To date no satisfactory explanation of these irregularities has been found.

INFLUENCE OF PRESSURE APPLIED IN COUCHING SHEETS.—In designing the sheet-machine the wire was purposely placed 1-16'' below the edge of the box and the coucher made 2'' wider than the box in order to minimise the effects, if any, of uneven couching pressure. With the machine as made, no difference has been found in strength of the sheets when they are couched off with the least pressure which will lift them off the wire and when they are



(5) 3 sheets were allowed to dry in air with 70% relative humidity at 80 deg. F.

Sheets	Strength %
1	100
2	126
3	150
4	150
5	152

It would thus appear that the sheets are not weakened by drying in the drying oven at temperatures below 200 deg. F. Drying in the oven at this temperature requires about 20 minutes, which means a considerable saving of time compared with the time required for air-drying, even when using a fan.

taken off with all the weight a man can place on the coucher.

INFLUENCE OF PRESSURE APPLIED TO WET SHEETS BETWEEN FELTS.—The effect of the pressure to which the sheets are subjected between the wet felts was studied while varying the pressure from the lowest pressure which would remove enough water from the sheets to enable them to be handled, to the pressure exerted on them in a 500 ton baling press. No variation in strength was noticed within the range of pressure obtainable with a letter press, but when the full pressure of the baling press was exerted the strength increased about 12%. It is of interest to note in this connection that the sheets pressed with the

baling press showed a parchmentizing effect and were nearly transparent.

Conclusions.

As far as this method of testing pulp for strength has been investigated by us at the present time it appears to give a true indication of the strength of kraft pulps. A number of samples of sulphite pulps have also been tested by this method. although the time of beating has been shortened to ½ hr. for sulphite, as sulphite pulp hydrates much more easily than kraft pulp. In general it has been found that different grades of sulphite pulp show a much greater variation in strength than sulphate pulps. The difference in strength of the strong and the easy bleaching sulphite pulp, made by a large Canadian concern showed a difference of about 45%, while the difference between the strongest kraft pulp and easy bleaching sulphate pulp is only about 20%.

Kraft pulp is at present used not only in the manufacture of pure kraft papers but also in the making of various other grades of paper and board. It becomes particularly important to have a standard method for testing pulp for strength when mixtures of pulp are used because then the finished paper does not furnish any indication of the strength of any one of the pulps used. An acceptable method for testing of strength of pulp must, of course, give concordant results on a given sample of pulp and as far as our experience with the method described above goes, there is no difficulty whatever in duplicating results within 2% even when the tests are made by 2 or 3 different operators.

The time required for a test is approximately 3½ hrs. and with a 4-jar ball mill 15 samples have been tested by one operator in 10 hours.

Several attempts have been made to establish a relation between the time of beating and the Mullen test and the breaking length, as determined with Schopper's machine, but so far no entirely satisfactory relation has been found.

Our object in publishing our experience with this method of testing pulp for strength is to obtain all possible constructive criticism of it, as the question of strength of pulp is of such importance to the industry in general that it merits all possible cooperation in order to establish a standard method.

In conclusion the author wishes to acknowledge his indebtedness to Mr. A. E. Sjoman for many valuable suggestions regarding the design of the sheet-machine and for the careful manner in which the experimental work was carried out.

HEAVY CHEMICALS.

This market generally can be described as a buyer's market. New contracts are due for renewal and both parties are reticent. Dealers expect a little stiffening early in the new year as buyers' stocks on hand diminish.

Soda Ash is not being quoted on the Canadian Market, but new contracts will likely follow the New York trend slightly downwards.

Bleaching Powder is notably weaker and new contracts will likely be made round 4c. or 4¼c. if not lower.

Alum—Supplies of bauxite are moving better and there is a downward tendency.

Caustic Soda follows more or less along the lines of soda ash.

Salt Cake appears to be stiffer if anything on both Canadian and United States markets.

ADVISE HARDING ON FOREST POLICY.

The importance of paper as a trade commodity, plans for a conservation campaign and suggestions for a new national forest policy were the leading features brought out in the course of discussions at the convention of the American Pulp and Paper Association at Chicago last week. Touching on the fact that paper daily is becoming a great deal more of a factor in the affairs of the world, George Olmstead, of the J. W. Butler Paper Company, pointed out the need of increased production to meet the growing demand and cited figures to show the increasing needs. He declared that in the last five years $600,000,000 has been spent for newspaper advertising, and $300,000,000 for magazine advertising. Preliminary plans for a paper conservation campaign, with "avoid waste and conserve scraps" as the slogan, were made at the opening session Thursday, Nov. 11. President G. W. Sisson told the convention that prices on paper are not likely to drop for some time. He said that the industry was in better condition financially than many other industries, but lack of surplus stock would make price reductions impossible. Mr. Sisson also said that the United States would have to depend on its own resources for paper because Canada and South America countries lack the surplus necessary to supply the country with any great quantity. In reports read to the convention a new forestry policy for Harding's administration was recommended. The Federal Government is preparing to spend $50,000,000 on forestry in the next five years in addition to large amounts to be expended by individual States, it was said. The reports urge acquisition by the State and Federal governments of forest land and land for reforesting. Extension of Federal supervision of State and private forests and a single unified system of reforesting under Federal control, are other measures advocated. The pulpmakers also propose that no State or Federal taxes be collected on forest lands until cutting of the timber begins, and that the tax then be placed on the lumber. This, it was claimed, would stop the cutting of young timber to pay taxes. In urging this program, President Sisson declared that newspapers will have to stop publication within fifty years for lack of print paper unless reforestation and conservation measures are taken at once. Paper board manufacturers met in connection with the convention, Thursday, and discussed the business credit and labor situation.

In a recent bulletin sent out by the United States Forest Service, the belief is ixpressed that the turning to Alaska on the part of pulp and paper manufacturers seeking a new source of pulpwood, will not only hasten the development of the Territory but will greatly stimulate timber sale business on the two national forests within Alaska. Officials records show that during the last fifteen years more than 440,000,000 feet of timber have been sold from the Alaskan national forests. Including the fiscal year ended last June a total of $178,-918.98 has been received by the Territory from forest business since the establishment of the two national forests.

The Lagerloef Trading Company, of New York, continues to receive cargoes of wood pulp from Finland. Inquiries at the Lagerloef offices in New York City, revealed the fact that 6.414 tons of chemical pulp and 745 tons of mechanical pulp were brought in from Finland by this concern through various ports on the Eastern seaboard since August 17.

What the Forest Products Laboratory can do for the Paper Manufacturers*

By OTTO KRESS, in charge Section of Pulp and Paper,
Forest Products Laboratory, Madison, Wis.

Wood, under present American economic conditions, is the only logical raw material for pulp manufacture. The various crop fibres which are frequently suggested as substitutes for pulp wood, such as cotton stalks, corn stalks, sugar cane bagasse, the various straws, etc., have from a pulping standpoint the following disadvantages.

1. These fibres represent seasonal crops of a very bulky nature, thereby requiring large storage facilities to enable the pulp mill to operate throughout the year.

2. These plant fibres contain either a large percentage of pith or in the case of straws a high percentage of silicious material which consumes excessive cooking chemical and gives low yields of pulp. Further, in view of the bulkiness of the plant fibres the digester charge is reduced, thereby reducing the yield of pulp per cook.

Certain of the plant fibres, such as cotton hull fibres and second cut cotton linters and possibly, flax tow, can be used in large tonnage for the production of certain papers, as for these fibres the cost of treatment will be relatively low in comparison with the quality and value of the stock.

In Europe, plant fibres, such as esparto, the straws, etc., are largely used for pulp purposes but American conditions are such that wood has been and probably will continue to be, the basic raw material for the paper industry so that plant fibres offer no immediate remedy for the threatened shortage of pulpwood.

The Forest Products Laboratory is a Federal research institution established by the Forest Service in co-operation with the University of Wisconsin, at Madison, Wisconsin, to study the best means of utilizing our forests and forest products. The Section of Pulp and Paper is completely equipped with semi-commercial apparatus for the pulping of all woods by the soda, sulphate and sulphite processes, and with an experimental paper machine for the conversion of the pulp to paper. A study has been made of practically all the posssible American woods to determine their suitability for pulp and paper production. According to the latest statistics on pulp wood consumption, the four important pulpwoods, spruce, hemlock, balsam, and aspen, comprised 83.1 per cent of the total wood consumption. By a careful study of the best means of reducing woods, thought in the past to be unsuitable for pulping purposes, it has been found that several such species can be used for pulping, thereby increasing our available supply of pulp wood.

As a case in point the laboratory is attempting to pulp the various species of Southern pine by a modified sulphate process in order to produce a stock that can be bleached with a reasonable bleach consumption, and semi-commercial experimental work indicates that this can be accomplished. If this is proved by further laboratory work and finally by mill scale trials, it opens up the possibility of utilizing Southern pines and gum woods, of which large stands are available in the South, for book paper production. By Southern pines we have reference to the quick growing second growth pines, such as loblolly, pitch, scrub, etc., rather than the true longleaf or shortleaf pines, which are rapidly being cut out in the South.

There is no need of dwelling on the coming pulpwood shortage in the East and the effect of the ever increasing scarcity and shortage of pulpwood on the established Eastern Mills. The pulpwood supply of the future in the United States lies in the South in the form of the various Southern pines and gums and in the Northwest where are found many species suitable for all kinds of pulp production. Large tracts of timber have been set aside in the West by the Federal Government to be administered and used under the direction of the Forest Service.

These National Forests, of which there are some 150, comprise 156,000,000 acres which contain about one-fifth of the standing timber of the United States. This timber is subject to purchase under certain specified conditions of cutting. In sales involving large initial investments it is the policy of the Government to include in its sale sufficient timber to justify the investment. The Government stands the expense of surveying, mapping and appraising the tracts applied for and the appraisals aim to set a stumpage price which will allow the purchaser a reasonable return upon the operation. Government contracts do not require that the timber be paid for as a whole. They permit payment to be made in specified deposits from time to time as the timber is cut, thus relieving the operator from having much money tied up in stumpage. He is likewise relieved from taxes and the expense of fire protection, except in cases of emergency. One of the functions of the laboratory is to obtain detailed information covering the value and use of these Western woods, many of which are not being pulped at the present time.

The pulp mill industry unlike the sawmill industry represents a very heavy investment so that on depletion of the surrounding timber supply, pulpwood has to be brought to the mill from ever increasing distances and at increased costs. While the entire supply of the Eastern pulpwood has been very sadly depleted considerable saving can be effected by proper technical control, and it is along this line that the Forest Products Laboratory can be of the greatest assistance. The following are a few of the problems that the laboratory is studying but in the active prosecution of which they are hampered by a lack of funds.

Causes and Prevention of Possible Wood and Wood Pulp Infection and Decay.

In view of the ever increasing cost of wood the pulp and paper industry in competition with the lumber and other wood using industries must largely purchase and use the culls and inferior stock not suitable for other purposes. This means that the pulp mill will receive in the future an increasing percentage of partly decayed wood which on storage, unless precautions are taken, will rapidly deteriorate. The laboratory in conjunction with a number of interested mills that are financing the work has been studying this project for a little over a year, and the results indicate that there is an appalling loss from decay of groundwood pulp and of

*Address delivered before the American Paper and Pulp Association, Chicago, November 13, 1920.

wood in storage. For example, a recent mill scale grinder run on partly infected mill run spruce showed a decrease of 390 lbs. of groundwood pulp per cord of infected wood in comparison with the yield per cord of sound wood. Equivalent losses are experienced in the chemical pulping of partly infected woods. Time does not permit to go into details but by proper storage it appears as though the bulk of this loss could be prevented.

The Purchase and Use of Wood on a Weight Basis.

The present method of purchase and use of pulp wood on an indefinite cord or volume basis has certain decided drawbacks. Recent mill scale studies conducted by the laboratory in conjunction with the Newsprint Service Bureau, resulted in the development of suitable means for the rapid and accurate samply of wood delivered to the mills in cars. The purchase and use of wood on a weight basis would have the following advantages.

1. Eliminate the uncertainty of the purchase and use of wood on the present indefinite cord or volume basis.

2. As wood during decay suffers no change in volume but does decrease decidedly in weight, the purchase and use of wood on a weight basis would automatically allow for the pereentage of rot in the wood. The present method of attempting to scale out rot according to our observations is decidedly inaccurate.

3. The purchase and use of wood on a weight basis would place the mill cost accounting system on a logical basis between wood as the raw material which is now bought on a volume basis, and pulp and paper the finished product which is sold on a weight basis. This would also tend to avoid over and under runs on the periodical inventory of the wood supply.

The Chipping and Baling of Pulpwood

Some work has been done on the chipping, drying and baling of pulpwoods, which indicate that additional study might demonstrate the feasibility of this project for supplying mills with wood in baled chip form shipped from such distances as would not permit the shipping of round wood. Aside from the possibility of supplying the mill with wood from a larger radius the use of dry chips with the elimination of the wood storage and its subsequent braking and chipping offers decided advantages.

The Use of Wood Waste.

The use of mill waste, such as slabs and edgings, is steadily decreasing, caused probably by the mechanical difficulties experienced in the barking and chipping of such wood. or example, in 1918, slabs and other mill waste comprised 154,603 cords, or 2.9 per cent of the total wood consumed, while in 1909 such waste amounted to 248,977 or 6.2 per cent of the total wood used. A study should be made of the best means of the mechanical barking and chipping of mill waste in order to utilize the same for pulp manufacture.

The above mentioned problems are sufficient to indicate the field of work that the Forest Products Laboratory attempts to study. Through the proper co-operation between the industry and the laboratory a considerable saving and conservation of wood might be made. It is a peculiar but true condition that the industry pays far more attention to the purchase of the less important raw materials, such as sulphur, coal, colors, alum, size, etc., than to wood, which is the basic raw material of the wood pulp industry.

Co-operation is conducting yourself so that others can work with you.

HOW THE CANADIAN WOODLANDS SECTION STARTED.*

In 1916 Mr. Carl Riordon introduced a resolution at the Annual Meeting reading as follows:

"RESOLVED that there should be promoted a new section in this Association somewhat similar to the Technical Section to deal with the whole question of the production of wood for the making of pulp and paper."

It was found impossible to take any active steps in this matter until late in 1917 at which time a meeting was held in Montreal at which were represented most of the prominent pulp and paper companies and at this time Mr. Riordon outlined his views in bringing the men together who were responsible for the production of the most vital raw material in the pulp and paper business.

Mr. Ellwood Wilson also said in part:

"The cost of cutting is increasing. Lumbering operations are now back so far that the hauls are very long. We are using the same methods that were employed 25 and 50 years ago, and new machines such as gasoline log haulers, cutting machines, etc., have not been introduced, as they should have been if the ingenuity used in the mills had been applied to the woods end."

Mr. Wilson also said:..

"We must use the material we have to the best advantage. This involves the lumbering and utilization of the wood that will not float. The forest is reverting to hardwoods wherever they will grow which will absolutely shut out and prevent the growth of a future supply of conifers unless we find means of getting the hardwoods out and using them so as to give the conifers a chance."

At this meeting also spoke Mr. A. B. Recknagel, the head forester to the Empire State Forest Products Association. In his talk Mr. Recknagel outlined what he had to contend with on taking up his work in connection with the Association. How it was necessary to make an inventory of land to find out what character of land was owned by the members. How it was necessary next to make an inventory of developments showing the character of improvements, the annual consumption in raw material, the output of finished product, the number of men employed, water power developed and similar data. In the course of his remarks, Mr. Recknagel emphasized the fact that the Adirondacks most pressing problem is that of utilizing hard woods and that they had inaugurated a hard wood utilization study that is aiming to bring together suggestions for improvement in utilization and a study of wider markets for hard woods.

Another topic on which Mr. Recknagel spoke at some length was the subject of legislation, publicity and education. To use his words:

"Nine tenths of the problem is to educate the public to a realization that lumbermen are not vandals, thieves and pirates, but a necessary part of the economic machine. The old saying "Woodman spare that tree" must give place to "Woodman use that tree" and that the public must learn that forests do not improve by disuse any more than a man's muscles grow stronger in idleness."

Following the inauguration meeting the first general

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*Address by Mr. A. L. Dawe, secretary of the Canadian Pulp and Paper Association, at the organization meeting of the Woodlands Section of the American Paper and Pulp Association, Chicago, Nov. 11-12, 1920.

meeting of the Woodlands Section was held in February of 1918 at which some very excellent papers were read by prominent men among the paper manufacturers, and which was followed by a general discussion which was entered into by most of those present.

Papers were also read on the use of tractors and other machinery and it was felt that the first meeting was a very good start.

A meeting was held in the fall of the same year which was very much more widely attended and at which a great deal of valuable work was done by way of pledging co-operation with the Government on investigations into destruction of trees by insects and fungi. Resolutions pledging the support of the Section to the Commission of Conservation and the appointment of special committees to look into the matter of hard wood and standing committees on improvements in logging methods.

Further meetings were held in the beginning of 1919 and a Fall Meeting was held later at the Government Nurseries at which time a general discussion on the work of the Forestry Department of thePrivince occupied a great deal of the time. Visits were also paid to the nurseries at nearby mills.

This was followed by the fourth annual meeting of the Woodlands Section at the beginning of this year at which a detailed report was made regarding improvements in logging conditions and a series of very interesting papers including one on the use of hydroplanes in protecting and surveying forests were read.

In order to hold our members together we found it advisable to draw up a set of by-laws to govern the conduct of such section, copies of which I have pleasure in presenting to you for your attention.

It is, I think, quite desirable that Canada and the United States should work very closely together in our Woodlands problems. They are the same on both sides of the line and we, on our side, would welcome the opportunity of co-operation between the two sections even as we have had the privilege of working with the Technical Association of your industry. This co-operation has enabled us to bring out what will eventually be one of the most complete text books of any industry that has yet been published and the accomplishment of these text books will be a direct tribute to a great deal of unselfish work on the part of mill owners and Technical men on both sides of the border.

MUCH INTEREST SHOWN IN PULP LANDS IN BRITISH COLUMBIA.

Just now it is impossible to secure definite information in regard to just what is transpiring as to the proposed erection of new pulp mills in British Columbia, but if there are any legitimate plans on foot for the erection of plants, then the estimates that are being secured from the several machinery houses and supply firms will amount to some nice business for these firms in the near future. The writer has been endeavoring to run down the many rumors of increased facilities at some of the old plants, and finds that in one instance there is a change being made in boilers at the Ocean Falls plant, but no increased capacity is being provided. The identity of the parties who are securing estimates for the erection of new plants, is being kept very close. It is hoped that the development will take place as it means just so much more prosperity to British Columbia.

British Trade News

(From Our London Correspondent)

London, Nov. 2, 1920.

The award of the Industrial Court in connection with the rates of pay for juniors doing the work of adults in papermaking has been issued. The Amalgamated Society of Papermakers and the National Union of Printing and Paper Workers applied that a junior called upon to do the work of an adult should be paid the rate for an adult whether the junior had attained the age of 21 years or not. The Court has decided that the juniors concerned should be paid the following minimum rates : Shift workers at the age of 18 yrs. 1s. 5d. per hour; at the age of 19 yrs. 1s. 6d.; and at 20 years 1s. 8d. Day workers aged 18 yrs. 1s. 4d.; aged 19 yrs. 1s. 5½d.; and aged 20 yrs. 1s. 6½d. per hour. The rates for Scotland, Wales, Ireland, and the West of England to ¾d. less per hour.

More Money Called For.

The National Paper and Pulp Company (1920) Ltd., has made an issue of £200,000 eight per cent. First Mortgage Debentures at 98 per cent, redeemable at 103 per cent., and 150,000 ordinary shares of £1 each at par. The Company has been incorporated to take over and acquire as a going concern as from June 30th last. The two mills and Kings Paper Mills, all situate at High Wycombe, in Buckinghamshire and the extensive warehouses in London together with the good will of the National Pulp & Paper Company Ltd.

There are 3 paper machines, one being built this year, and an 80 inch one is being put in to replace a 60 inch machine. Messrs. Bentley & Jackson built the machine and it is complete with many new improvements. These mills will in future turn out rag papers, double crown carbon tissues, copying tissues, banks, blottings, etc. etc. The driving power of the mills has recently been almost entirely replaced by generators and motors. In a statement I have seen by the auditors, I notice that a large part of the output of the mills has been sold forward for three years on a remunerative basis as there are only three other mills in England making tissues, and the demand has exceeded the supply for home and export account.

British mill owners have small supplies of coal on hand and they can exist for another couple of weeks. Some mills have had to close down to conserve their supplies, but the newsprint mills were kept going to keep supplies regularly for the important newspapers they feed. In cases where newsprint mills were not worked, short time was adopted in working hours or the mills were closed 3 or 4 days in the week. That is the procedure at present and it will go on until the Government see their way to withdraw their special Order bearing on the control and distribution of coal in industries.

Consumers of newsprint have now failed in their effort to pull down the prices of newsprint. Some cheap foreign newsprint found its way into the market and immediately the news was heralded far and wide that there was a drop in price. This week no one hears anything of a reduction. Some of the consumers thought they would use the coal strike as a weapon to back up the floating round of the cheap foreign newsprint in the market, but sellers realised what the "little game" was and there was no wavering on their part. Indeed, it was impossible for them to waver owing to the cost of production and the market

not being overstocked with newsprint at present. I fail to see how Canadian, English, or Scandinavian paper can be eased in price today. So far as Scandinavia is concerned no coal is at present being exported to mills there from England, as export is prohibited by the Government, prices, may therefore be affected. One of the journals published for newsprint consumers states that "Canadian pulp and paper prices are believed to have reached their limit and they may begin to fall."

The imports of newsprint for the nine months ending September last, compared with the corresponding period in 1913 were as follows:

	1913—cwts.	1920—cwts.
Sweden	447,825	407,044
Norway	902,730	505,776
Germany	353,820	114,965
Belgium	70,938	13,977
U. S. A.	62,024	56,446
Newfoundland	630,880	669,885
Other Places	211,916	776,623
Totals	2,680,133	2,544,716

It will be seen from these figures that Newfoundland has turned out to be Norway's serious rival in the British newsprint market. It is significant that Canada is included in "Other Places."

With less supplies of newsprint one may ask how the British mills are affected by the strike? The answer is: British newsprint mills are running short working weeks. The coal strike has caused all British paper mills to suffer loss and the paper market is disorganized, when at normal times it would be going through a period of prosperity at this period of the year.

Pulp Situation.

If the paper market is paralysed, it may follow that the pulp market is in a similar position. Pulps are at a standstill just now. When we get the coal strike settled buyers will be looking round for 1921 business. Good supplies are reaching England from Canada.

Indian Bamboo Pulp.

During recent years there has been much research work into the uses of bamboo as a paper pulp and articles have appeared on the subject in the "Pulp and Paper Magazine". According to Indian statistics there are now two mills in India making pulp from bambo—one in Calcutta and the other in Burma.

Canadian Exhibit For London.

The Great Advertising Exhibition will open in London on the 27th November. It will be one of the finest expositions of its kind in the world and King George is to patronise it. I understand Mr. G. R. Hall Caine, who sometime ago visited Canada, is acting as chairman of the sub-committee of the paper section and he is arranging to get from Canada an exhibit which will show the process of pulp manufacture and the process of paper manufacture. Considering that so many buyers of pulp turn to Scandinavia, this is a high honor for Canada and incidentally it will demonstrate the great resources of the Dominion.

The Dye Problem.

As the dye industry is one of the " keys " to British national trade independence, the Prime Minister, I am told, is not at all unlikely to consider, and propose before Parliament, special measures to protect the achievements of our chemists and manufacturers since 1914. We were a generation and more behind the Germans, and with Government encouragement our research laboratories and factories did wonders in a brief time. But their pre-war superiority and their war-time progress leave the Germans still very dangerous competitors and, in fact, they can export the stuff so cheaply and in such variety that the English industry might be killed if it were neglected.

Newfoundland Oils.

Mr. Alfonso Toft has an exhibition here of Newfoundland scenes in oils, which he painted in the neighborhood of Grand Falls amid spruce, fir, and silver birch. The exhibition is attracting much attention.

Notelets.

Papyrus pulp samples are reaching England from South Africa.

Cardboard sweet boxes from Germany are sold in London 1-5 below the cost of British products.

The stationers are starting their social events for the winter in London. They usually dine well, dance well and speak well—but not on trade secrets.

FUTURE PAPER PRICES.

The American Writing Paper Company has preferred to accumulate certain reliable and fundamental date which all in the industry may use in forming opinions based on facts, rather than to assume the responsibility of predicting the future prices of paper. Above all, we would not wish to state that any price recessions in fine papers will occur in the next few months.

The safest course for merchants and printers is probably to keepably to keep inventories moderate, but not so low as to interfere with sales. If service is not rendered to the printing fraternity who constitute such an active force in developing sales, we cannot, of course, obtain our fll meed of business. Inventories all along the line must therefore meet the demand and in fact must anticipate it. A boom in business following the November election would certainly accentuate the present shortage of paper.

We believe the key to the present situation in the paper industry is in the hands of the customers of paper. Any considerabl decrease in the volume of correspondence, advertising, or printing, would doubtless bring some reductions, in time, in the prices of the raw materials used in paper-making and in the prices of paper. Nevertheless, pulp, coal, rags, and labor are obstacles to any reductions that are formidable, and, in our opinion, are ruling factors. The paper industry seems to be in a healthy condition at the present time. There has been no overproduction and there is no accumulation of stock. There has been no over-expansion in productive capacity. We believe the industry can face the immediate future with confidence.—American Writing's Paper.

(Complete copies of the above report may be obtained from the Statistical Department of the American Writing Paper Company, Holyoke, Mass.).

A GOOD WORD FROM THE UNION.

So much noise is made about the occasional dissatisfaction between mill management and men that we are glad indeed to quote the following peaceful paragraph from the Federationist, Vancouver:

"Quatsino, Camp 7, Whalen Pulp & Paper Mills.—There are 40 men working here. Practically all union. Camp mostly a pulp proposition. Conditions are good. Free blankets; shower baths; all single bunks. The Ordemans have been cooking here for eight months. Something of a record for cooks in this country. They can cook.—Delegate 689."

Economic Utilization of Heat and Power in Paper Mills

By Wm. ADAMSON.

(Continued from last issue.)

POWER DISTRIBUTION IN THE MILL. — The most efficient generation of power can be very readily rendered ineffective by an inefficient method of distribution. A consideration of the methods in use will therefore be of interest. Electric driving has been extensively adopted in the paper mill, especially for the scattered auxiliary plant; and in the case of new plants, the adoption of all-electric driving deserves careful consideration, especially so when the extraction type turbine is being installed as the main power unit. With this method of power distribution, the whole of the generating plant con be centralised in one power house adjoining the boiler plant. Here, the electrical energy is generated and is distributed by insulated cables to the various motors in the mill. This makes a very flexible scheme of power distribution, which is under perfect control. Many of the machines in the mill may be individually driven, while others could be grouped and driven by a single motor through ropes, belts, shafting or gears. The question of whether the current should be alternating or direct, is a matter open to discussion. If the all-electric scheme is adopted for driving the mill, A. C. current should, undoubtedly, be employed, as the greater portion of the power load will be at constant speed. Up to a few years ago, it was impossible to obtain variable speed A. C. motors, and it was necessary to transform to D. C. current for the variable speed work of the mill. It is now possible, however, to obtain very efficient and reliable variable speed A. C. motors; but as yet, these have not been developed on a commercial scale to give a speed range greater than 3 to 1, and this range is not great enough for the driving of some paper machines. In the case of mills using a steam engine with lineshaft drive for the preparation plant, then D. C. current for the paper machines and auxiliary machinery is probably more convenient, owing to its variable speed feature and to its generally slower speeds. On the other hand, however, there is commutator trouble and the up-keep is greater than with motors with A. C. current. As a class, A. C. motors run at higher speeds than D. C. motors, and have less wearing parts; but have inherent power factor trouble, which while not affecting the running of the motor, necessitates a greater generating unit. A. C. motors, therefore, should be run continuously at their full rated load, if possible, so as to keep a good figure for the power factor of the plant. The turbo alternator is best suited for large installations of the A. C. type, as is requires less care and maintenance cost than a D. C. generator, but if the electrical load is not very great, a geared turbine driven D.C. generator will make a very serviceable and economical unit, especially if this turbine be of the mixed pressure type, using the excess exhaust steam from the compound non-condensing engines on the machines and beater shafting. With the "all-electric" system of driving, there is a double transformation of energy between the prime mover and the paper mill machinery, viz:—(a) the generation of mechanical energy in the turbine or engine; (b) the transformation of this energy into electrical energy; (c) and the regeneration of mechanical energy by the motors in the mill. The efficiency of (b) often reaches 93% and of (c) 90% at full load. Many of the motors used in paper mills can show a fairly high efficiency, in some cases as high as 90% at their full rated load. Lineshafting and belts throughout a paper mill cannot improve on this efficiency, even when in perfect alignment, and if there should be any want of alignment, the power necessary to drive the shafting considerably increases. In some mills the alignment of the shafting, condition of the bearings and the design of the drives are so bad, that a large amount of power is unnecessarily wasted in friction.

There is no disputing the fact that electric machinery is more complicated and expensive, and requires more attention than the mechanical; and if it be neglected to the same extent as is generally the case with the mechanical equipment, the results, both in reliability and economy, would not compare with the latter. Thus, unless electric machinery can be guaranteed every attention, it is as well to make use of lineshafting wherever possible, say to drive beaters and breakers; and to drive other parts of the plant, such as super calenders, re-reelers, cutters, etc., by electricity.

Economics.

So far, we have considered general principles only, but it would be interesting to apply the conclusions arrived at to practical mill power and heat problems. Suppose, for example, we take a 4-machine mill for the manufacture of news print paper from wood pulp. The plant for a news mill has now been worked out to something like finality, and Table 2 gives the heat and power requirements of the mill.

Scheme 1.—Compound steam engines for driving the preparation plant, the constant and the variable speed portions of the paper machine. The electrical load of the mill is supplied by a 500 K.W., D.C. mixed pressure geared turbo generator, arranged to run either as a high pressure machine, or under mixed pressure conditions, using the excess low pressure steam from the mill. Table 3 shows the steam and power requirements of this scheme.

(Included in Mr. Adamson's manuscript were two blue prints, showing diagrammatically, the arrangements described as Scheme I and Scheme 2. Blue prints cannot be reproduced by photo-engraving.—Ed.)

Scheme 2.—The alternative scheme of driving is the "all-electric" drive. with extraction type steam turbo driven alternator. The steam and power requirements are shown in Table 4. Only two alternative methods of driving have been compared. It is possible, however, for the mill to be driven in other ways, and other modifications of the methods shown. e.g.. instead of the mixed pressure turbine being used in Scheme 1. a high speed steam engine driven D. C. generator could have been installed. This, however, would not have shown a greater economy in steam consumption when using high pressure steam than the mixed pressure turbine; and it is quite unable to use the excess exhaust steam available from the mill in such cases as when felts are being washed, etc. In a case like this, the excess steam would have to be blown away to the atmosphere, and

only a part of it could be saved by use in the feed water heater.

In the figures for these two schemes, it will be seen that the total steam required for driving the machine and preparation plant (16,000 lbs. per hour) is equal to the amount of steam required for heating the drying cylinders and for the hot air plant. Thus, the power required to drive this part of the mill plant is obtained, as it were, as a "by-product." In practice, however, the amount of steam for drying and that passed by the engines would not exactly coincide, so that in the one case live steam would have to be used as a "make-up," and this should preferably be used in the hot air plant; and on the other hand, when steam passed by the engines exceeded that required for drying, this excess steam would be used in the low pressure stages of the mixed pressure turbo generator. In choosing the best scheme for the driving of a paper mill, other factors most be taken into consideration. Reliability, as previously stated, comes first of all, but initial and maintenance cost must also be fully considered. As regards reliability, Scheme 1, may, without hesitation, be considered more reliable than Scheme 2, for this reason. If anything goes wrong with the steam end, the electrical end, or the condenser end of the main power unit in Scheme 2, the whole mill will be shut down, unless there be a complete "stand-by" unit; whereas, if a similar thing should take place in Scheme 1, the greater portion of the mill can keep in efficient operation. Again, the compound engines in Scheme 1, are equally as reliable as the motors in Scheme 2, so that if one of them fails, it will shut down only that particular machine, and not interfere with the rest of of the plant. As regards initial cost, there is no doubting that Scheme 1, is considerably cheaper than Scheme 2.

Alteration to Driving Arrangement of an Existing Mill.

Suppose we consider what economy could be obtained by altering the driving arrangement of an existing mill, e.g., let us take a 4-machine mews mill of the same size as before, where the machines are driven by simple expansion non-condensing engines, passing the steam into the drying cylinders, the "make-up" being supplied by live steam. The breakers and Jordans are driven from a lineshaft in the basement, which in turn is driven by means of ropes from a cross compound horizontal condensing steam engine. The electrical load of the mill is obtained from a 500 K.W., D.C. generator driven by ropes from the lineshaft. The steam requirements for this plant are shown in Table 5. If the simple expansion engines on the machines be replaced by compound engines; and if the main engine be converted from condensing into non-condensing, the exhaust steam being used as a "make-up" supply for heating the drying cylinders, etc., and the excess passing over to a "mixed pressure" turbo generator for the electrical load of the mill; then the steam requirements would be as shown in Table 6. Here it is seen that 18,000 lbs. of steam may be saved per hour by this alteration-of plant which at 9 lbs. of steam per lb. of coal gives a saving of 2,000 lbs. of coal per hour, equal to a saving of 2½ cwts. of coal per ton of paper produced.

Table 2.

HEAT AND POWER REQUIREMENTS FOR 4-MACHINE NEWS MILL.

Half Stuff Wood Pulp, 75% Mechanical, 25% Chemical.	
Width of finished paper from each machine	154"
Average hourly output per machine . . .	4,000 lbs.
Heating requirements per machine.—Steam for heating the drying cylinders, at 10 lbs. gauge pressure. (Assuming 3.5 lbs. of steam per lb. of paper)	14,000 lbs.
Steam for the hot air plant. (Assuming 0.5 lbs. of steam per lb. of paper) . . .	2,000 lbs.
Total heating steam per machine per hr.	16,000 lbs.
Power Requirements per Machine.	
For preparation plant. .	250/275 B.H.P. per Hour.
For constant speed portion of machine . . .	220/230 B.H.P. per Hour.
For variable speed portion of machine . . .	300/325 B.H.P. per Hour.
	800 B.H.P. per Hour.
Power for Auxiliary Machinery Driven Electrically. — (e.g. 2 super calenders, 4 re-reelers, cutter, mechanic's shop with buffing machine, pulp and coal handling plant, main water pumps, lighting, etc.	.400/500 K.W. Hours.

Table 3.

POWER PLANT FOR 4-MACHINE NEWS MILL.
Scheme No. 1.

Compound two cylinder non-condensing steam engines A. B. C. for driving the preparation plant and the paper machines, with a mixed pressure 500 K.W., D.C. geared turbo generator for the electrical load.

Steam at Engines.—Initial pressure, 180 lbs. per sq. inch (gauge); Superheated, 150° Fah.; Back pressure, 10 lbs. per sq. inch (gauge); Steam consumption approximately 20 lbs. per B. H. P. hour. Steam required for engines, A. B. & C. for 1 machine: 16,000 lbs. per hour.

Total steam for four machines: 64,000 lbs. per hour.

Steam at Mixed Pressure Turbine.—Initial pressure 190 lbs. per sq. inch (gauge); Superheated 200° Fah.; Vacuum 28.5". Barometer 30".

Steam Required for Mixed Pressure Turbo Generator.

	Full load.
(a) When working as high pressure machine at 16 lbs. per K.W. hour	8,000 lbs. per hour.
(b) When working as low pressure machine at 30 lbs. per K.W. hour	15.000 lbs. per hour.

Total steam required under normal working condition: 72,000 lbs.

Coal consumption per hour (Assuming 8 lbs. of steam per lb. of coal) : 9,000 lbs.

Coal consumption per ton of paper produced:—0.56 tons (11.25 cwts.).

Table 4.

HEAT AND POWER REQUIREMENTS FOR 4-MACHINE NEWS MILL.

All electric drive for the mill with extraction type turbine driven alternator in central power house.

Steams at Turbine.—Initial pressure, 190 lbs, per sq. inch (gauge); Superheated, 200° Fah.; Extraction pressure, 12 lbs. per sq. inch (gauge); Vacuum, 28.5"; Barometer 30".

Total load at generator for the whole mill, allowing for efficiencies of motors, transmission losses, condenser auxiliaries, etc., etc.—3,000 K. W.

Steam by-passed into heating mains. — 64,000 lbs. per hour.

Total steam consumption of turbo alternator under normal working conditions. — 82,000 lbs. per hour.

Coal consumption per hour. (Assuming 8 lbs. of steam per lb. of coal), 10,250 lbs. per hour.

Coal consumption per ton of paper produced: 0.64 tons (12.8 cwts.).

EXISTING POWER PLANT OF 4 MACHINE NEWS MILL.

Table 5.

Steam at Machine Engines.—Initial pressure, 140 lbs. per sq. inch (gauge); Superheated, 100° Fah.; Back pressure, 10 lbs. per sq. inch (gauge; Steam consumption, 32 lbs. per B.H.P. hour.

Machine Engines.—Variable speed, 325 B.H.P.; Constant speed, 75 B.H.P.. Total power, 400 B.H.P. per machine.

Total steam consumption by the machine engines	51,200 lbs. per hour.
"Make-up" live steam	12,800 lbs. per hour.
Total steam for drying . .	64,000 lbs. per hour.

Steam at Main Engine.—Initial pressure, 150 lbs. per sq. inch; Superheated, 150° Fah.; Vacuum, 26"; Steam consumption.—13 lbs. per B.H.P. hour.

Load on Engine.—2,400 B.H.P.

Steam Consumption of Main Engine.—31,200 lbs. per hour.

Total Steam Consumption for the Mill.—95,200 lbs. per hour.

Table No. 6.

PROPOSED ALTERATION TO POWER PLANT OF 4-MACHINE NEWS MILL.

Compound engines for driving the paper machine. Approximate steam consumption.	22 lbs. per B.H.P. hour.
Total steam consumption of machine engines	35,200 lbs. per hour.
"Make-up" low pressure steam required for heating purposes	28,800 lbs. per hour.
Total steam for drying . .	64,000 lbs. per hour.

Main engine converted into non-condensing with 10 lbs. per sq. inch back pressure and a load of 1,700 B.H.P.

Steam consumption.—23 lbs. per B.H.P. hour.

Total steam used by main engine.—39,100 lbs. per hour.

Of this 39,100 lbs. of low pressure steam from the main engine 28,800 lbs. have been taken from the "Make-up" heating steam in the machine house, leaving 10,300 lbs. available for the mixed pressure turbine.

Additional live steam required by the mixed pressure turbine for full load.—Approximately 3,000 lbs. per hour.

Total steam consumption for the mill.—77,200 lbs. per hour.

SELECTION, PURCHASE AND USE OF COAL.—The selection, purchase and use of coal are important factors in the economical operation of the mill. Very few paper mills take the trouble to analyze their coal supplies, or to test their calorimetric value. They generally pay every attention to the testing of moisture, etc., when purchasing wood pulp, but the coal is purchased with little regard to its quality. The limits of choice for any mill are, of course, governed by its locality, but generally there are several classes of coal to select from. A sample of each should be tested for moisture, ash, sulphur and volatile matter, and in addition a calorimetric estimation of its heating value should be obtained. These are the factors which must be considered in judging the relative values of the coals, although there are many other points almost of equal importance, such as their behavior on the grate of the boiler, the amount of air required for combustion, etc. All these points should be considered in conjunction with the price of the coal, (including freightage), and the most economical coal is the one which gives the largest amount of heat per unit cost.

STORAGE OF COAL.—Considerable attention must be paid to the coal pile, as this is often a source of loss of heat, even in some cases amounting to 10 p.c. of the total thermal value of the coal. Mills generally consider it advisable to store large supplies of coal, and these require correct storage, so as to minimise the loss through deterioration. Coals of different quality and size require different treatment. Coals of different varieties should not be mixed together in storage, because some varieties of coal have a greater tendency towards spontaneous combustion than others, and would jeopardise the safety of the entire pile. The best way of storing slack or fine coal to ensure the minimum of loss is under water, but this is not usually convenient. Anthracite coal is not subject to spontaneous combustion, and could be stored to an unlimited extent in one pile. Bituminous coal will, however, ignite and suffer disintegration very readily, and this coal should be handled to produce as little dust and fine coal as possible, as this in the pile very readily causes oxidation and spontaneous combustion. Coal should either be piled to permit of a free circulation of air, so as to carry off the heat due to the oxidization of the carbon, or else packed so closely that air cannot enter the pile and stimulate this oxidation. For ordinary bituminous fuel, the pile should not be over 12 ft. in height, and no part of the interior of the pile should be more than 10 ft. from an air cooled surface. The constant wetting and drying of coal stored in the open tends to rapid deterioration, and it is thought that this is the main cause of spontaneous combustion. In order to ensure the greatest economy in stacking coal, regular inspection is necessary, and if the temperature rises much above 150 deg. Fah., it is advisable to remove the coal to some other part, and thereby cool it down. When coal has once been gathered and cooled down in this way, it very rarely causes any further trouble.

ECONOMY IN THE BOILER ROOM.—Coal, when burned in the boiler gives out heat, which is either absorbed by the boiler itself, or is dissipated up the stack, into the ash pit, or into the air surrounding the boiler. The heat absorbed by the boiler determines the efficiency of the plant, and every endeavor should be made in order to increase this amount and reduce the waste represented by the hot gases passing into the stack etc. The largest waste is naturally up the stack. In order to ensure the greatest economy, the boilers should be kept as clean as possible, both internally and externally, so that they may abstract the maximum number of heat units from the hot gases. The combustion also should be as near perfect as possible, without supplying too much air to the fire grate. One of the best tests we have for determining the efficiency of combustion is the estimation of the CO_2 in the waste gases passing to the chimney, and a CO_2 recorder should be in constant use. A registration of at least 10 to 12 p.c. CO_2 should be obtained from flue

gases, in order to ensure the maximum fuel economy. With mechanical stokers the percentage of CO_2 can be kept steady about 14 p.c., but by hand firing the percentage varies a great deal. The feed water supplied to the boiler should be as hot as possible, the temperature should be around 250 deg. or over, and it is important to remember that every 10 deg. that the feed water is heated means a saving of nearly 1 p.c. of coal. No boiler plant is complete unless economisers and superheaters are fitted. The economiser has long been established in practice, and little need be said as to its great value in increasing the efficiency of the boiler plant. Superheaters, while not increasing the efficiency of the boiler, are conducive to the greater efficiency in the power plant. Modern steam raising is really a process in three stages. The economisers should supply the boiler with feed water as near the temperature as possible as that of the steam in the boiler. The boiler should supply the latent heat only, producing steam at the required pressure; the superheater should dry and superheat this steam to the required temperature. Waste gases from the boiler, if no economiser were fitted, would carry away with them a large amount of heat, the temperature of these gases often exceeding 600 deg. Fah. With an economiser, however, a great portion of this heat is abstracted, the temperature of the gases when leaving the economiser being reduced to 350 deg. F. or even lower. Coal is often wasted by running more boilers than necessary to carry the load. Boilers generally work at the greatest efficiency at some certain evaporation, and they should be kept as near this mark as possible. If at any time the demand for steam is reduced, it is more economical to work a fewer number of boilers at their maximum steaming efficiency and to "bank" the rest than to keep all working at reduced steaming capacity. Another important point in the efficiency of the boiler plant is to see that there are no leaks of air into the system. Cold air entering the boiler plant lowers the temperature of the gases and thereby decreases the rate of exchange of the heat from the hot gases to the water in the boiler. Another frequent source of loss of heat is a short circuiting of the flue gases, owing to leakages in the boiler seetings. Heat is also lost by radiation from exposed parts of the boiler, uncovered steam pipes, valves, etc. All these should be insulated as far as possible by thick insulating material, especially in the case of pipes carrying high pressure steam, as this being at a high temperature readily loses heat to the surrounding cool atmosphere. In conclusion, it is very necessary that reliable apparatus should be installed whereby such important information as the following can be obtained: (1) Coal consumption; (2) Temperature of the gases, and the amount of CO_2 entering the chimney; (3) Temperature and amount of feed water to boilers; (4) Temperature, pressure and amount of steam generated; (5) Steam consumptions for power and heating purposes, etc., etc. Tabulated records of this nature are of the greatest assistance in running a paper mill with economy and efficiency, and no mill can be considered really up-to-date where they are not available.

Eleven million dollars is involved in the transfer of the 1,600,000 acres of timber limits owned by the New Brunswick Railway Company, which are expected to be purchased by the Fraser Company, Limited, and on which they have had an option extended.

THE IMPORTANCE OF ACCURACY IN PULP TESTING.

Standard Methods of Sampling and Testing Pulp, T.A.P.P.I.

By F. M. WILLIAMS, Member of Committee.

The accurate determination of moisture in pulp is one of the most important things about the mill. This is equally true whether you buy, sell, or make and use your own pulp.

An error of a few per cent in the determination of air-dry pulp may run into thousands of dollars and often leads to endless controversy. One referee, in fact, has made final tests where the differences have run as high as $40,000.

One of the first things which this committee found in undertaking this work of standardizing methods to insure greater accuracy in testing was the lack of proper equipment for accurate tests in many mills. We found home-made ovens without any uniform temperature regulation, and only in a few instances were thermometers used to determine the temperature at which pulp was being dried; inaccurate scales, these often so inaccurate that it was impossible to weigh closer than 5% of the truth.

So the first thing to be done was to perfect a suitable pulp testing outfit, preferably electrically heated and controlled, thereby doing away with unequal steam pressure and leaky steam joints, an oven of sufficient capacity to take large enough quantity of samples to be a fair average of the lot, one with a recording thermometer which would give a positive record of temperature conditions during test and also serve as an indication when the samples were completely dried. The Williams Standard Pulp Testing Outfit was the result.

Uniform temperature regulation is secured by means of a reliable thermostat upon each heating element. When once adjusted these maintain any desired temperature indefinitely without further attention.

Accurate sealed scales are furnished with each outfit, these scales having sensibility equivalent to 1/100 of 1% on the proper amount of pulp samples taken. For convenience in weighing and handling samples, a side table is attached to the oven.

The construction of the oven is of double-walled asbestos lumber with special heat insulating material between the walls, making it not only an absolutely fireproof apparatus but a permanent piece of equipment which will last as long as the mill.

CORNWALL PAPER MILL.

The Niagara Wall Board Company, Buffalo, N.Y.; Skowhegan, Mich., and Pennyan, N.Y., are incorporating a Canadian company, the name of which will probably be the Cornwall Pulp and Paper Company.

This company has leased, with an option to buy, the mill and site of Ross & Co., on East Water street, Cornwall, Ont., and is now in possession, getting ready for business. The company's products are wall board and heavy paper specialties. They expect to be in operation as soon as the buildings can be got ready and the necessary plant and equipment installed. There will be a staff of from 25 to 30 well paid men, with an annual payroll of about $50,000.

E. E. Emigh, of Richmond, Virginia, and E. P. Foley, of Thorold, Ont., are now here getting the plant in shape.

It is reported on good authority that Clarke Bros. will establish a new plant at St. John, N.B.

Technical Section

REVIEW OF RECENT LITERATURE.

E-2. Dry distillation of concentrated cellulose waste lyes. W. Schacht. German Patent 301,684. 27-8-16. Concentrated cellulose waste lyes are distilled on a current of an inert gas or steam or a mixture of both. The residue in the retort is then made alkaline and further distilled. From 100 parts of cellulose lye pitch (specific gravity 1.5) 50 liters of an aqueous distillate containing ammonia, alcohols, and oils was obtained. On the addition of alkali, and further distillation there was obtained 2 to 4 kilograms of oil of specific gravity 0.930, which yielded about 25 percent of a good burning oil, specific gravity 0.800-0.815, and various pyridine bases.—C. J. W.

E-2. Removal of water from waste liquors from sulphite and sulphate cellulose manufacture. E. Oman. German Patent 316,592. 26-6-17. Waste sulphite liquors are kept agitated and subjected to a temperature below their solidification point, any snow or ice crystals formed being removed by filtration or centrifuging. Portions of liquid adhering to the crystals are diluted. The low temperature of the crystals, as well as of the concentrated liquors, may be utilized for cooling further quantities of liquor. The concentration of the liquors may be increased to 40 percent by this method.—C. J. W.

E-5. Methods of heating sulphite and like digesters. J. K. Ruths and Aktiebolaget Vaporakumulator. English Patent 144,084. 29-5-19. The period of digestion is shortened without affecting the quality of the product if steam of low pressure, obtained from an accumulator connected with the sulphite-boiler, be used for the steaming operation and also for starting the digestion which is then completed with steam at a higher pressure.—C. J. W.

F-2. Elimination of malodorous substances from the waste gases from soda-cellulose manufacture. C. G. Schwalbe, German Patent 319,594. 31-7-17. The gases are brought into contact with finely-divided wood, sawdust, or other vegetable waste product. Mercaptans, etc., may be destroyed before this treatment by mixing the gases with an oxidizing gas, such as chlorine, ozone, etc., or the wood or like may be subsequently treated with on oxidizing gas or liquid.—C. J. W.

G-6; K-11. Straining apparatus for use in the manufacture of paper and wood pulp. C. Martin and E. Lloyd, Ltd. English Patent 147,356. 30-7-19.—C. J. W.

K-6. Manufacture of dense, strong paper. C. G. Schwalbe. German Patent 319.826. 27-4-18. Addition to 303,498. Pasty materials obtained by treating waste paper or cellulose with chlorine and water, followed by grinding with water, are incorporated with paper pulp.—C. J. W.

K-7. Beater Tub for paper pulp. W. J. Mellersh-Jackson. English Patent 148,107. 1-4-20.—C. J. W.

K-10. Sizing of paper by means of mixture of colloidal substances with water glass. M. Muller. German Patent 317,948. 20-7-17. The sizing agents are precipitated partly or completely by the addition of acids or acid salts, especially aluminum compounds, prior to the addition of the mixture to the paper stock. Substances which increase the stability and have filling or sizing properties or filling materials or coloring matters in the form of emulsions, may also be introduced.—C. J. W.

K-10. Sizing and impregnating paper, fabrics, etc., with glue, casein, etc. Exportingenieure fur Papier. U. Zellstofftechnik. German Patents 291,228 and 291,229. 3-7-15. An addition of 2 percent sodium hydroxide or of lactic acid (30 percent on the weight of the dry glue) is made to glue solution to increase its penetrative power. Methylformamide (about 2 percent on the dry glue) is used to harden the glue or casein.—C. J. W.

K-12. Paper making machines. J. Thompson. English Patent 145,845. 28-3-19.—C. J. W.

L-5. Viscosity of solutions of nitrocellulose in mixtures of acetone and water. Irvine Masson and Robert McCall.—C. J. W.

L-7. Method of impregnating textile or paper yarns or fabrics. Deutsches Pyroxitges, m. b. H. German Patent 301,684. 27-8-16. The yarn, etc. is impregnated with wood tar and then dusted over with zinc oxide, the latter combines with the tar and forms a dry, wax-like mass.—C. J. W.

STUDENTS' SUMMER WORK SUCCESSFUL.

The second summer's experience of the Technical Section of the Canadian Pulp and Paper Association in assisting University students to get mill training has come to a close. The work has been most encouraging and will be an asset of real value to the industry. It has now become more of an established custom than an experiment.

The scheme of employing students during the summer months has according to reports received from the Secretary turned out to be even more profitable than the previous year. Many of the students have gone back for the time and have made themselves useful to the mills and at the same time have greatly increased their store of knowledge of the industry.

As a result of the prizes offered by the Association for the best essay on the Summer's Work a number of entries have been received which are now under consideration by the judges. The prizes offered are $100, $50 and $25 respectively for the first, second and third positions.

That the mills recognize that the young student of today represents the potential operator of tomorrow is indicated by the more than usual interest taken by mill managers all over the country.

The students for their part have shown good faith by entering the mill and working without any desire for special preference and have thereby greatly assisted the management to give them a very wide experience.

LIST OF EQUIPMENT.

The November Issue of the **Technical Products Economist** listing thousands of items of new and used machinery and equipment for sale is now ready for distribution. For the convenience of prospective purchasers, it is divided into five sections—Refrigeration, Power, Pulp and Paper, Tank and Chemical.

UNITED STATES NOTES

Announcement that Americans are purchasing newsprint paper in Finland, was contained in a cablegram received last Thursday by the Irving National Bank, of New York, from A. E. Lindhjen, its Copenhagen representative. The cablegram said 40,000 tons of newsprint had been ordered from Finnish firms. It also reported that Norwegian and Swedish paper manufacturers had curtailed production one third, and that a further reduction was feared.

John H. Smith, inventor of the process of printing on dry paper, died last week at his home, Monticello, N.Y. Mr. Smith was born in New York City, in 1839. At ten he went to work as printer's devil for Horace Greeley on the New York Tribune. In 1870, while foreman of the Bible House printing plant, he discovered his process of printing that did away with the practice of dampening the paper. Mr. Smith is survived by his widow and two sons.

The place as director of the division of paper work recently vacated through the resignation of Austin F. Hawes, has been assigned to C. W. Boyce. Mr. Boyce, who has been connected with the Forest Service for several years, has just been transferred from Portland, Ore., to Washington, D.C. At the present time he is at the Forest Products Laboratory, Madison, Wis., studying paper matters.

The mills and other property of the North Star Egg Case Company, at Quincy, Ill., have been acquired through purchase by the Robert Gair Company, of Brooklyn, N.Y. $700,000 was the amount paid by the purchasers to the Weis interests who have been in control of the property heretofore. Immediate possession of the mill property was taken by the Robert Gair people. This does not mean, however, that the North Star Egg Case Company is to suspend operations and pass out of existence. Under the terms of the sale the Weis interests retain the egg case filler factory property, machinery and equipment, so that operations in this branch of the business, can be continued.

In a published announcement given out last week, the Robert Gair Company made known also its acquisition of two New England mills, namely, the Haverhill Box Company and the Thames River Specialty Company. Attention was directed in this announcement to the increased capacity of the Gair Company, which, it was stated, turned out last years folding-boxes, shipping cases, labels and containers, in a volume large enough to carry over a million dollars' worth of merchandise.

A program of reforestation and development intended to redeem the cut-over lands of Louisiana bids fair with its carrying out, according to the New Orlean "Times-Picayune," to result in the dotting of the state's piney woods with numerous pulp mills. The development project was born at a meeting held in a glade of Urania forest several days since, at which men from all sections of the North, East and South, representing millions of capital gathered. A policy of reforestation and perpetuation of the lumber industry in Louisiana was formulated. Henry E. Hardtner, president of the Urania Lumber Company, and also president of the Southern Forestry Congress, was the host to the visitors. Mr. Hardtner has been conducting experiments which show that pulpwood can be grown on cut-over lands in from ten to fifteen years. His reforestation plans and other development policies were approved by the gathering. Commissioner M. L. Alexander, of the Louisiana Department of Conservation, assured those present, that his department would lend every possible co-operation in the reforestation work.

BRAZIL MAY MAKE PULP.

Brazil is likely to cultivate the pulp and paper market by utilizing her vast resources in forest, according to Senor G. Alves de Lima, formerly Brazilian Consul in Montreal. With the increase of newspapers on the South American continent, he says, the demand for newsprint is becoming a more serious matter, and in days when paper is such an asset, the attention of manufacturers has been turned to the immense forests in the southern portion of Brazil. At present, pulp is imported from Canada, Sweden and Norway.

U. S. IS CANADA'S LOGICAL MARKET.

A despatch from New York says that Angus McLean, Vice-President and General Manager of the Bathurst Lumber Co., Ltd., Bathurst, N.B., pulp and lumber producers, declared on his arrival in New York from abroad, that Canada would take care of the United States in paper supply because of easy transportation and on account of her proximity to Canada's logical market. England will get her paper and pulp from Scandinavian countries in greater quantities than heretofore, he is reported to have said. "While abroad I discussed the paper situation with Lord Beaverbrook and it is his opinion that pulp will ease up," said Mr. McLean.

NOW TIPPET & CO.

Tippet & Co. have bought from the estate of the late Arthur P. Tippet, all his interest and goodwill in the late firm of Arthur P. Tippet & Co., and will conduct the agency and importing business, heretofore, conducted by them, under the new firm name. The general management will be in the hands of Mr. F. H. Tippet, who has long been connected with the late firm, and who previously was in business in the same line in Liverpool, England.

JOINS EMERSON STAFF.

Miss Jessie E. Minor, who has been for several years the Chief Chemist for the Hammersley Manufacturing Company of Garfield, New Jersey, has recently moved to Springfield, Massachusetts, to take charge of the Pulp and Paper department of the Emerson Laboratory at 145 Chestnut Street. Miss Minor was for several years a graduate student at the University of Pennsylvania and later studied at Bryn Mawr College where she received the degree of Doctor of Philosophy in chemistry. She also spent several years studying industrial conditions in the Union of South Africa. Several articles under her name have appeared in the Pulp & Paper Magazine.

PULP AND PAPER NEWS

It is stated at the Parliament Buildings, Toronto, that E. W. Backus is by no means sure of being the successful tenderer for the English River timber limits. According to those who are in close touch with the development of Northern Ontario at least two other companies are likely to put up formidable opposition to Mr. Backus. Tenders for the limits are due to be opened on December 18th. Premier Drury, when interviewed, claimed that the Canadian Pacific Railway would not be the only road to benefit in the event of the Backus interests securing the English River limit. He contended that whoever gets the limit will have to build a line connecting with the Canadian National Railway, which would stand to get as much business as the C. P. R.

The Landry Pulpwood Company, Limited, has been organized and granted incorporation by the Dominion Government. The company, which is capitalized at $100,000 is authorized to carry on business in pulp, paper, lumber and timber and allied industries. The incorporators are Alphonse Landry, Sr., Joseph Landry, Jr., and Albert Landry, all merchants of Lac-au-Saumon, Que., Eric Onésiphore Bernier and Ancina Tardif, of Quebec. The head office of the company will be at Quebec.

The firm of Kilgour Bros., paper bag manufacturers, etc., Toronto, has been granted incorporation as a limited liability company with a capital stock of not less than $2,500,000.

Frederick Atkinson, of London, a former well-known newspaper man of that city, has been appointed vice-president and general manager of the Daily Garment News, an important trade publication, printed in New York.

Mr. James Thompson, President of the Thompson & Heyland Lumber Company, Limited, Toronto, lumber and pulpwood dealers, has gone on a trip to Northern New York to visit the mills in that district.

Mr. W. R. Gingerich, of the Tyrone mill of the West Virginia Pulp and Paper Company was in Toronto this week. In company with Mr. Heyland of Toronto, he left to visit the wood jobbers at Huntsville and vicinity.

Mr. L. Corey, of the Corey Trading Company, New York, lumber and pulpwood dealers, spent a few days in Toronto, this week.

The Canada Box Board Company expects to have their new pulp mill at Frankford running by January 1st. Arrangements have been made with the Thompson & Heyland Company, Toronto, for the complete supply of wood. The company expects to produce at the Frankfort mill 7,000 tons of groundwood pulp a year.

Mr. George Winlow of the Toronto office of the Canada Paper Co. Ltd., joined a party this week and left for a few days hunting expedition to the north country.

The number of enquiries reaching the Dominion Commission of Conservation indicates an increasing interest in the saving of waste paper. Schools are taking up the work and, in some cities, a friendly rivalry among the school children has resulted in a much larger quantity being secured. Apart altogether from the financial returns, the work is one of national importance. The demand upon the forests for pulpwood is enormous, and, while the utilization of mixed waste papers for the manufacture of newsprint is not yet commercially feasible, it is being generally used in making building and roofing papers, box board, etc.

The Hamilton Times, which started a morning paper under John Imrie, late manager of the Canadian Daily Newspaper Association, announced this week the suspension of publication after three issues had been put out. The Ontario Newspapers Corporation, Limited, under whose auspices the paper was started states that the suspension as a morning paper was forced on them by reason of trouble with the printers. The management states that they had been paying a scale of wages in excess of the morning newspaper scale provided for in the agreement between the Hamilton publishers and the Typographical Union and that they were unable to meet the demand of the Union.

The regular quarterly luncheon of the Toronto Carton Club held outside the city of Toronto took place on Tuesday, November 9th, at Kitchener. There was a good representation present from Toronto as well as from Kitchener, Galt, Brantford, Guelph and Stratford. After a bountiful repast provided by Mr. Boehmer, of Messrs. A. & C. Boehmer, Ltd., of Kitchener, the party went through the plant of the Dominion Tire Co., which proved to be a very pleasant event. Following the visit to the tire plant a meeting of the Club took place at the Walper House when present trade conditions were thoroughly discussed. The consensus of opinion of those present was that with the slackening of demand, members should recognize that there will only be hand to mouth buying until the present period of readjustment is completed, whenever that may be. It was also felt that members should not attempt to increase business by endeavoring to take away the customers of other members, as such action would only provide retaliation, with disastrous results to the trade, while it was pointed out that cutting of prices below a price based on cost of raw materials, plus a fair profit, will not stimulate business, but on the contrary retard it.

To gain an insight into Canada's pulp and paper industry, thirty representatives of the leading business interests of Chicago visited Thorold this week. A lengthy nspection was made of the Ontario Paper Company's mill, each detail of the operation of turning spruce into newsprint being explained to the visitors by Mr. J. H. Curtiss, the manager of the plant. The visitors also inspected the work which is proceeding in connection with the installation of a fifth paper-making machine, which will bring the output of the mill up to more than 300 tons of newsprint paper a day. Following the visit to the Ontario Paper Co's plant the Chicago men were shown the work on the Welland Ship Canal and were entertained at luncheon at the Niagara Falls Country Club.

Established in 1906 and carried on since that year, the Canadian Courier, published in Toronto, has suspended publication for the present, at all events, although it is stated that reorganization will be attempted with a view to again bringing out the periodical. Lieut.-Col. John A. Copper, was the first editor of the paper and his place was taken by Augustus Bridle who was in charge at the time of the suspension.

The Ontario Government has decided to make provision for the building of a well-planned town at Kapuskasing in connection with the opening up of a big pulp and paper mill there. Spruce Falls, the new town, is to start off with a site of 900 acres in extent, and a plan has been adopted which provides that every house shall be built upon a lot of at least 60 feet frontage and 120 feet in depth, and a loan of $400,000 from the Housing Fund of the Government for the construction of dwellings. It is proposed also to remove to this new section a number of settlers in Haliburton who are acquainted with conditions in the bush country, and will take up farms around Spruce Falls and grow produce for the townspeople.

Mr. J. E. A. Dubuc, a principal promotor of the new $500,000 Chicoutimi proposition, La Papeterie du Saguenay, Ltee., sailed on the Empress of France for a holiday on the ocean. He figured such a trip the best way to escape from business.

APPROVED CONDITIONS AT BELGO.

Mr. P. J. Jobin, Inspector of Industrial Establishments of the Province of Quebec, has visited the Belgo-Canadian Pulp & Paper Co.

The purpose of his trip was two fold:

1—Under the Provincial Law, no Industrial Concern can employ children under 14 years of age and none under 16 years of age unless they can read and write.

Mr. Jobin, put about 20 boys between the ages of 14 and 16 through the third degree and all were given registration Cards.

Out of the total only one professed to be unable to read and write and two were given "Fair" Certificates. The other came through with honors. The first three will have to attend a night class to learn to read and write if not the inspector will withdraw the certificates and the boys will have to wait till over 16 before they can get employment in this Province.

2.—Inspection of the mill for "Safety devices". Mr. Jobin has congratulated the Company on the efficient way the machines are protected and has specially congratulated them on the First Aid Room, its operation and the result obtained.

The Shawinigan Falls Review, successor to the Belgo Bulletin is growing rapidly, having 32 and 34 pages. It will soon have to appear weekly. A recent number has a fine review of the symptoms and treatment of common diseases.

The Belgo Canadian Pulp & Paper Company has secured for its employees three cars of potatoes, guaranteed to be "good keepers." The potatoes will cost employees $1.45 per bag of 90 lbs., plus the bagging and delivery charges. If the arrangement works satisfactorily this fall it is highly probable that next year the ordering of winter preserves will be entended to other necessities.

The Belgo Canadian Co. entertained 75 members to the 9th Congress of the Chambers of Commerce of the British Empire, last month.

PRESIDENT McGARRY INSPECTS WHALEN PULP & PAPER MILLS.

Hon. T. W. McGarry, K.C., who is now President of the Whalen Pulp and Paper Co., Ltd., is in Vancouver, and will make a thorough inspection of the properties of the company while he is on the coast. It was too early in his visit for our correspondent to secure any statement from Pres. McGarry regarding future plans in connection with the Company, but before he leaves there will be, in all probability, an appointment to the general managership of the company.

CRANDON COMPANY CHANGES NAME.

The J. B. Crandon Company, of Portland, Maine, have changed the name of their corporation to Mill Appliance Company.

This corporation is manufacturing and putting on the market specific gravity acid controls, feeding devices for rotary melted sulphur burners, dry sulphur feeds, sublimed sulphur detectors, and other devices largely used in sulphite pulp mills.

The change of name became desirable to avoid confusion with the Crandon Manufacturing Company, with which Mr. Crandon was formerly connected but it was made more particularly in view of the fact that their prospective business will be largely with mills generally, particularly those in the various chemical industries and will not be confined to pulp and paper mills.

PONT ROUGE NOTES.

The correspondent to the Neponset Review writes, in the October number:

The new dam is commencing to look like a real thing now, as the contractors will soon finish pouring the cement into their fourth pier soon. This construction is quite a boom for Pont Rouge. All available lodgings have been taken up and the hotels have got to be notified a eek in advance if you want to get sleeping quarters here. We have numerous visitors from all over the country, who come to see it, especially Sunday, and at night when we have our flood lights playing so the men can work, it is a very pretty scene.

We have our 2-100 Beaters running, and have installed one of our new Cylinder moulds.

The material for our new crane system is pretty near all here, and we are just planning to have it installed.

Our new Babcock and Wilcox Boiler has arrived, but due to the fact that some of the parts have not yet been received, the work of erecting is being held up.

Believe me, there will be something doing at Pont Rouge when all these improvements are completed.

The Little Bird strainer valve which we have installed on the machine is a great relief to the machine tenders.

The two Bird Screens have just arrived, and we are very anxious to see them running.

Pont Rouge is to be congratulated on the tonnage and quality of felt turned out during the past few months and also on the progress of the new work. Of course, the real big job there at the present time is the construction of the new concrete dam. This dam, when completed, will increase our power to quite an extent and also overcome the difficulty we had with the old dam of water leaking under it. The work is going along well, day and night gangs working.

A New Call to Arms

Against the Powers of Ignorance

$5,000,000 NEEDED

To build up good Canadians, second to none as

ENGINEERS, CHEMISTS, PHYSICIANS, SURGEONS, DENTISTS, SCHOLARS, LAWYERS, MINISTERS, ECONOMISTS, TEACHERS, EDITORS, ARCHITECTS, SCIENTIFIC FARMERS, EXPERTS IN BUSINESS.

SIR ARTHUR CURRIE

formerly Commander-in-Chief of the Canadian Army, and now Principal of McGill, gives this message :—

"We are all standing to-day in another set of trenches, prepared to give battle against the powers of greed, selfishness, and ignorance, and ready and willing to evince the same high courage, the same unflinching devotion, the same steadfast earnestness, and the same determination to win as were displayed by our countrymen in the crisis of the Great War. McGill aims to be a great seat of learning, to develop in its students a love of study and research, to help them understand and appreciate the lessons of history, to master the mysteries of nature, and to obtain a proper conception of their duties and responsibilities as citizens, while recognizing at the same time the spirits and the needs of the times. She will maintain the highest intellectual traditions of our race, and will inculcate the truest moral standards. She seeks the truth and unselfishly desires to serve."

URGENTLY WANTED :

More Buildings, More Laboratories, More Equipment, More Books, More Professors, More for Salaries.

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The Markets

CANADIAN TRADE CONDITIONS.

Toronto, November 13. — Dullness in the printing trade, bigger stocks of paper in the hands of the jobbers, the mills busy with considerable tonnage ahead and prices generally firm may be mentioned as the chief features of the Canadian paper trade during the past week. The printers say that there has been a distinct falling off in business. Certain it is that their policy is to skimp buying to the finest point and in this there are those who think they see an effort by the printers to force prices down. At any rate the printers are not buying beyond their immediate requirements and the result is seen in the jobbers' warehouses where stocks, in a number of lines, are larger and more varied than they have been since the paper boom set in. Both paper mills and jobbers report that it is harder to get orders now while at the same time there is no disposition to regard trade as at all bad. The mills are not worrying, for they are still some months ahead of the game for orders, and in many cases are shipping paper now that was ordered months ago, while this business is being augmented by a fairly good demand for future delivery on orders now being booked. There is an air of confidence among the jobbers which is not affected by the dullness in the printing trade and they view their increasing stocks in the warehouses with satisfaction, believing that the era of buying will resume very shortly. Speculation is still rife as to what the future holds for the trade in the way of lower prices for papers and there is a pretty general feeling that a decline is coming. That it will not take the form of a general slump is the opinion held by most of the paper makers and jobbers. The key to the situation is the condition of the pulp market. While that holds firm, as it is at the present time, it is argued that paper prices will not come down. On the other hand if the pulp market weakens, lower paper prices may be looked for.

PULPWOOD.—The price of pulpwood is still holding firm, although there has been a slight weakening in unpeeled wood. This has not been of a sufficiently pronounced character to affect the market. Some dealers have been offering the distributors unpeeled wood at about 90c a cord below the prices of the past few weeks but this reduction has not become general. For the most part the market remains firm. There are still evidences of a tremendous production of wood in Quebec and New Brunswick, although in Northern Ontario peeled spruce production has been rather small. Poplar shows a larger production than for some years past and things are shaping up in Northern Ontario for a big output of unpeeled wood.

GROUNDWOOD.—There is a slight tendency in the high grade pulp market to weaken, although there is a very good demand, but prices are holding up fairly well and no great slump is looked for. There has been a slight falling off in the market for groundwood pulp, but the decline has not been great and was nothing more than the somewhat abnormally high prices of the past few months could stand. The demand is still very active and the prices are sufficiently attractive to induce some of the manufacturers to sell their groundwood instead of converting it into paper.

BOOK PAPERS.—Although there was an easing up in the demand for book paper during October, the present month has opened up well and there promises to be a bigger volume of business in this line this month than for some time past. According to the jobbers there is more business ahead than they can get stock for. The mills, too, report a well-sustained volume of business, although they have noted a tendency to stick to the smaller orders policy which became general a few weeks ago. One of the mills reports a distinct improvement in demand for book papers and the fact that they are still considerably behind with their orders, combined with sustained demand, would indicate that this branch of the paper industry is perhaps better situated than some others. It is worthy of note that one Toronto jobbing house is only now receiving shipments of book paper ordered last January for last May's delivery and the house is in an excellent position to absorb them. The general opinion seems to be that while there were signs of easing off in demand a week or so ago, the trade is not going to be materially affected and that prices will not drop before the Spring. At the same time it is thought quite likely that there may be cases of price-cutting by some jobbing houses who may be anxious to unload, fearing lower prices. The big houses, however, have not shown any symptoms, as yet, of cold feet. Whatever lowering of prices comes, if it does come, will be due to a realization that the era of high prices is passing and that the trade is getting down again to something like a normal basis.

COATED PAPERS.—A distinctly cautious attitude characterizes the coating mills. The mills are reported to be buying very carefully, not knowing just what turn the situation will take. Although there has been a slight falling off in demand for coated stock, the volume of business has kept up fairly well, but the mills are showing a hesitancy in buying stock. One representative of a coated paper mill in the Toronto district stated that his mill was only buying paper from hand to mouth at the present time so as not to get caught with heavy stocks in case of a decline, and in the conviction that the market was in an unsettled condition.

TISSUES AND TOILETS.—The mills report a distinct tendency to hold off buying on the part of the jobbers. There are no heavy stocks of paper in any of the warehouses and jobbers are not stocking up for the future. Small orders have replaced the heavy consignments. Business at the mills, however, is satisfactory and there have been only a very few cancellations. There is a considerable tonnage yet ahead of the mills and orders that have been on the books for some months are now being shipped and accepted. Prices on all light weight papers are holding firm although a decline is looked for at the beginning of the year. This, of course, will largely be contingent



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on the pulp situation, which has shown no sign of easing off as yet.

WRAPPING PAPERS.—While there has been a falling off in demand for wrapping papers and paper bags, the jobbers report that they could use more stock if they could get it. None of the warehouses are carrying big stocks for the reason that they cannot get them from the mills. A satisfactory volume of business is being done and the trade generally is in a good condition with prices firm.

RAG AND PAPER STOCKS.—The new cotton rag market has continued in good condition, due chiefly to lack of supplies. There has been no larger movement to mills but buying has been large enough compared with supplies. Old rags have slumped again with demand almost at a standstill.

Consumers continue to eke out the supplies they have on hand coming into the market only when lack of supplies forces them. The outlook for the balance of the year is not cheerful but dealers hope for better things with the turn of the year. The waste paper market is slower than before although the prices are near stabilization. Shavings, both hard and soft, continue firm for the same reason that applies to the new cottons—not the amount of sales, but lack of supplies. With the exception of these grades the market slumped off again this week. The future of the waste paper business is shrouded in doubt but local dealers unite in saying that collections can not keep up if prices drop any lower. If the price does not drop any lower and business with the mills picks up, waste paper dealers look for a fair business after the first of the year.

Following are quotations on rag and paper stock :

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$23.00—$24.00
No. 1 unbleached cotton cuttings	$17.50—$18.00
No. 1 fancy shirt cuttings	$13.00—$13.50
No. 1 blue overall cuttings	$11.50—$12.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.50—$17.00
Light colored hosiery cuttings	$13.00—$14.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$13.50—$14.00
City thirds and blues (repacked)	$ 3.25—$ 3.50
Flocks and satinettes	$ 1.15—$ 1.25
Tailor rags	$ 0.90—$ 1.00
Gunny bagging	$ 1.50—$ 1.75
Manila rope	$ 5.25—$ 5.50
No. 1 white envelope cuttings	$ 8.50—$ 9.00
No. 1 soft white shavings	$ 8.00—$ 8.25
White blanks	$ 5.00—$ 5.25
Heavy ledger stock	$ 3.75—$ 4.00
No. 1 magazine	$ 2.50—$ 2.75
No. 1 book stock	$ 2.40—$ 2.50
No. 1 manilla cuttings	$ 5.00—$ 5.25
No. 1 print manilla	$ 2.00—$ 2.10
Folded news	$ 1.50—$ 1.75
Over issue, news	$ 2.50—$ 2.75
Kraft	$ 5.25—$ 5.50
No. 1 clean and mixed papers	$ 1.00—$ 1.10

NEW YORK MARKETS.

New York, November 13—(Special Correspondence)—Demand for paper continues of narrow compass. Such buying as is being indulged by consumers and jobbers is solely against actual immediate needs, and with business in all lines quiet, there is not as heavy a consumption of any kind of paper as there was up to a short time ago. The general trend of prices is still downward. This is but to be expected under prevailing conditions when seemingly every commodity price is on the downgrade and when buying in all lines is light. Comparatively speaking, the paper industry today is in probably the healthiest position of any manufacturing industry in this country, and while matters in the paper trade are far from what could be desired in some departments there is no demoralization of prices nor any general shutdown of plants that marks many other trades.

The quietness has been accentuated this week by the fact that most paper mill executives have been in Chicago attending the meetings of the American Paper and Pulp Association there in conjunction with "Paper Convocation Week." This of course has slowed up matters at manufacturing centers because company officials have not been present to speed things up and to push business. Reports from most mills are to the effect that a majority of them have enough business booked or are securing sufficient orders to keep them fairly well engaged. Here and there a plant, more often a box board mill, has closed down for a time, but production in the aggregate continues at close to normal. At the same time, it cannot be denied that the average paper or board mill is at present accumulating a surplus of stock, and unless demand from consuming sources undergoes some broadening in the very near future, it seems inevitable that a change at manufacturing points will have to be effected. Both manufacturers and dealers place great stress on the narrow spot demand for paper of every description. Publishers and printers; in fact, all consumers of paper, are invariably confining their consumption at the moment

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the paper they are receiving on contract, and only a spasmodic demand of light volume is arising for prompt shipments.

The newsprint market has again weakened in so far as regards spot supplies. Sales of news in standard rolls have been reported at 7.50 cents per pound at mill sand there have been rumors of offerings by some manufacturers at even cheaper prices. The spot basis is well maintained at around 6.50 cents, and judging from the reports emanating from producing quarters, publishers can expect to pay more for their print paper after the turn of the year. The consumption of newsprint in New York is heavy but it is authoratively understood that it has fallen off considerably throughout the country. One local afternoon paper yesterday exceeded all previous records in the amount of advertising carried in a single issue, printing 294 columns of paid display advertising which required an issue of 40 pages. Moreover, the paper in question has the largest circulation of any New York daily. According to a cablegram received several days ago from a New York bank's representative in Copenhagen, Americans are purchasing newsprint in Finland in large tonnage, it being asserted that orders have thus far been placed for 40,000 tons. The same report states that Norwegian and Swedish paper manufacturers have curtailed production one-third and are said to be contemplating a further reduction in operations.

There is little change in book papers. Current demand is limited but prices hold fairly steady excepting for an occasional sale at sharp recession, and mills are mostly disposing of the bulk of their output on contracts. Tissues and wrappings are holding their own in point of activity and there is relatively a better call for these grades of paper from the transient trade than others, this evidently being due to the near approach of the Christmas holidays when the consumption of both tissue and wrapping reaches its crest. Fine papers are moving slowly, especially the high qualities, and quotations are characterized by easiness.

Boards continue weak and in lax demand. Most manufacturers withdrew prices early this week and have kept out of the market presumably in an effort to stabilize conditions. Boxmakers are doing little buying and the retirement of sellers consequently had no visible influence on the market. Plain chip board is quoted at around $60 a ton at mills and filled news board at $67.50 to $70.

GROUND WOOD—There is a lack of important activity in ground wood and yet an undertone of steadiness marks quotations. Both board and paper manufacturers are keeping very much out of view as buyers and the little business being done is of scattered character and seldom involves large tonnages. Prices on domestic ground wood of prime quality for prompt delivery range around $125 per ton at pulp mills, and while imported ground wood is selling at as low as $110 ex dock, buyers frankly acknowledge having difficulty in securing domestic pulp in sizable amounts even at $125. According to all reports, grinders are succeeding in piling up but little surplus, which would indicate that the great bulk of present production is quickly finding its way into consuming channels.

CHEMICAL PULP—Paper manufacturers are holding off in buying chemical wood pulp in the same manner that they are curtailing purchases of other raw materials and the market is a bit duller. Transactions are of spasmodic character and seldom involve large tonnages for the reason that consumers are absorbing supplies only when immediately in want of pulp. Prices are maintained in most cases although there is an easing tone displayed by some grades, notably kraft and the lower qualities of unbleached sulphite. Arrivals of pulp from Europe at this port during the present week have been larger than for some time and this also has a weakening influence on matters generally, although importers as well as domestic producers are not pressing buyers and are mostly waiting until consumers show more inclination to absorb supplies.

Imports at New York during the week included 17,210 bales from Gothenburg, 29,900 bales from Donajo, 3,720 bales fron Danzig, 9,460 bales from Christiana, and 2,175 bales from Rotterdam.

RAGS—The market for papermaking rags is in an inactive state. There is no concerned demand for any grade and most descriptions are extremely hard to sell in any worth while quantity for the reason that paper mills are refusing to buy on a declining market and are more concerned about reducing present stocks than in augmenting them. Dealers assert that prices on rags have dropped to levels where there is scarcely any profit in handling some grades and that as a result collections have decreased to an apparent extent, which, they claim, will certainly rebound against consumers in due time. Nevertheless, everything would appear to indicate that there are sizable accumulations in dealers' and packers' hands and the probabilities are no such thing as a scarcity will develop. With business at a minimum, it is indeed difficult to ascertain what prices are; in fact, there is not enough trad-

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ing in many kinds of rags to establish market levels. Old whites are down further to as low a basis as 10 cents per pound at shipping points for No. repacked whites, and repacked old thirds and blues are available at 3.75 to 4 cents. Roofing rags have sold down to 1.25 cents a pound at shipping points for No. 1 packing and at a couple of dollars per ton under this figure for No. 2 grade. New cuttings are relatively steady but even these are commencing to recede in price, reports having been heard of sales of No. 1 white shirt cuttings to mills at 22.50 cents a pound at shipping points.

Arrivals of foreign rags at this port this week included 918 bales from Antwerp, 268 bales from Nantes, 78 bales from Southampton, 98 bales from Copenhagen, 28 bales from Liverpool, 94 bales from Havre, and 71 bales from Belfast.

PAPER STOCK—New low prices have been recorded on most grades of old paper this week and the tone of the market continues weak with the aggregate movement of supplies toward mills of small importance. Board mills are doing very little buying, some of them being closed down and most others operating only on reduced schedule, and on this rests the prevailing condition of the waste paper market. No. 1 mixed paper has been purchased at as low as 45 cents per hundred pounds f.o.b. New York, folded newspapers at 1.15 cents a pound at shipping points, heavy No. 1 book stock at 1.90 cents, old No. 1 kraft at 4 cents and white blank news cutting at 4.50 cents. Shavings are slightly off in price at about 8.50 cents for No. 1 hard white and 7.50 cents for No. 1 soft white shavings, the reason this class of stock is relatively higher in value than others being that the packers are holding shavings while exerting every effort to move other grades.

Receipts of miscellaneous foreign paper stock at New York this week included 837 bales from Belfast, 151 bales from Antwerp, and 138 bales from London.

OLD ROPE AND BAGGING—There is practically no buying interest shown by papermakers in old bagging and prices are weak and on nominal levels. It is known that No. 1 scrap can be purchased at 2 cents a pound at shipping points, roofing bagging at 90 cents a hundred pounds and No. 1 gunny at 2.50 cents, and the probabilities are firm bids could secure supplies at lower figures. Old rope is quotably steady at 5.75 to 6 cents a pound and is in moderate call. Mixed strings are down in price to 2.50 cents per pound.

Imports of old rope at this port this week included 175 coils from Copenhagen, and of old bagging 191 bales from Antwerp and 289 bales from Copenhagen.

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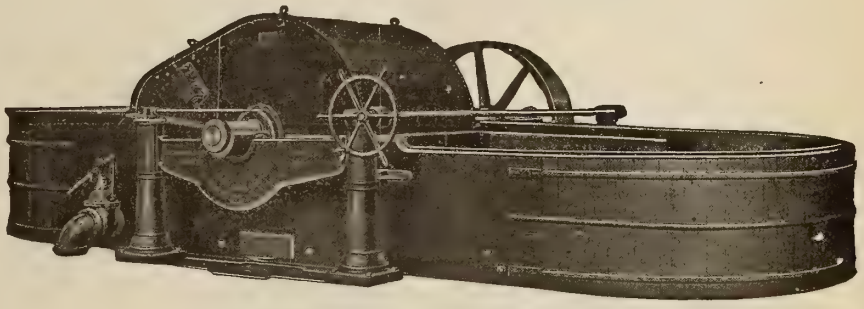
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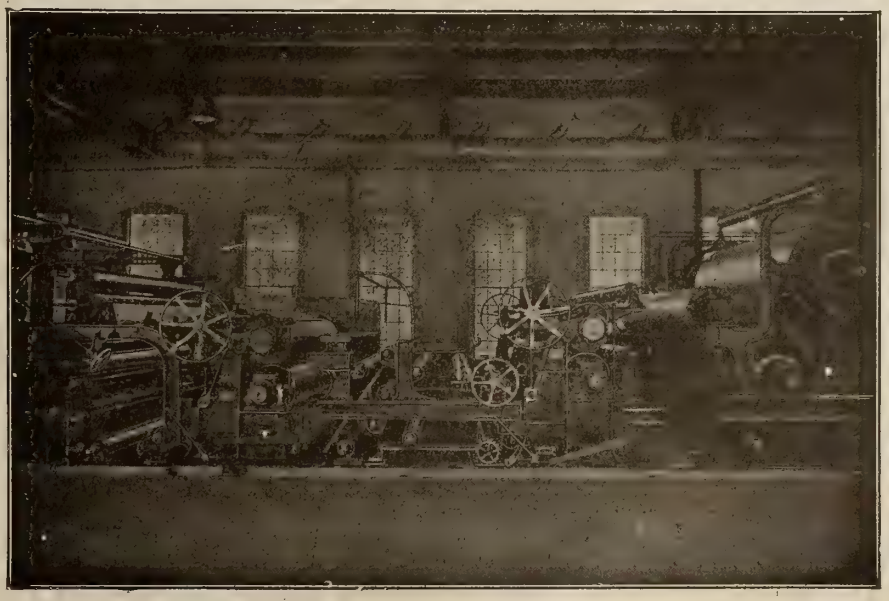
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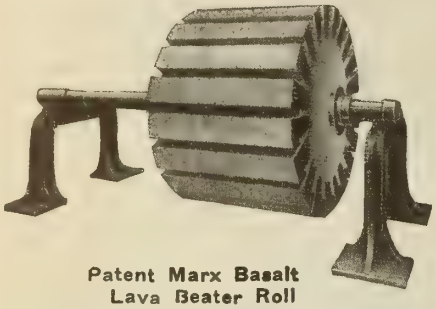
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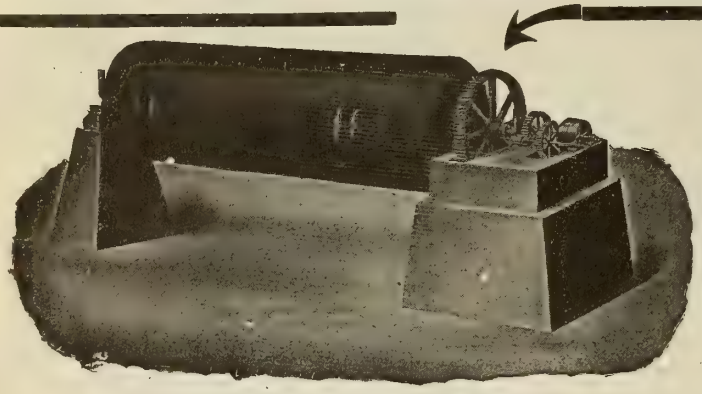
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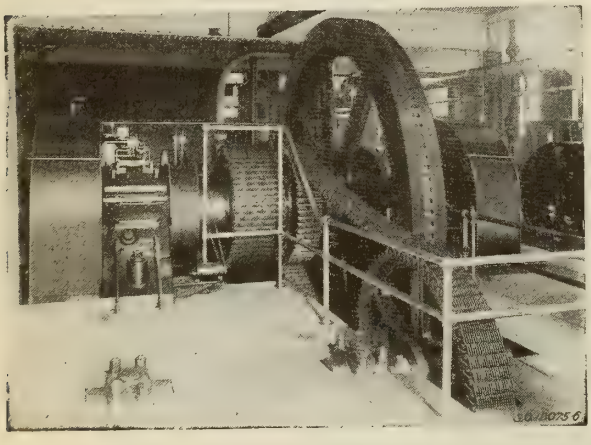
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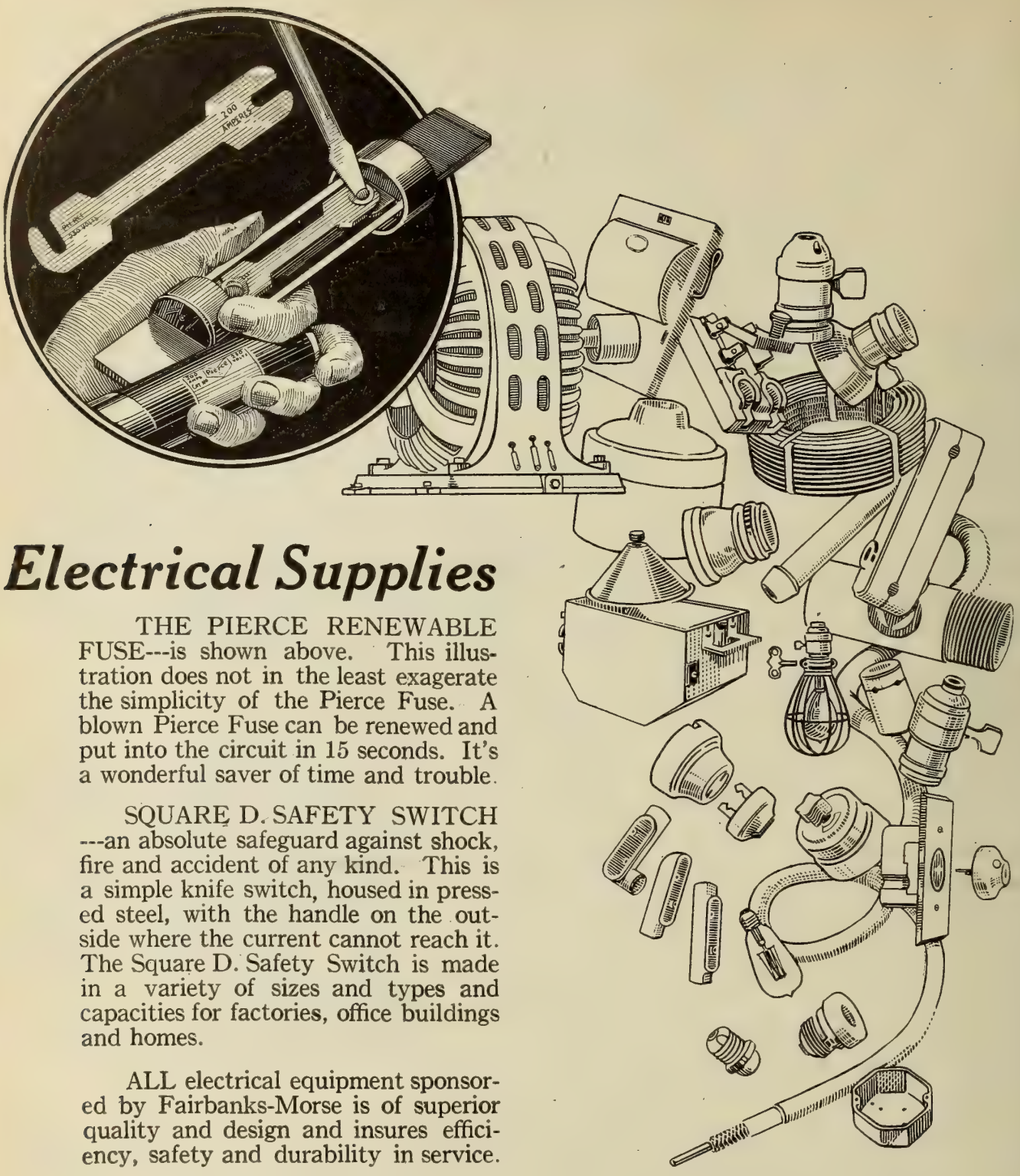
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FAIRBANKS-MORSE

-:- EDITORIAL -:-

TALKING ABOUT THE TARIFF.

Nearly everybody in Canada has some ideas with regard to the Tariff. A good many of those which have been voiced seem to want a minimum duty on material they import and a maximum on what they manufacture. From reports of hearings of the commission investigating tariff matters it would seem that practically everybody in Canada favors a moderate degree of protection for Canadian industries. This attitude indicates an appreciation of and a fairmindedness with regard to the position of others. For instance a boot and shoe man and his employees desire a sufficient duty to put their business on at least an equal footing with that of similar manufacturers in other countries, particularly in such times as his neighbors might have a dull period and desire to dump quantities of the product in the Canadian market. He naturally wants to keep his plant and his employees as busy as possible. On the other hand, when he buys a suit of clothes or a machine he wishes to get it at the best price. He realizes, however, that if there were not sufficient duty to protect the textile and clothing manufacturer and if boot and shoe makers should in consequence buy the majority of textile products in another country, the textile industry would seriously suffer and through lack of employment and lowering of wages these potential buyers of his own product would be unable to make purchases in normal volume. The same argument applies all round the circle and calls for just such a tariff as the government evidently proposes to maintain, namely, that every Canadian industry is entitled to so much protection as will keep it employed to the maximum with a reasonable return on the investment and with the ability to pay satisfactory wages.

There seems to be a little opposition to a fair degree of protection from the tariff, which must be considered in this light quite apart from the necessity of a tariff for revenue purposes. The opposition has come principally from farmers who evidently have not fully considered that some degree of protection is not only desirable but necessary for the well being of many of their fellow-citizens and indirectly, themselves. Agriculture is a basic industry, and with the exception perhaps, of fertilizer, having its entire raw material in its own possession, the raw material for the farmer's product being his land, his seed and his labor. His market is at home, across the border and overseas. The majority of farmers are dependent largely upon their neighbors for the purchase of their product. If their neighbors in the home town or the neighboring city are not profitably employed, how can the farmer sell his produce? Furthermore, if the farmer must pay a few dollars more for a plough or a tractor of Canadian manufacture made by men to whom he sells his potatoes there has been no suggestion that he should not charge for his potatoes a price which will cover the cost of his seed, his labor, the overhead on his investment in land and machinery and alllow him a profit on his endeavor.

To our mind there is no argument against a rational tariff but it is a matter which should be carefully studied and recommendations made on the basis of scientific investigation and an unbiased calculation.

THE BOUNDARY OF LABRADOR.

Labrador is a narrow strip of the Atlantic coast of North America running northward from the Strait of Belle Isle to Cape Chidley which is the southern gate of Hudson Strait. The width of this strip varies according to present maps, from practically nothing at the north to about 50 miles opposite Newfoundland. This boundary is in truth an imaginary line because it has never been definitely surveyed and marked. It will be recalled that Labrador comes under the jurisdiction of Newfoundland which is still a colony of Great Britain. While this trip of wellnigh barren country was principally useful as furnishing sufficient ground for fishermen to go ashore and dry and salt their catch, there was little occasion for dispute as to the western boundary, but now that pulpwood has been discovered just behind the ridge that lies a little way back from the Atlantic, and other resources are supposed to exist in this region, there is a movement to have the boundary definitely determined, otherwise it will not be possible to know to whom customs and other tariffs should be paid. The matter of this boundary is one to be decided by the Privy Council and the arguments in the case were supposed to have been made out, at least plenty of time has been given for their preparation. It seems, however, that not very much has been done.

The matter has been brought to a head by the present world shortage of paper with its attendant investigation of new areas as possible sources of pulpwood. Among these investigations was an air-plane survey of the land lying in the interior of the Labrador Peninsula, notably along Hamilton inlet and river. Reference to the forest

resources of Labrador was made in the Pulp and Paper Magazine a few weeks ago. The promoters applied to the Newfoundland Government for these timber limits and this brought up again the question as to whether the country referred to was actually owned by the Colony. It is understood that representatives of Canada and Newfoundland are in London with the object of drafting their respective claims to this territory for presentation to the Privy Council.

The question is one that is of peculiar interest to Quebec as the most eastern province and the one which shares the boundary with Labrador. The question becomes the more significant when it is considered that the future development of the pulp and paper industry in Quebec must necessarily open up the country north of the St. Lawrence. When we get a little way above the 52nd parallel, the height of land is reached, north of which, some river systems flow into the Atlantic and others into Ungava Bay. The head waters of rivers flowing into the Atlantic, such as the Hamilton, are sometimes 400 or 500 miles from the ocean. The determination of the boundary then becomes more important since timber naturally lies in the river valleys, which in large part cross it. It will be recalled that in the early days there was bitter strife among the North American colonies because of the overlapping claims due to indefinite boundaries, especially towards the West. The disputes were not restricted to the English colonies but involved also the French settlers who occupied the country down the centre of the continent, particularly along the Misissippi and the contact of these settlers and the garrisons of the French and English forts has made the subject for many pages of American history. It is well indeed that the present dispute is to be settled with the consent of both parties by the Privy Council.

For those who are interested in the history of the boundary of Labrador, we quote the following brief review from a dispatch from St. John's, Newfoundland.

"This line has never been laid down by actual survey and its various definitions as given in documents issued at intervals in the last century and a half are so vague that government officials do not know just how much of Labrador belongs to Newfoundland and how much to Canada.

The coast of Labrador was annexed to Newfoundland in 1763. Ten years later, owing to difficulties arising out of grants made to a number of persons under the French rule, it was changed to Canadian jurisdiction. In 1809 it was again transferred to Newfoundland and has since been attached to this colony.

The difficulty arises over different interpretations of the words "coast of Labrador." One view is that Newfoundland can claim only the coast between Blanc Sablon and Cape Chidley, with perhaps a half a mile inland, and that the rest of Labrador belongs to Canada. As defined in the letters patent constituting the office of Governor of Newfoundland, the boundary was described as a line drawn between Blanc Sablon and Cape Chidley, which would pass through the ocean in certain sections and leave large areas of the coast to the westward of the line and therefore not under Newfoundland jurisdiction.

Many Newfoundland officials hold to the view that the correct delimitation was made in a sessional paper issued in this colony in 1864. Under the phraseology of this document Newfoundland would be entitled to thousands of square miles of the interior of the Labrador Peninsula in addition to the coast."

PACE MAKER SETS PRINT PAPER PRICE.

The International Paper Co., whose paper mills are all in the United States, has announced that the price of newsprint for January, February and March will be 6½ cents a pound, or $130 a ton. This is an increase from 6 cents and $120 respectively. The International operates mills of practically every degree of efficiency, some making their own pulp, others getting it from other mills of the company. Some of the wood is cut from the company's limits and some is bought at very high prices. Probably no other company so well represents the entire newsprint industry.

It seems likely that Canadian mills will "ride on the band wagon". Whether domestic prices will go to the International's figure cannot be ascertained as we go to press. Certainly there is no feature of the market for newsprint to suggest any other course. With the enormous demand for this grade a much higher price could doubtless be obtained for the whole output. A philanthropic disposition or a contract in force seem to be the only reasons for a lower price. We believe the increase will hardly more than cover increased manufacturing costs to the mills.

COBWEBS.

Congratulations to Mr. B. E. Hutchinson, treasurer of the American Writing Paper Co. on being elected president of the Holyoke Chamber of Commerce.

A. L. Dawe and Ellwood Wilson represented Canada at the christening of the youngest child of the American Paper and Pulp Association—the Woodlands Section.

The Red Cross Society is trying to raise a fund to keep a few of the thousands of suffering children in Europe from actual starvation. Send your check to 45 Belmont Park, Montreal. Make your old overcoat do this winter and save a couple of kids from starving. Send them dollars for doughnuts.

The Canadian Pulp and Paper Industry and Its Relation to the Tariff

Statement submitted by the Canadian Pulp and Paper Association to the Committee of Cabinet Ministers appointed to inquire into the Operations of the Canadian Customs Tariff, at their Hearing in Montreal, Nov. 15, 1920.

The Pulp and Paper Industry.

The latest available census report issued by the Department of Trade and Commerce, covering the year 1918, gives the following summary of the pulp and paper industry:—

Employment.—25,683 persons, exclusive of woodsmen who, at certain seasons of the year, number as many more.

Wages and Salaries.—$26,974,225.

Capital Invested.—$241,344,704, distributed as follows:—

	In Paper Mills	In Pulp Mills	In Pulp and Paper Mills	In all classes of Mills
British Columbia		$17,413,569	$25,292,419	$ 42,705,988
Ontario	$ 5,341,192	21,198,866	62,036,749	88,576,807
Quebec	7,179,573	24,490,175	69,786,548	101,456,296
New Brunswick		7,852,225		7,852,225
Nova Scotia		753,388		753,388
Totals	$12,520,765	$71,708,223	$157,115,716	$241,344,704

Value of Products.—$118,203,795.

Value of Exports.—$63,506,222.

These figures, it should be noted, apply to the state of the industry as it was in 1918. A conservative estimate of its growth in the intervening two years shows the capital investment to have increased to an amount exceeding $300,000,000, and the number of employees, the amount paid in salaries and wages, the value of the products and of the exports to have increased proportionately. Exports of pulp and paper reached a total value of $104,635,338 for the fiscal year ending March 31st, 1920, and of $87,243,476 during the first six months of the current fiscal year.

Tariff on Paper.

Foreign manufactures of paper and of paper passing through a secondary process, for the most part, upon entering Canada are required to pay a Customs tariff ranging from 10 to 25 per cent. *ad valorem*, according to classification. There are a few exceptions which are admitted free of duty. Imports of paper are, generally speaking, covered by items 192, 196 and 197 of the Customs Tariff.

British manufactures of paper are required to pay upon entering Canada a duty of 15 per cent., and in the case of foreign goods, 25 per cent. Where goods have been subjected to a finishing room process, the tariff is increased to 22½ per cent. on British goods and 35 per cent. on Foreign.

Imports.

There is a considerable volume of imports of paper commodities covering a wide range of varieties, many of which are also produced in this country. For the fiscal year ending March 31st, 1920, the total imports of paper of all kinds were valued at $9,970,656, of which imports representing $9,345,125 came from the United States, $315,245 from the United Kingdom, and $310,286 from other countries.

Imports for the years 1913 to 1920, inclusive, are given in the following statement:—

Years	Total Imports of Paper	From United Kingdom	From United States	From Other Countries
1913	$8,233,902	$1,744,694	$5,688,903	$800,305
1914	7,920,627	1,615,830	5,371,367	933,430
1915	5,684,009	1,193,068	4,013,177	477,764
1916	4,676,904	803,715	3,726,087	147,102
1917	6,815,471	779,156	5,841,437	194,878
1918	7,463,466	539,869	6,674,915	248,682
1919	8,911,883	243,793	8,449,485	218,605
1920	9,970,656	315,245	9,345,125	310,286

Among the larger items of paper imported during the fiscal year 1920 were:—

Cardboard, not pasted or coated	$429,963
Cardboard, pasted and coated	91,248
Strawboard, newsboard, chipboard and other board, n.o.p., not pasted or coated	370,321
Book and litho paper, coated, flint and foil coated paper	61,394
Book and printing paper, not coated, suitable for printing of books, papers and catalogues	615,999
Cloth lined and gauze lined packing papers	10,738
Greaseproof, parchmentine, glassine, onion skin and manifold paper, not coated or embossed	38,869
Vegetable parchment paper	80,015
Waxed paper, printed or not	92,078
Wrapping paper, kraft	52,727
Wrapping paper, all kinds, n.o.p.	366,331
Bond and ledger paper, writing and envelope paper, uncut	78,802
Pads, not printed, papier mache ware, n.o.p.	20,330
papeteries, and ruled or plain, bordered and boxed or wrapped stationery	168,733
Envelopes	119,738
Blotting paper, not coated or enamelled	93,546
Cigarette paper in rolls or packets	147,461
Crepe, decorated, ornamental or plain, in rolls or webs and paper napkins, plain or decorated	46,676
Hanging or wall paper, including borders	355,272
Hemp paper for gunwads	115,572
Paper matrix, not being tissue for use in printing	35,321

Paper, photographic, plain, basic and baryta coated, adapted for use exclusively in the manufacture of albumenized or sensitized paper	201,061
Roofing and building paper, n.o.p	403,555
Toilet paper and paper towels in rolls or sheets, perforated or not	104,076
Bags or sacks, printed or not	112,247
Boxes or containers, printed or not	1,039,259
Paper tubes or cones of all sizes adapted for winding yarn thereon	51,665

Except in the case of newsprint paper, which at the present time occupies an unusually strong economic position, Canadian paper manufacturers, despite the tariff, are, it will be observed, confronted with keen competition in their home market, especially by United States manufacturers. They are practically shut out of the American market for higher grade papers by the prevailing American tariff of approximately 25%, and are met with competition from the American manufacturers in other foreign markets.

Newsprint.

Canada produces in the neighborhood of 800,000 tons of newsprint paper a year, the quantity being constantly augmented by mill expansion. In the first nine months of the current calendar year, Canada produced 666,735 tons, of which 100,292 tons, or 15 per cent., was consumed in Canada. The principal export market is the United States, where, at the present time, print paper valued at not more than 8 cents a pound is admitted free of duty.

While the newsprint trade is to so large an extent export, Canadian consumers benefit by the large production, since the greater the production the more economically can manufacturing be carried on. If the newsprint industry were solely dependent on the home market the demand would be insufficient to maintain any considerable number of mills and the price would necessarily be higher. One company alone, at the present time, produces sufficient paper to equal the total Canadian demand. Canadian consumers of newsprint obtain their supplies at as low or lower prices than those of any other country. A Canadian consumer using no more than 100 tons of paper a year, pays no higher price, and sometimes less for it ,than American consumers using from 40,000 to 50,000 tons a year. Canadian newsprint is sold abroad in competition with the United States, England, Scandinavia and Germany, competition both as to price and quality being keen.

Among the factors that have contributed to the enormous expansion of the Canadian newsprint industry may be mentioned Canada's extensive pulpwood areas and cheap water-powers, provincial legislation designed to encourage home manufacture and discourage the exportation of unmanufactured logs, the free market for newsprint in the United States, and the standardization of methods employed in production, the last being by no means the least important.

Modern paper-making machines now employed in Canada are built with a view to producing under practically continuous operation a roll of paper that will divide into the required units without waste and without the loss of time formerly incurred in changing from one width to another and one weight to another in the grade of paper produced. This feature has an important bearing on the economic production of paper.

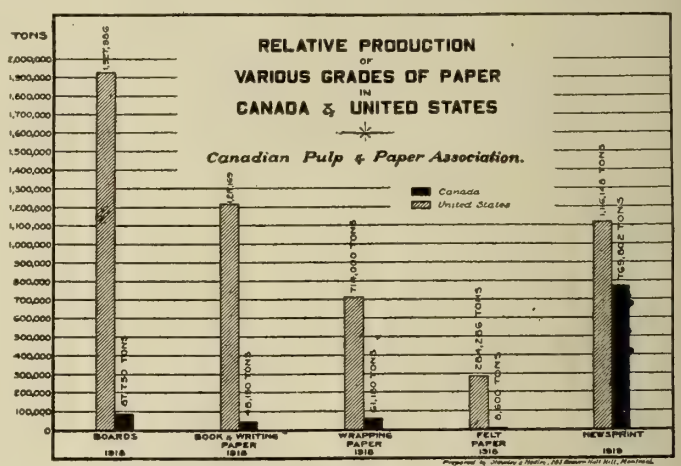
Other Grades Than Newsprint.

In the calendar year 1919, Canada produced 769,802 tons of newsprint paper compared with 1,116,148 tons produced in the United States, and in respect of newsprint production Canada is fast overtaking that country.

In grades of paper other than newsprint, Canada compares less favorably with the United States. In 1918, Canada produced 48,150 tons of book and writing papers, or the equivalent of 12 pounds per capita of population. The United States produced 1,217,169 tons, or the equivalent of 25 pounds per capita.

Of wrapping paper, Canada produced 61,180 tons, or 15 pounds per capita; the United States, 714,000 tons, or 14 pounds per capita.

Of felts and building paper, Canada produced 8,600



This chart illustrates the disparity which exists between the United States and Canadian markets for the several grades of paper, and indicates the advantages enjoyed by the producers for a market of 105 million people, as compared with a market of eight millions. The disparity in newsprint is less marked because in that grade of paper Canadian manufacturers are not dependent on the home market.

tons, or 2 pounds per capita; the United States, 284,286 tons, or 5½ pounds per capita.

Of boards, Canada produced 87,749 ton, or 22 pounds per capita; the United States, 1,927,986 tons, or 38 pounds per capita.

From this it will be seen that Canada's annual production of book and writing papers is only 4 per cent. of that produced in the United States; of wrapping paper only 8½ per cent.; of felts and building paper only 3 per cent., and of paper boards only 4½ per cent. of the American production.

So far as these branches of the industry are concerned, Canada is far behind her principal competitor, and her paper-making industry needs every assistance and encouragement possible to ensure continued development, and to overcome the handicap of increased capital expenditure.

It should be noted, also, that while paper manufacturers benefit to some extent by the tariff, they are also large contributors to the tariff revenues as they pay duty on much of their raw materials as well as upon their machinery, a great deal of which is unobtainable in this country. These include coal, sulphur, resin, alum, pulp, coloring substances and various other commodities.

Customs duties imposed upon paper making machinery brought into Canada increase the amount of capital required to equip a Canadian paper-mill by from 25 to 35 per cent. as compared with the amount of capital required for the equipment of similar mills in

the United States, a fact which is entitled to receive consideration in any estimate of the comparative ability of American and Canadian paper manufacturers to compete on even terms in the same market. At present some Canadian manufacturers are experimenting in a large way in the production of paper-making machines, giving promise of the speedy development of a new and important Canadian industry as the direct result of the increased production of paper.

Book and Writing Papers.

One difficulty in meeting the domestic market for book and writing papers is found in the great variety of grades that are demanded, some of the quantities being so small as to make economic production practically impossible. The 48,000 tons of book and writing papers produced in Canada in 1918 included, it is estimated, some 100 different varieties, which were made to meet the requirements of the Canadian consumer. The cost of production on a small output is naturally greater than that of a large output, and in this respect Canadian mills are at some disadvantage as compared with some of their foreign competitors. In this connection a comparison of the machines employed in the manufacture of book paper in Canada with those employed in producing similar grades in the United States discloses that ten mills in the United States, operating 71 machines, produce 1,697 tons of book paper a day or an average of 23.9 tons per machine. This tremendous output is absorbed by magazines and periodicals, among which may be mentioned two publications—The Ladies' Home Journal and the Saturday Evening Post—whose Canadian circulations alone, although printed and published in the States, are reported to absorb more paper than do all the Canadian periodicals of a like character combined. In this instance the advantage of employing machines constantly on one grade and size of paper is with the American manufacturer, the limited market in Canada for this grade of paper making frequent changes and delays in the operation of machines inevitable and thereby enhancing the cost of production appreciably. Taking these facts into consideration, the average price of these grades of paper in Canada bears favorable comparison with the average price at which they are sold in the States.

It is open to question whether the magazine and periodical press of Canada is not entitled to some greater protection against the enormous flood of foreign publications now finding its way into Canada than is afforded by the slight advantage accorded to them under the postal regulations.

Notwithstanding the difficulties enumerated, Canadian manufacturers have made every effort to cater to all domestic requirements and are constantly evolving new lines to take the place of paper formerly supplied from foreign markets. There has recently been added to Canadian production the following grades: Deckle-Edged Antique Laid and Wove Book Papers, Antique Laid and Vellum Writing Papers, Imitation Handmade Paper, Deckle-Edged Cover Papers, Pure Vegetable Parchment, Fancy Wrapping Papers, Glassine Paper, Waterproof Papers. Featherweight Book, High-grade Colored Covers, Carbon Paper, as well as a large variety of writing papers in which the skill of the Canadian paper-maker has been successfully matched against that of his United States and European competitors.

None of these developments, in all probability, could have taken place had foreign paper-makers had free access to this market. An illustration may be made in connection with the production of Blue Print Paper which enters Canada free of duty. Apart from the loss of revenue to the Government, no Canadian paper manufacturer has felt sufficiently encouraged to go to the heavy expense of experimenting and producing a paper of a quality suited to the requirements of the Blue Print manufacturers in the face of unrestricted foreign competition.

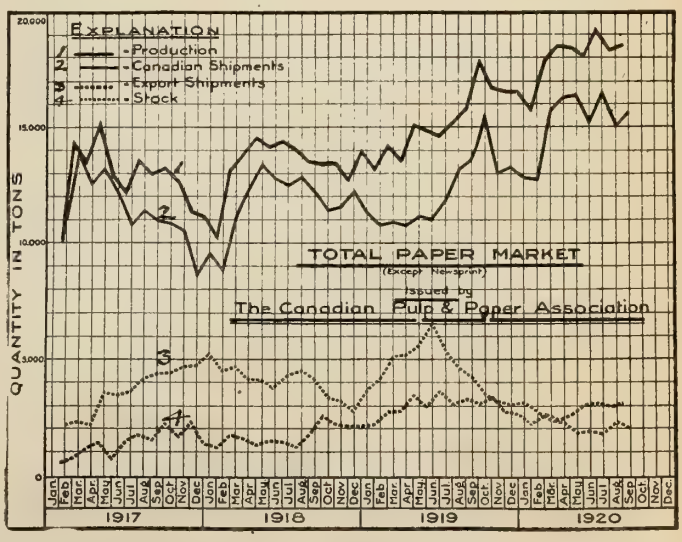
From the point of view of the consumer of paper the manufacturers have paid special attention to the domestic market, notwithstanding charges to the contrary that have been made. A study of the facts regarding the volume of production of Book Papers shipped to Canadian consumers compared with the amount exported leaves no cause for complaint.

In view of the worldwide shortage of paper during the current year it would not have been difficult to dispose of the extra Canadian production abroad and at a higher price had the mills been so inclined, but the domestic market has always had first call.

Paper Boards.

Mention has been made of the Board mills, of which Canada has 11, producing some 90,000 tons per annum of various grades in comparison with the production of 1,927,986 tons in the United States, less than 4½ per cent.

The United States market for paper boards is unstable and subject to frequent and wide fluctuations. American manufacturers look upon Canada merely as affording them an additional and temporary outlet for their products when, by reason of over-supply and falling prices, they find themselves with surplus stocks on hand. At other times they ignore the Canadian market. The tariff not only enables the Canadian paper board industry to exist, but it also ensures to the Canadian consumer an adequate and constant supply at a fair price, instead of leaving him to the vagaries of foreign producers who, under normal conditions, do not want his trade. The industry is a growing one. New uses for paper boards are constantly being found, such as the manufacture of various kind of paper containers, paper barrels, etc. It would appear to be



This chart shows the total production of all grades of paper (except newsprint) in Canada, 1917-1920, the total shipments to Canada, the total export shipments and stocks on hand.

economically sound that Canada should be placed in a position to take advantage of these developments and, as far as possible, to manufacture her entire requirements of them at home.

Nearly all of these mills utilize waste paper in the manufacture of their product, thereby creating a market for a waste material which would otherwise be shipped out of the country in an unmanufactured form as waste. The quantity at present produced in Canada is not large, but covers as wide a variety of grades as may be found in a small market and is constantly increasing.

Felt Paper.

Felt paper is a paper made from waste rags with the addition of certain substitutes, and when saturated with tar is used to make roofing paper. It is thus a means of using up the waste products such as old woollen and cotton rags, which, without the facilities for making them into felt paper, would be shipped to other markets; giving a smaller return to the consumers.

The manufacture of felt paper is probably one of the oldest branches of the industry in Canada, and has led to the establishment of many saturating plant to supply the Canadian demand for roofing papers.

It is safe to say that the maintenance of a tariff on this branch of the industry has resulted in the production of sufficient felt paper to meet all the home requirements. It has also led to the development of a considerable amount of new business which it is reasonable to suppose would not otherwise have come to Canada. Special reference might be made to floor covering, which is now used in the preparation of congoleum and other oil-covered linoleums such as are now produced in Canada.

On account also of the scarcity of cedar shingles, tarred felt shingles are coming into greater use.

Taking into consideration all of these facts, the felt makers of Canada, therefore, urge that the present tariff be maintained as a protection to what is a very valuable asset to Canada in the utilization of waste products.

Wrapping Papers.

The production of wrapping papers, both manila and kraft, is of great importance to the commercial life of Canada. The Canadian mills engaged in this class of production have made and are making every effort to meet all the demands of the Canadian market, so that wrapping paper is available to every merchant in every town, city and village of the Dominion. While the production of wrapping paper in Canada does not begin to compare as to quantity with that produced in the United States, being, in fact, only 8½ per cent of the United States production, yet the per capita consumption in the two countries is about the same, amounting to about fifteen pounds per annum. The Canadian manufacturers therefore feel justified in asking that no change be made in the present tariff on wrapping papers.

Toilet, Tissue, Crepe and Paper Towels.

The manufacturers of toilet, tissue, crepe and paper towels comprise a very important part of the paper industry and have built up a wide connection throughout Canada for the sale of their products.

They serve a market which is of necessity small and does not compare with the tremendous market of the United States where tissue and toilet papers are produced in large volume, one mill alone turning out some 4,000 cases of toilet paper per day.

Statistics prepared by the Federal Trade Commission show that the United States during the war 1919 produced 155,400 tons of tissue, crepe, toilet papers and paper towels, in some 85 mills engaged in this class of business.

This market, therefor, on account of the small runs does not hold out much attraction to the United States manufacturers except in times of depression when it has invariably been used as a dumping ground to the disadvantage of the Canadian manufacturers.

In support of this statement, the following letter from a prominent jobber in the United States, in which an offer is made to use Canada in this way, is submitted:—

"The H. Norwood Ewing Co.,

"New York, October 18th, 1920.

"Gentlemen:—

"Upon the eve of our Presidential election, we find the paper business rather quiet. A Republican victory seems assured, which means a boom at rising prices. Manufacturers do not desire to cut prices and retard this movement, thus we are willing to sell a part of our tonnage in Canada at prices below the manufacturing costs.

"We, therefore, offer you our Liberator four-ounce crepe at $4.00 f.o.b., Syracuse, N.Y. Our Canadian customers do not like to pay exchange, and partly to offset this we shall deduct Ten Per Cent, from the face of the invoice, which saves duty for you. You would thus remit to us at $3.60 Net Cash Ten Days from the date of the invoice in New York Exchange.

"We are sending one sample roll of Liberator, and when we say that the market price is $4.50, you can see that we are offering you a genuine bargain. If you prefer a different label, we shall be pleased to furnish a one color.

"Yours very truly,

"The H. Norwood Ewing Co."

Woodpulp.

Woodpulp is imported into Canada under Item 200 of the Customs Tariff and is subject to a duty of 15, 22½ and 25 per cent respectively. For the last fiscal year, imports of this character amounted to 26,458,069 pounds of pulp, valued at $617,920. They were made up as follows:—

	Lbs.	Value
Bleached sulphite pulp	195,388	$ 10.479
Soda pulp.	1,654,209	77,056
Unbleached sulphite pulp ..	23,448,342	477,070
Woodpulp, n.o.p.	1,160,120	53,315
Totals	26,548,059	$617 920

With the exception of 7,164 pounds of pulp, valued at $1,870, imported from the United Kingdom, the entire imports were derived from the United States.

Some Canadian mills have United States affiliations or are owned by companies operating mills in both countries and have interlocking operations. Where pulp is imported and used in the manufacture of paper for export, a rebate of duty is allowed on the imported pulp when the finished paper is exported.

Some mills produce pulp exclusively, some paper exclusively, and some both pulp and paper. In the latter class of mill, more pulp is usually produced than is needed for its own use, leaving a surplus for the general market.

The United States, to which the most of our pulp exports are sent, admits woodpulp of all descriptions free of duty. Last year Canada exported woodpulp to the total value of $41,383,482, of which $31,316,753 represents pulp exported to the United States, $5,014,400 pulp exported to the United Kingdom, $3,709,968 pulp

exported to Japan, and $1,342,361 pulp exported to other countries. These exports were made up as follows:—

	Cwts.	Value
Sulphate (kraft)	2,518,022	$8,327,045
Sulphite, bleached	1,220,764	6,291,452
Sulphite, unbleached	4,863,156	18,381,566
Mechanically ground	6,787,640	8,383,419
Total	15,389,582	$41,383,482

Keen competition is offered in the world's pulp markets by Sweden, Norway, Finland and, latterly, Germany. In normal times Russia and Austria also produce woodpulp in large quantities. Conditions prevalent during the war period helped to advance, to a considerable extent, Canada's position as a pulp-producing country.

Conclusion.

In conclusion, it may be said that, generally speaking, the Canadian pulp and paper industry is in a healthy state and is growing rapidly; that it offers a reasonably attractive field to foreign and domestic capital; provides a means for the favorable utilization of Canada's forest products and water-powers as well as of much waste material that would otherwise have little value; gives remunerative employment to a large number of workers; supplies a domestic need at reasonable cost; contributes in no small degree to the federal and provincial revenues; performs an important national service in extending Canada's exterior trade, and is paving the way for the scientific conservation and replenishment of our forest wealth. The industry is one that goes out into the wildernesses and converts waste places into flourishing industrial communities, leading to the construction of railways for carrying materials and supplies, as well as the establishment of contingent industries. It has by no means reached the zenith of its development, but is capable of practically unlimited expansion, unless retarded or held back by restricting government regulations or adverse tariff legislation. It undoubtedly owes a considerable measure of its present prosperity to the protective tariff policy prevailing in the Dominion for the past forty years.

Submitted on behalf of the Canadian Pulp and Paper Association.

S. J. B. ROLLAND,
Chairman Committee on Tariff.
A. L. DAWE,
Secretary.

Montreal, November 15th, 1920.

KINLEITH PAPER MILLS, LIMITED, EXTENDING

The Kinleith Paper Mills, Limited, of St. Catherines, Ontario, are enlarging one of their buildings by an addition measuring about 75 x 90 feet. The purpose of the enlargement is to lengthen out the paper machine, by doing which the company expect to increase their production by approximately 25 per cent. The estimated cost of the improvement, which should be completed by the first of next year, is in the neighborhood of $75,000.

William I. Bishop Limited, Montreal, have been awarded the contract for the building of the entire plant including the necessary wharves, docks, etc., for the Three Rivers Pulp and Paper Company Ltd., at Three Rivers, Quebec. For the Three Rivers Pulp and Paper Co., Ltd., this work will be under the direct supervision of Mr. R. J. Whyte, Managing Director and Mr. J. J. O'Sullivan, Engineer in charge. William I. Bishop Ltd., includes the Foundation Company and the Ambursen Hydraulic Construction Co.

A VISITOR FROM SWEDEN.

Mr. H. Graeslund, a graduate in business administration from the University of Stockholm and at present associated with Baron Mannerheim, whose visit to Canada early in the year will be recalled by many readers of the magazine, called at the Garden City Press last week. Mr. Graeslund explained in an interesting way the two forestry courses given by the University of Stockholm. He stated that in the first place the number of students admitted is limited to the probable number of opportunities for their employment so that there is considerable competition for the opportunity of entering and a high standard of men and work is maintained. It is necessary for matriculation that the student should have had some practical work in the forest and the course he takes depends upon whether he is to be employed in a responsible administrative capacity or as a subordinate in carrying out the forest policy. During the summer months the students make trips of inspection to forestry operations where the work is inspected and the results of the various methods are compared. Some of the graduates are employed by private owners and operators and others by the government in laying out and carrying out the forestry policy for which Sweden has become noted.

An interesting development of this study of forestry is forest book-keeping by which an account is kept that is said to be accurate within about 10 per cent. On the debit side is the estimated growth which is calculated from careful measurements and on the credit side the actual amount of wood taken out. In this way an operator can tell how much he is over-cutting in periods of high prices when it may be permissable to over-cut slightly, just as one may safely carry a slight overload on a motor at times, while in periods of dull business in the lumber trades the forest is given a chance to recuperate. A curve properly drawn will show at a glance whether the tendency is for an increase or decrease in the actual stand and the control of the cutting operation is therefore on a scientific basis.

Reference has already been made at several times in this magazine of the policy of Sweden to require replanting of forest areas. This gives absolute assurance that the country will be able to maintain indefinitely its present rate of production of products based on the forest. It is a sort of sinking fund.

An interesting development is what is known as the Measurement Associations which are organizations of the operators on the rivers for the co-operative driving of the cut and also to check the measurement and correct any errors.

Mr. Graeslund expressed himself as being impressed with the wonderful opportunity that lies before Canada in the development of industries dependent upon the forest but like everyone else who has seen the irreplaceable damage done the forest by improper cutting and the benefits of scientific control and reforestation methods, he would urge that Canadians adopt a more enlightened policy.

SAVING TIMBER AT THE STUMP.

When Father Noah and his husky sons chopped down the trees from which to build the ancient Ark, they undoubtedly employed the "under cut" method in hewing, ran the risk of being injured by the "kick back" of the falling timber as it left the stump, and also very likely spoiled many feet of good lumber by reason of the "splinter draw" that ripped up the log.

Even before Noah's days, back to the time that the memory and records of man runneth not, and up to the present age of modernity, sawyers and lumberjacks have used the same old "under-cut" method, honored by antiquity in chopping down trees, entailing the same menace to life and limb and the same wasting of valuable lumber.

But, indeed, there is "something new under the sun." And this new thing is a method of felling trees, known as the "V-bed," that effects a great saving in lumber, makes the "kick-back" practically impossible and prevents the "splinter draw" and permits the tree-choppers to cut considerably more lumber in a day than by the old method.

This new "V-bed" method described by "Common Sense," has been evolved after careful study, exercise of ingenuity and patient experimentation by the Southern Pine Association, which is advocating its wide use by lumber producers all over the United States, as well as among its own subscribers in the South, seeking to give all branches of the forestry industry in the country the benefit of the discovery.

An idea of the importance of this new method is given in the fact that experts of the Southern Pine Association have estimated that if the "V-bed" method were applied to every tree now cut in the United States the saving in lumber would amount to the total annual products of several sawmills.

Twenty-five per cent of the time lost due to accidents in the logging operations of Southern Pine mills last year resulted from the fall of trees, logs, etc. A large proportion of this was directly traceable to the "kick back" of falling trees. By eliminating this cause, the "V-bed" will produce a further saving in dollars and cents, but what is still more important, it will result in an inestimable saving of life and limb.

Possibly some unkind things have been said and written in recent years concerning the lumber industry, but regardless of any criticisms, it is a fact that in late years the producers of lumber and timber have exerted earnest efforts and expended large sums of money in the endeavor to conserve lumber, prevent and utilize waste and reduce to a minimum the hazardous risks of workers in the industry. In evolving the "V-bed" method of felling trees the object sought was the absolute prevention of the "kick back" accident, but according to the opinion of experienced lumbermen the other aims mentioned above have also been realized. Safety and efficiency go hand in hand. It has been proven in many lines of industrial life that as soon as safe methods and practices are adopted in any operation, the interest of the employees and the efficiency of the operation is sure to be increased.

Under the old method of cutting down trees a deep "undercut" was made in the tree on the side on which it was to fall. The tree was then sawed through from the opposite side to the base of the undercut. If the falling tree fell into other timber or met with an obstruction, it was sure to "kick back" over the stump and often injured one of the sawyers. Furthermore, instead of the log breaking clean at the stump there would be a "splinter draw," ripping up the log from four to eight feet from the butt and damaging that much good timber. The "undercut," 12 inches or more in length, was made in the lower end of the log, just above the stump, which caused a wastage of the undercut portion of the log when it was sawed up in the mill as lumber. Under the old method, only one of the two sawyers could hew out the undercut at a time, the other member of the crew standing by doing nothing, while his partner was chopping.

Using the "V-bed" method, a deep V-shaped wedge, six to eight inches long, is cut in the stump portion of the tree on one side. By providing each sawyer with an ax the two members of the crew can chop the notch on either side of the V at the same time, thus performing that part of the work in half the time required by the old method. The saw is then started from the opposite side of the tree so that it will cut through and meet the upper points of the V.

The falling tree will break clean and pull no splinters from the butt, as the entire circumference of the tree has been cut or sawed, and the only possible breaking point is at the heart of the tree. The V-wedge remaining on the end of the log not only prevents the tree from "kicking back" over the stump in falling, but in fact actually causes it to jump away from the stump a distance of several feet.

Thus, by using the "V-bed" method, there is conservation of lumber in preventing damage by "splinter draw" and also in the fact that the wedge is cut out of the stump, instead of out of the butt of the log and the entire log can thus be sawed into good lumber.

There is economy in the time required for the chopping since both sawyers can hew simultaneously and as many of these are paid according to the number of feet of timber they cut per day, the workers can make more money while increasing their employers' production.

Discovery of this new "V-bed" method of felling trees was made by employes of the Edward Hines Yellow Pine Trustees at Lumberton, Miss., following formation of workmen's safety committees which resulted from the efforts of the safety department of the Southern Pine Association, of which department W. Graham Cole is the director. The workmen's committees conducted experiments looking toward use of methods that would eliminate danger in felling timber and the new "V-bed" was evolved and proven successful.

REDUCES OPERATING TIME.

The pulp and extract department of the Champion Fibre Company, Canton, N. C., said to be the largest paper mill in the South of the United States, has reduced operations to four days a week.

WOULD TRADE PULPWOOD FOR PORK.

The plight of the fisherfolk along the shores of White Bay, on the isolated north coast of Newfoundland, who are said to be in danger of starving this winter because of the poor fisheries, has attracted the attention of the colonial government.

John Scannell, assemblyman for the St. Barbe district, announced today, that as a relief measure the government was willing to relax temporarily the colonial statute forbidding the export of pulpwood.

This would enable the White Bay people to obtain some revenue from the extensive forests in that region and to buy food in the more thickly settled districts of the colony.

NEW FORESTS FOR NOVA SCOTIA'S BARRENS

By FREEMAN TUPPER, Acting Woods Manager, Macleod Pulp and Paper Company.

In looking over the forestry maps of Nova Scotia one cannot help but be impressed, and, if a lover of the forest, saddened, at the large percentage of the color representing barrens. Still more will one be impressed, and saddened if he should traverse these barrens, and see the vast extent of waste, multitudes of valueless bushes, and huge pine stubs reminding us of the untold wealth which should have enriched our people. "Our Heritage" swept away in a moment!

The passing of this heritage was keenly felt by the older generation who remember the "forest primeval". Its far reaching effects pass on to the present generation, who, having a better perspective, are beginning to realize what the appalling loss really means. It is true we have some timber in sight which is being depleted by loss from windfalls and lumbering operations, and fires are still a common occurrence. Therefore, if the present generation do not endeavor to guard what we already have, the future generation will drink the bitter dregs, and the loss will be nation wide.

Many of our barrens have been visited by prospectors, seeking a hidden wealth, but they only succeeded in a small degree. Farming is out of the question, so it is evident that the only way left for these lands to serve the public welfare is as forests.

Considering the barrens of Queens County, particularly those along the watershed of the Liverpool river and head-waters, to be a fair average of barrens throughout the province, there are a few facts regarding them which should be brought to the public attention.

Some six or seven years ago, while conducting certain surveys, I had occasion to visit many sections of barrens in Queens County. They were indeed a treeless waste, but are varied in nature owing to repeated fires over portions, so that the original burned areas can now be divided into three distinct classes:

Class 1.—Open Barrens, devoid of trees or stubs, and in some places with sufficient soil to cover the rocks.

Class 2.—Portions of barrens covered with myriads of burned trees and windfalls.

Class 3.—Portions of barrens not burned since original fire, now covered by forest of yound hardwood.

During the fall of 1919 and spring of 1920, I renewed the surveys mentioned above. We were amazed and delighted to see the change nature had wrogght in a few years. Spruce, red and white pine were growing by the thousands over sections of classes 1 and 2. Even on portions of Class 1, where the soil had been been burned, exposing rocks and boulders, where modern forestry would perhaps hesitate to replant, were also red and white pine from ten feet down, all growing in a perfectly healthy condition.

What Nature is doing on these barrens of Queen's County at the present time, and on many other portions of barrens in the Province where my interest in the matter led me to visit, is exactly in line with the policy of Government a vast sum of money in replanting. It means that our heritage is returning; a new forest is born to enrich our country in a future time.

There are still large portions of barrens not seeded as yet, but if these conditions exist on average barrens today, is it not reasonable to believe that other portions will re-seed as years go by?

It would be a crying shame for another fire to destroy this grand contribution, which Nature is again giving to us, and I hasten to make an appeal in behalf of these young trees for protection—for a Provincial Forester to direct affairs and intelligent Rangers to trail careless sportsmen, who do not realize the possibilities of fire.

Forest conditions effect everybody, and to avoid a forest famine in the future, we must act now. The Government must act now. The Government must spend some money on them, and every business man in the Dominion of Canada should be a member of the Canadian Forestry Association. Once their shoulders get behind the wheel of forest protection, give it a push and keep it going!

WILL USE A LOT OF PAPER.

Joseph Meadon, recently elected President of the Direct Mail Advertising Association at its Third Annual Convention held in Detroit, Michigan, might well be called a son of the British Isles.

He was born in Belfast, Ireland, of an English father and Scotch mother. Shortly after his birth, the family moved from Ireland to France and a good part of Joe's boyhood was spent in the land of Lafayette.

Twenty years have now passed since his arrival in this country, at the age of 23. In that time he has produced personally several million dollars worth of direct advertising,—planned it,—created it and supervised its execution. "Some of it," he says, "was very successful and other parts of it—well—taught me quite a lot of things that I did not know before."

While with the Republican Publishing Company, Mr. Meadon founded the Graphic Arts and Crafts Year Book and edited it for four years. This brought him many felicitations from all over the world that kept him very busy arranging for the translation of letters and articles in publications that referred to his work.

When asked about his work and his views on the future of direct advertising, Mr. Meadon said, "I expect that we will produce a million dollars worth of printed advertising during 1921, and seventy-five per cent of it I anticipate will be Direct-by-Mail material.

"I have taken a practical interest, and worked with National advertising, and have a high regard for out-of-door advertising and have counselled and suggested the use of all forms of advertising when helping to formulate the policies of business, believing that there is a community of interest and that one form of publicity supported by other forms makes an effective tool with which to develop merchandising programs.

"I am convinced, however, that Direct Advertising is only just beginning to get a toe-hold. It's value has not been appreciated until the last few years except by a handful of specialists. There is not a business that cannot be materially benefited by it at least cost than by most other mediums. The Direct Mail advertising Association is the organization that will help to cut out the pitfalls of direct merchandizing and put it on a sound basis and assist its members to benefit by the experience of others.

The wine-palm of western Africa yields a delicious sap which, mild when first drawn, begins to ferment in a very few moments after it is exposed to the air.

IS COLLECTING OF WASTE MATERIAL TO STOP?

(Editorial in the "Daily Mill Stock Reporter.")

Mixed rags are today selling in good sized quantities at as low as a cent and a half per pound, and mixed paper in carload lots has changed hands at 35 cents per hundred pounds. Less than two months ago five cents a pound was none too high a price for a good packed paper sold at better than $2.00 per hundred pounds.

The importance of this is not to be glimpsed from a comparison of the figures alone, striking as the fall in prices has been. Nor is it to be got from a comparison with pre-war levels, than which present levels are still a bit higher. Rather, the significance of present prices is that rag and paper stock, as also other waste material markets are faced with a danger that threatens the very foundations of the business—the collection of waste material is threatened at the source. At present prices, it cannot be expected that collections of waste materials can go on. It is economically impossible, certainly as regards rags and waste paper. Prices on rags will have to go up, or the collections which have been steadily dwindling will stop completely. At present prices, the country collector cannot exist. The only conditions on which collections can be continued is for the cost of living to go back completely to pre-war levels, which is at present not considered likely, or for the cost of collection to go back to 1914 levels, which is also hardly likely, or for cheaper labor to become available, which from present indications is not expected.

Let us consider a little the mathematics of the situation:

In 1914, a country collector earned, and could get along on, $2.00 a day. Today he needs $6.00 to $8.00 a day. In 1914, the cost and maintenance of a horse and wagon was $1.50 a day; to-day, a day's use of this essential collection machinery is $5.00 a day. This is an increase in cost of anywhere from $2.00 to $3.00. In October, 1914, mixed rags sold at 1.40 to 1.50c a pound, and today's price is only 1.50c. This does not take in the increase in shipping costs. It now costs the rag collector from 50 to 75 per cent more to ship his rags or other waste material to a grading center. It is absolutely a losing proposition for the rag collector to continue to operate. He can't do it if he wanted to.

At a cost of $13.00 a day for his collecting machinery and for his own necessary expenses, he would have to collect close to a ton of rags, or its equivalent a day. How many country dealers can do it? How many can collect as much as an equivalent of 500 pounds of mixed rags? At present prices, if he collected a half ton he could obtain $15.00. The freight rate for this half ton, if he had to ship no more than about 100 miles, would mean a cut of $2.00, and on an average haul would surely net $3.00 and as high is $5.00, and where is the cost of packing, baling, carting and loading? From reports we have received throughout the country, even such scrap as iron and steel and metals, have been less and less collected.

The worst part of the present situation is that waste materials are not like other commodities. They must be gathered, or be burnt or destroyed in some other way. The metal producer can keep the ore in the ground unturned; the farmer can change his crop; the manufacturer can cut production, without causing any waste of economic goods. Waste materials, on the other hand, can't be stopped in production, and it is an economic crime to have such raw material destroyed.

What's the answer? It seems to be that if mills are to get their necessary raw material when they begin operating more actively—and it is to be noted that paper manufacturers in convention at Chicago last week still talked paper shortage and the necessity of saving scrap—they will have to pay higher prices than the present price lists indicate. The cost of labor has not gone back to pre-war levels; the cost of living is falling but will not get back that far; the cost of transportation will not be reduced unless the carriers' efficiency is to suffer. There is only one possibility that might prevent prices on waste collected by the man with the wagon from going up, and that is for much cheaper labor to be thrown on the market through increased immigration or wholesale discharging of labor at the country's plants, and the latter possibility is hardly likely as the present slackening in industry is everywhere considered to be at about its peak.

WILL USE HARDWOOD FOR GROUNDWOOD PULP.

Under the supervision of the Laurentide Forestry Department, about one thousand cords of hardwood are being cut in the vicinity of the Manigance Rapid, about twenty miles north of Grand'Mere, which will later be brought to the mill for the manufacture of groundwood. Experiments carried on for the past two years show that hardwood can be used for groundwood in place of spruce and balsam, up to a certain percentage, and this year the experiment will be carried on with a much greater quantity of hardwood.

The hardwood that is being cut is yellow and white birch, maple and poplar. The yellow birch and the maple will be brought down the river in barges, and the white birch and poplar will be boomed down. If costs of cutting and bringing this hardwood to the mill prove to be satisfactory and the wood itself is found to be useful in the manufacture of paper to supplant to some extent the use of spruce and balsam, there are thousands of cords of this wood at easy distance from the mill that can be used advantageously.

According to Ellwood Wilson, head of the Forestry Department, the cutting of this hardwood is a great aid to the natural reforestation of the woods by the soft woods, which grow somewhat slower than the hardwoods and which, unless the hardwood is cut out, fail in the competition for growth.

ANOTHER PULP MILL FOR B.C.

The erection of a pulp mill at Stave Falls, where there is said to be a billion and a half feet of suitable wood for the industry, is projected. There is unlimited electrical power close at hand, easy access to the timber limits by way of the Stave River and the lake, and connection with the Canadian Pacific Railway by way of the standard guage road of the Western Canada Power Company. These and other things are said to be attracting the attention of foreign and eastern capital leading towards the construction of a pulp and paper mill. Extensive logging operations are being carried on by Abernethy and Lougheed, several camps being in operation up the lake, the logs being towed down the river to Stave Falls, where they are loaded on cars and transported to Ruskin, there to be dumped into the Fraser and make up into booms.

British Trade News

(From our London Correspondent).

London, Nov. 8, 1920.—Death has removed one of the oldest and most respected of British papermakers, Mr. Alexander Mackie, of Messrs. Robert Craig and Sons, Ltd., in his 76th year. For the past 60 years Mr. Mackie has been in many ways making paper in Scotland and his name is being carried on in the industry by his son, Peter R. Mackie, the manager of the Hunslet Paper Mill at Leeds. Mr. Alexander Mackie was 40 years with Messrs. Craig and by his death the firm loses a valuable servant.

Coal Strike Over.

The coal strike is over. Through the medium of the Government the mine owners and the coal miners have arrived at an agreement; but it will be fully another month or six weeks before supplies of coal will be delivered in any quantity. The ban on exporting coal still exists and so does the Order cutting down supplies by 50 per cent to all mills, except the exempted. As a matter of fact these Orders will remain in force until the coal industry gets back to itself again, so that the paper mills have no chance as yet of getting back to full-time working. Some of the mills still run on short-time while others are closing down temporarily. Messrs. John Allen & Sons, of the Ivybridge Paper Mill, in Devonshire, announce that owing to the serious dislocation of trade generally and the difficulty of obtaining chemicals, coal, etc., their paper mill has had to be closed down until further notice. Throughout the coal strike the paper industry has not suffered so much as other industries. This was attributable to the foresight of millowners who laid in good stocks of fuel and then "cut their cloth according to their measurements"—in other words they struggled along as best they could to try and keep the wolf from the door. In this coal strike it was very fortunate the railroad men did not join the miners; if they had the results would have been untold. But as things are the miners have disorganised the pulp and paper industry and it will be some time before a normal state is reached.

Ambition For Pulp Mills.

There is a good deal of talk and discussion going on in London about paper mill owners being anxious to own a pulp mill so as to have supplies of the raw material direct. I do know of some people who are negotiating, but the results are at present unknown. I hope before any investment is made the motto "Trade within the Empire" will not be overlooked and in this respect the claims of Canada come in. Lord Burnham, Lord Riddell, Mr. Stanley Cousins and others have already advanced the claims of the Dominion. There are a few at present looking round Scandinavia to see if a deal can be made. It is not the first time Britishers have become owners of pulp mills in Scandinavia where they had advantages and disadvantages. But the feeling is that Canada wants British money and no effort should be spared to invest it there. Canadians who have visits from British paper makers will do well to let nothing go astray in pushing forward Canadian pulp and plupwood limits.

German Paper Mills.

Information has reached London that the German paper mills are showing more activity of late. This is attributable to the domestic shortage of newsprint and the influx of foreign orders for printing papers of all kinds, notably colored. It is quite evident the Germans are making every effort to speed up their output of newsprint, as they see in all the markets of the world a very ready and generous demand for it. At present they produce about 1,000 tons a day compared with 2,000 in pre-war days and big shipments at intervals are dumped on the markets.

The Pulp Market.

Business in the British pulp market is dull and featureless. Prices, however, are unchanged. The state of the market is due to three causes, (1) A quiet demand for paper; (2) The upheaval caused by the miners strike; (3) Papermakers have good supplies of raw materials in stock. Inquiries are being made for ground wood on a small scale and some small deals have been effected. Of the chemical pulps only small parcels are changing hands. As a rule, November usually creates a little stir in the pulp market, but the present small demand for paper is upsetting pulp men and their hopes of a revival in market conditions.

State of the Paper Trade.

In previous notes I gave short reviews of conditions prevailing in the British mills. The great majority of the mills had fair supplies of coal in stock; but the adoption of short-time working reduced output and this, no doubt, has been counteracted by a poor demand for paper in the domestic market, so that greater attention is being concentrated on export account. Indeed, it may safely be stated that in the United Kingdom, at the present time there is depression in the paper industry, which has been accelerated by the coal strike. It is regrettable, certainly, as it reflects all round in the pulp and employment figures, while millowners are at their wits end on the turn of events and the increasing cost of production. The newsprint mills are going on steadily and the price is not reduced.

Montreal Man Head of "The Times."

No doubt Canada has received the news by now that Sir Campbell Stuart has been appointed the managing-director of "The Times" in London. This is a very big honor for a Canadian. He is now Lord Northcliffe's right-hand man and the position is one of great responsibility. Sir Campbell Stuart is very popular and no doubt we will hear his name mentioned a little more in pulp circles. He has been for sometime a director of the Anglo-Newfoundland Development Company.

New Crepe Mills.

I am informed that Messrs. D. Freeder & Co., are now in their new crepe paper mill situated at Lea Bridge Road, Leyton, London. A new mill has been erected and the firm will give attention to the production of corrugated paper in rolls, in addition to the varied selections of crepe paper they are notable for.

Notelets.

Mr. W. Raitt, the cellulose expert to the Indian Government, whose contributions have appeared from time to time in the "Pulp and Paper Magazine" on Bamboo pulp, is bringing his sojourn in England to a close this week. He has been giving paper-making and machinery very strict attention during his visit to England and Scotland, and new developments are expected on his return to India.

Good shipments of ground wood are arriving in England from Canada.

The wood pulp contract note is at present a topic of discussion between pulp and paper men. It has always been a bone of contention.

Technical Section

REVIEW OF RECENT LITERATURE.

E-4. The future of acid-making. H. O. L. Berger. Paper, 10-3, 23, (June 30, 1920). A description of the various acid-making systems used, showing progress made, the probability of future decrease in the use of milk of lime systems, and the advantages of the Jenssen tower system. Future progress will probably be along the line of using liquid SO_2 instead of burning S, and of preheating the cooking acid to the cooking temp. before charging into the digester.—A. P.-C.

E-4; P-1. Gas masks for sulphur dioxide. Paper, 22, (June 30, 1920). A gas mask has been devised at the U. S. Forest Pruducts Lab., Madison, Wis., for protection against SO_2. According to the U. S. Bureau of Mines this type of mask holds up about 15 mins. against a concn. of 5 p.c. of SO_2. Air becomes unbreathable when it contains about 150 parts per million of SO_2. The masks can also be used in the bleach room when necessary.—A. P.-C.

F-2. Utilization of spent liquors from straw and wood pulp manufacture. M. Muller, Wochenbl. Papierfab., 50, 2749-50 (1919); Chem. Zentr., **91,** 151, (1920); J. Soc. Chem. Ind., **39,** 330A, (1920). Steam is admitted to the digester freshly charged with wood in order to create a vacuum. The whole of the hot, black, spent liquor from a previous digestion is then pumped onto the prepared charge, after which the spent liquor is quickly forced out again by steam free from air. In this way the most important feature of Ungerer's process is utilized. At the end of the digestion, in the manuf. of pulp for bleaching, CO_2 and atmospheric O must, as far as possible, be excluded from the digested pulp, for which reason blowing out the charge is preferable to extracting by Shank's process. The freshly blown-out pulp should be treated with hot fresh caustic liquor, which is drained off and used for digesting fresh wood. The destructive action of the liquor may be avoided by using the process described in Ger. patent No. 284,681 (J. Soc. Chem. Ind., **34,** 1048, (1915). —A. P.-C.

K-12. Advantages of electric tachometer in paper mills. Carl O. Kunde. Paper, 17, (July 7, 1920). The D. C. tachometer in its simplest form consists of a magneto-generator (permanent magnet machine) calibrated and connected through a twin-conductor cable to a D. C. indicator or recorder of the d'Arsonval voltmeter type. The generator is suitably driven from a revolving member of the paper machine, calendar, etc. Its advantages in the paper mill are briefly discussed.—A. P.-C.

K-12. Comparison of drying systems. Arthur G. Maurey. Paper, 19, (June 30, 1920). Results of comparative tests made with the siphon system and the Dodge gravity evacuator system of removing condensed steam from driers, showing the advantages of the latter as regards steam press, steam consumption, speed of machine, and output of paper.—A. P.-C.

K-0; R-2. Oldest watermarks of Papal States and nearby provinces. Ashford White. Paper, 15-7, (June 30, 1920). Translation of a partial review by Friedrich von Hossle in Papierfab. of C. M. Briquet's work on the history of watermarks, giving a brief historical outline of the origin of watermarks with a description of the early guilds and methods used in the first stages of European paper manufacturing.—A. P.-C.

K-0 Tables and formulas for converting pound-weight into metric weight. Paper, 34, (June 30, 1920). Handy tables and formulas for use in making export shipments and invoices, figured for both board and paper. —A. P.-C.

K-0. Density table for paper stock. Paper, 14, (July 7, 1920). Table giving lbs. of dry stock per cu. ft. of liquid, no. of cu. ft. containing 1 lb. of stock, lbs. of dry stock, in 1 gal. of liquid, no. of gals. containing 1 lb. of dry stock, cu, ft. of liquid per min. per t. of dry stock per 24 hrs, gals. of liquid per min. per t. of dry stock per 24 hrs. lbs. of water per lb. of stock gals. of water per lb. of stock, gals. of water per ton of stock, corresponding to consistencies from 0.10 to 6.00. (See Pulp and Paper, **18,** 854 (Aug. 12, 1920).—A. P.-C.

L-4. Milk containers. J. Soc. Chem. Ind., **39,** 131R, (1920). Efforts are being made to produce a milk container from waste paper and wood pulp. A new process which blows the pulp on the form and then dries it by blowing through air heated to 600 deg. F. is stated to produce a good container at a manufacturing cost lower than that of collecting and washing glass bottles. There are still some problems to be solved in connection with proofing the container with material that will resist oils, fats, and water without imparting a disagreeable flavor and being at the same time cheap and easy to apply.—A. P.-C.

L-5. Cellulose acetate and its industrial uses. Maurice Deschiens, Chimie et Industrie, **3,** 591-607, (May 1920). A detailed description of the properties, methods of manufacturing and industrial uses of the acetates of cellulose.—A. P.-C.

L-7. Tensile strength of fibers and yarns, especially artificial silk and staple-fiber. P. Krais. Neue Faserstoffe, **1,** 266-8, (1919); Chem. Zentr., **91,** 208, (1920); J. Soc. Chem. Ind., **39,** 329A, (1920). (See also J. Soc. Chem. Ind., **38,** 895A, 1919). Staple-fiber yarns from viscose or cuprammonium silks show a loss of tensile strength on damping with water, also with spinning emulsions, but petroleum, amyl acetate, and phthalic acid esters impart a distinct increase in strength. Heating for a short time increases the strength in the dry condition but the strength in the wet condition is not improved. As regards chemical after-treatments, dyeing with chrome yellow has a favorable effect on viscose yarns, and cuprammonium yarns are improved both by chrome yellow and by treatment with tannin-gelatin. Chemical after-treatments may also mitigate the tendering of artificial silks on damping.—A. P.-C.

L-7. Artificial silk manufacture. J. Soc. Chem. Ind., **39,** 132R, (1920). The world's production of artificial silk rose from 2,000 metric t. in 1902 to 5,000 t. in 1906 and 8,000 t. in 1914. The production of Germany is estimated at 5 t. daily, and that of France, as soon as certain new installations are completed, will show a capacity of 4 t. a day. At Lyons a product known as silk cellulose is being produced by an entirely new process (U. S. Patent No. 1, 184,820). It has a brilliancy comparable with that of Schappe silk, and its properties are closer to those of natural silk than any stated the structure of the wood fiber is preserved,

particularly suitable for the manufacture of velvets. It is considerably finer than ordinary artificial silk, and is of the older artificial silks. It can be spun into threads and the regular geometric form of the elements contributes greatly to the strength and durability of the fabric.—A. P.-C.

M-9. Motor trucks in a paper mill. D. M. le Bourdais. Paper, 21-3 (July 7, 1920). A description of the success obtained in the use of motor trucks by the E. B. Eddy Co., who were the first to use motor trucks in the paper industry.—A. P.-C.

VOCATIONAL EDUCATION AT THE CHAMPION FIBRE MILLS.

Mr. J. C. Wright, who is chief of the Industrial Education Service of the Federal Board for vocational education recently visited the evening schools at Canton, N.C., where, through the co-operation of the Champion Fibre Company and the State Board for Vocational Education, evening classes are being conducted for the instruction of the mill employees.

Mr. Wright's report of the work he found in progress at Canton is as follows :

"The Champion Fibre Company operates three mills in Canton. They include sulphite, sulphate, and soda processes, as well as a plant for the manufacture of tannic acid. Their working force includes from 1200 to 1500 employees. A new paper mill is being erected which, in the near future, will materially increase the number of employees.

The management has become greatly interested in giving the employees of the different plants an opportunity to extend their technical training in the processes involved in the manufacture of pulp and paper. Under the direction of the State Board for Vocational Education an organization has been set up for evening classes. This organization includes a local director in charge and fifteen teachers, all chosen from the mills and most of whom are superintendents of various departments. In order that the organization may more effectively meet the needs of those attending the classes, as well as the industry, an educational committee of five members has been appointed to study the various problems involved in making a more efficient organization.

The classes as a rule meet two evenings per week at 7 p.m., although some of the classes are held at 3.15 p.m.

The following courses are included :

Chemistry of Pulp and Paper Making. Practical Electricity. Shop Practice. General Pipe-fitting. Masonry. Steam Plant Practice. Blueprint Reading and Elementary Drawing. General Mill-wrighting. Pulp Making. Manufacture of Tannic Acid. Paper Manufacture.

All the instruction given in the classes which I visited was related to the daily employment of the group. In conference with the instructors and the educational committee it was decided that as soon as the textbooks being compiled by the Joint Executive Committee of the Vocational Education Committees of the Pulp and Paper Industry are available it will be desirable to reorganize these courses and divide them into a greater number of short units — units which will correspond to those set up in the above mentioned texts. It was the consensus of opinion of those present in the conference that the arrangements made by the above committee for making available the texts in small pamphlets on unit subjects will aid in facilitating the instruction in these classes, especially since it will be possible to place in the hands of the men themselves a textbook on the subject to be studied.

About 150 employees are enrolled in the several classes. The Company expects not only to utilize these classes for the purpose of improving the technical efficiency of its employees but also to use them as a means of providing a corps of trained workers to manage the new plant being erected, which will not be ready for operation before another year.

The classes are held in classrooms set part in the Y.M.C.A. Building, which is adjacent to the manufacturing plants, and also in the technical laboratories of the plant itself.

The subject of foreman training is being considered, but no classes have been formed up to the present time. I believe that a conference on foreman training ought to be held in this vicinity, to which representatives of industries of this kind should be asked to attend. Many of our industries similar to the pulp and paper industry employ large groups of relatively unskilled labor. In such an organization the foreman is the key man and has all the responsibility for technical training in its relation to production.

The salaries of the teachers are paid from local funds but reimbursements are made by the State Board for Vocational Education from State and Federal funds."

WHAT THE TECHNICAL ASSOCIATION IS DOING

A meeting of the Committee on Heat, Light, and Power of Tappi was held at Dayton, Ohio, on Monday, November 15, when plans were made for the annual report which is likely to attract unusual attention from mills in membership. One of the principal subjects of discussion in this report will be the use of pulverized coal as fuel. The scope of the Heat, Light, and Power Committee is a broad one, and it is intended to bring up for discussion at the forthcoming annual meeting other subjects of general interest to the technical and operating departments of pulp and paper mills, such as the electrification of machinery, heating and ventilation of buildings, especially machine rooms, steam turbines versus reciprocating engines, etc. All of these subjects have a bearing on increased production and efficiency, and the sessions of the committee at the annual meeting next April should be well attended. The chairman of this committee is Howard S. Taylor, of the Management, Engineering and Development Company, Dayton, Ohio.

William A. Munro, Groundwood Superintendent, Wisconsin Pulp & Paper Co., Stevens Point, Wis. has accepted the appointment as chairman of the Groundwood Pulp Committee of Tappi, and is now naming his associates.

The third series of **Technical Association Papers,** which will contain the papers and discussions at the Fall Meeting in Saratoga Springs, N. Y., together with special articles, reports, and translations, is now in the hands of the printer, and will be issued at an early date. As an appendix to this volume will be printed the Year Book and directory of members. No more copies of **Technical Association Papers, Series II** can be supplied, the edition having been exhausted. Members of Tappi are entitled to one copy of **Technical Association Papers, Series III** when issued. Extra copies for members and the public will cost $2.00 each.

UNITED STATES NOTES

Charles R. Long, president of the Pennsylvania Dailies Association, has issued a call for a conference of newspaper publishers at Harrisberg for this week in connection with a meeting of the executive committee of the Dailies Association. Reconstruction problems confronting publishers will be discussed.

Ten thousand members of the Paper and Rag Sorters Local No. 16,446, affiliated with the American Federation of Labor, went on strike in New York City last week. The men claim that their employers had reduced their wages twenty per cent. They maintain that they have been getting the poorest possible living wage and that they could not consider working for less than the scale that has obtained heretofore. The average wage has been $35, with a maximum of $38 for chauffeurs and a minimum of $23 for an apprentice. Rag sorters and "box stall' men get $35 each.

According to W. J. Eisner, president of the Newark Paraffine and Parchment Paper Company, the practice of using waxed paper as a wrapper or container for food products is becoming more widespread throughout the country. As one of the leading manufacturers of waxed paper in the United States, Mr. Eisner's concern is being kept running at full capacity supplying this product. In many states, says Mr. Eisner, it is compulsory to wrap all foodstuffs either for display or delivery in waxed paper, and in those states where it is not mandatory, the manifest benefits to be derived from such usage are making this style of wrapper steadily more popular.

Speaking last week at the dinner of the Maine Society in New York, Frederick H. Parkhurst, Governor-elect of Maine, predicted that the Pine Tree State would be placed far ahead of its present position through the projected development of its hydro-electric power. Governor Parkhurst said that within a short time, because of the dwindling of the coal supply, Maine would come out of the mild industrial slump that began about 1840, and if its waterways were fully exploited would develop power to turn an eighth of the wheels of industry in the United States. At the present time Maine stands third among the States in developed water power, declared the Governor.

According to an announcement made from Albany last week, George B. Pratt, New York State Conservation Commissioner, has drawn up a reforesting scheme which is to be submitted in the form of a bill to the next session of the Legislature. The seriousness of the forest situation in New York State was revealed recently through an investigation by the conservation commission and a commission selected from the United States Forest Service. The plan which Commissioner Pratt will propose involves an extension to the State at large of the system of forest protection and development now practiced in the Adirondacks and Catskills. It will call for the formation of ten forest districts in the State, with a district forester in each. Particular attention is to be given to the prevention of forest fires.

Contracts for the erection of a new concrete and steel box plant at New Orleans have just been let by the Union Paper Products Company. $300,000 will be required to complete this factory in which it is intended to produce corrugated paper-fibre boxes. Seventy-two people will be employed at the start without counting the office force.

Philip M. Judd of the Judd Paper Company resigned from the presidency of the Holyoke Chamber of Commerce. He has been succeeded by B. E. Hutchinson, treasurer of the American Writing Paper Company. Being selected for this place comes as a signal honor for Mr. Hutchinson inasmuch as he has been a resident of Holyoke for only a short time. Mr. Hutchinson, however, has given freely of his time in civic improvement activities and the townspeople quickly came to know him because of his many voluntary and public spirited services.

A call for a meeting to be held December 2nd at Utica, N. Y., has been sent out by the Empire State Forest Products Association. This will be the association's fifteenth annual meeting. Besides electing officers and disposing of the usual routine matters the business of the gathering will relate mainly to the formulation of a definite policy of forestry for New York State.

Walter A. Poos has been put in charge of a branch office opened in Kalamazoo, Mich., by the Whitaker Paper Company, Cincinnati.

The Eddy Paper Company, the big Kalamazoo paper making concern, expects to have its new mill at Three Rivers, Mich., in complete working order before the winter sets in. The first machine has already been installed and is now in operation. An exact duplicate of this machine—320 x 80 feet—has been completed and will be put in place early next month. The new storage plant connected with this mill is the largest structure of its kind in the Middle West. A special effort is being made to get the stock house enclosed before severe weather comes along, as with two machines in operation great supplies of raw material must be housed to secure an unbroken production of the finished container board, the chief product of the new mill.

Directors of the United Paperboard Company have declared a dividend of 2 per cent. in cash and 10 per cent. in stock on its common, payable on January 10 to stock of record on December 15, It was announced that $1,000,000 of its preferred stock had been retired in accordance with the plan announced several months ago.

The National Paper Products Company, Carthage, N. Y., recently announced the resignation of H. L. Samson, for the past six years general manager of its Eastern division. Mr. Samson, who is to continue to serve the company in an advisory capacity, will be succeeded in the Carthage division by E. B. Eddy, now general superintendent of the Eastern department.

PULP AND PAPER NEWS

The Ontario Government has disposed of another fifty square miles of timber limits by tender. This is situated in the vicinity of the station of Jellicoe, on the Canadian National Railway, east of the Nipigon Reserve. J. T. Horne, of Fort William, was the successful tenderer, securing the limits at $6.10 a cord for spruce and twenty-one cents for each jack pine tie. A near-by limit was sold a year ago for $3.46 a cord.

The editorial direction of the "Presbyterian Witness", the new Presbyterian weekly paper, will be under the joint guidance of Dr. C. S. Carson, of Halifax, and Dr. Robert Haddow of Toronto, who were appointed associate editors of the new publication at a meeting of the executive committees of the General and Publication Boards of the Presbyterian Church in Toronto this week. Dr. Carson is expected to arrive in Toronto from Halifax about December 1st and the first issue of the new paper will be that of the first week in December.

Mr. Theo. Feilden, editor-in-chief of the Empire Mail, London, Eng., is at present in Toronto on a mission which has for its object the encouragement of trade development within the Empire. Mr. Feilden is just completing an extensive tour of the whole of Canada in connection with his work, and in preparation of the Launching of an exceptionally fine Canadian number of the Empire Mail. He believes that hitherto the Canadian business field has been left too much to American industries, and it is the purpose of his publication to make known throughout the empire the opportunities in trade which exist elsewhere under the British flag.

Mr. W. H. Sherriff, of the Hodge-Sherriff Paper Co. Ltd., sails on November 23rd on the Victorian for England and in the meantime is visiting Ottawa and Montreal. Mr. Sherriff, who has only recently returned from a trip through Western Canada, reports that trade conditions there present the same problems that exist in the east and that a quiet period appears to have set in.

Mr. G. W. Pauline, of Messrs. Ritchie & Ramsay, paper dealers, Toronto, is back again at his desk after four weeks absence due to injuries received in an automobile accident. His many friends were glad to greet him again.

Mr. R. T. Worrel, of the pulp department of the George H. Mead Co., Dayton, Ohio, and Mr. H. S. Taylor, of the Management Engineering and Development Company, of Dayton, were in Toronto during the week.

The Rose Lithographing Corporation of New York has brought suit at Osgoode Hall, Toronto, against W. B. Mitchell, of Toronto for $5,000. The company says that Lundy Inc., of Buffalo, ordered 500,000 boxes at $25 a thousand from them by an agreement of May 15, 1918. Lundy, Inc., subsequently went into bankruptcy and suit is now being brought against W. B. Mitchell, who is said to have guaranteed the agreement to recover damages for the order.

Mr. A. L. Dawe, Secretary of the Canadian Pulp & Paper Company, Montreal, was in Toronto this week.

A visitor to Toronto this week was Col. C. H. L. Jones, General Manager of the Spanish River Pulp & Paper Mills, Limited, Sault Ste. Marie.

Mr. W. P. Innes of the Interlake Tissue Mills, Limited, Thorold, left this week to resume his position as Montreal and eastern representative of the company.

Mr. Bion D. Wheeler, representing the New York office of Edwin Butterworth & Co., of Manchester, England, dealers cotton waste, bleached sulphite pulp, etc. called on the trade in Toronto this week.

Mr. E. H. Talbot, editorial writer on the staff of the New York Commercial, is in Toronto. With his wife he is making a 6,000-mile tour of Canada and is preparing a series of articles on Canada and Canadian railways.

Premier Drury has issued a statement in which he replies to certain criticism levelled at the Ontario Government in connection with the activities of the Backus interests in securing pulp limits and water power privileges. The Premier states that when Backus bids on the English River limits he has to take his chance with other bidders, who are guaranteed a sufficient supply of power. One of the conditions of sale is that the Crown will be prepared to negotiate with the successful tenderer to enable him to secure an undeveloped water power to develop for the operation of the mill or mills. Because Mr. Backus already is established in Kenora he may have some advantages over someone who would have to locate there for the first time. "But," says the Premier, "if we had not stipulated for the manufacture of the logs at Kenora, another town, with a temporary life, might have been established in the north and Kenora been destroyed. Incidentally, of course, that involves carrying the logs across the C. N. R. to the C. P. R. which was unavoidable." The Premier also states that the Government is getting twice the dues for the Lake of the Woods limit as those for which the Hearst Government stipulated in 1914, and in addition the Government are requiring Backus, in order to get that limit, and not the English River limit to pay Kenora $335,000 for the municipal power plant at Kenora, with a power plant that means a loss of hundreds of thousands of dollars, to build a pulp mill of 200 tons capacity and to again operate some closed-down saw mills.

By a recent reorganization of the executive of Messrs. Warwick Bros. & Rutter, wholesale and manufacturing stationers, Toronto. Mr. E. J. Hathaway was promoted to be secretary in succession to the late Charles E. Warwick who occupied the position of secretary-treasurer. Mr. Hathaway has been with the firm for upwards of thirty years having for some years been head of the manufacturing end of the business and the loose leaf specialties. Mr. William Warwick, son of the late Charles E. Warwick, is now the treasurer of the company and Mr. H. C. Woods is the managing director.

In point of production the month of October was the best of the season for the Whalen Pulp and Paper Mills at Swanson Bay. The plant turned out 1,203 tons of high grade pulp. The lumber and shingle mills have also been active and had a good month in spite of the unfavorable market. The shingle mill is running to capacity.

The Orillia Packet has just celebrated its fiftieth anniversay by issuing a special number, in which its own history and that of the town is entertainingly told. For half a century the founder of the paper. Mr. W. M. Hale, has been in charge, and for forty years his brother, the late George Hughes Hale, was associated with him.

A meeting of the directors of the Ontario Pulp and Paper Makers' Safety Association was held in the office of the Interlake Tissue Mills, Ltd., Toronto, this week, with Mr. George Carruthers President, in the chair, and the following other directors present: Col. C. H. L. Jones of Sault Ste. Marie; Mr. H. F. E. Kent of the Kinleith Mill; Mr. C. Nelson Gain of the Don Valley Paper Mills; Mr. L. R. Wilson of the Abitibi mill and Mr. A. P. Costigane, secretary. The whole field of safety endeavor was carefully gone over statistics compiled by the secretary were examined and on the whole a fairly satisfactory state of affairs was shown to exist in respect to accident prevention. Several suggestions were made to further increase accident prevention in the pulp and paper mills with a view to making next year a record as far as the prevention of accidents is concerned.

The Mattagami Pulp and Paper Co., Limited, at Smooth Rock Falls, Ont., is very busy and report shipping large quantities of its sulphite fibre to Great Britain and the United States. The present capacity of the plant is 30,000 tons a year but with additional equipment now completed the yearly output will be at least 45,000 tons. The company will take out 150,000 cords of pulpwood this year. Mr. Duncan Chisholm of Toronto is the President of the company and Col. D. M. Robertson is secretary-treasurer. The company recently completed an operatives' dormitory, dining hall and kitchen building at a cost of $20,000.

Mr. John Stadler, assistant general manager of the Belgo-Canadian Company, had his Chandler Six pinched in Montreal. The car was recovered, minus all detachable articles of value. It is Nemesis for jilting his jitney?

Mr. Geo. Claxton, chief Designing Engineer for the Belgo-Canadian Co., has returned from a two months trip to England. He seems very pleased with his trip but more pleased yet to be back in old Shawinigan Falls. To some one who asked about how he found the conditions in the Mother country George said: "It changed wonderfully!"

It has been stated in well informed circles in Montreal that the purchase of the timber limits of the Bronson estate at Chelsea on the Gatineau river, a few miles above Ottawa, was for the British interests which are about to establish a large match and box industry in this country. This decision to buy the Bronson limits definitely settles the matter of the location of a plant by Maguire, Patterson & Palmer, Ltd., four of the largest manufacturers in the world. It has been stated that the Laurentide Company has no interests in the limits.

Lord Beaverbrook did not carry out his intention of buying a mill in Canada because of "extreme prices asked for property," according to Mr. Angus McLean.

PRESIDENT OF WHALEN PULP AND PAPER MILLS LTD., MAKES INSPECTION.

T. W. McGarry, K.C., President of the Whalen Pulp and Paper Mills, Ltd., accompanied by directors of the company made a tour of inspection of the companies' three plants the first part of November. Accompanying President McGarry were Mr. W. D. Ross, director, Mr. James Whalen, director, Mr. Lawrence Killam, director, Mr. Melvill Dollar, President of the Canadian Robert Dollar Co., Mr. Lester W. David, and Mr. A. E. McMaster, secretary-treasurer of the Whalen Company.

Embarking at Vancouver in the beautiful cruiser Aquillo, the property of Mr. H. F. Alexander, President of the Pacific Steamship Co., the party enjoyed a delightful trip. The tour of inspection was of great interest to two or three of the party who had never seen the British Columbia Coast and its great natural resources at first hand. The first call was at Swanson Bay, and from there the party went to Port Hardy and across country to Port Alice as it was thought best not to chance the rough weather at this season of the year in the West Coast of Vancouver Island.

From the Port Alice plant the tour of inspection was concluded by inspecting the plant at Woodfibre on Howe Sound. All plants were operating to full capacity and the visitors had a good chance to see operations to good advantage.

Mr. McGarry left for the East on Nov. 11th but will return to Vancouver about the first of December.

No appointment of General Manager has been made as yet. Mr. A. E. McMaster who is Secretary-Treasurer of the company, and who has done much to strengthen the company's position during the past couple of years is acting General Manager. Upon Mr. McGarry's return the new appointment will without doubt be announced.

The Whalen Pulp and Paper Mills, Ltd., are now occupying larger and more convenient offices in the Bank of Nova Scotia Building at 602 Hastings Street West. They occupy the entire seventh floor of the building.

.. WANT TIMBER REGULATIONS CHANGED

A delegation of the Limit Holders' Association and other parties interested in the lumber business, waited Thursday last, on Premier Taschereau, of Quebec. Hon. Mr. Mercier, Minister of Lands and Forests, and Hon. J. E. Perrault, Minister of Colonization, Mines and Fisheries, and, through Major C. J. Power, M.C., attorney, suggested that in view of the recent increase in duties on the exploitation of wood and paper in the province, as set by the provincial Government last August, changes in the present regulations should be made, if business was to be continued. They submitted a memorandum containing a number of suggestions.

Premier Taschereau and the other ministers stated they would immediately take up the matter.

Pulp and Paper Mill Accessories, Montreal, have taken the selling rights in Canada for the "Niagara" beater, designed and built by the Valley Iron Works, Appleton, Wis. Reports from the Kimberly-Clark Company indicate that the "Niagara" handles stuff the way friend Peterson of the V. I. W. handles business—with a rush. In design, the beater looks somewhat like a cross between the Marx and Schacht beaters. Some rather extraordinary results are claimed.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Nov. 20.—The week has seen no accentuation of the dullness that has been felt in the paper trade during the past few weeks. In fact in some lines, the situation, which never has been really bad from a business standpoint, has shown improvement, with more enquiries and more sales. Speaking broadly, however, the trade is going through a quiet period although so far nothing has happened except a slight falling off in demand for paper, at the mills, which seems to have been caused largely through a desire on the part of the printers to hold off buying in the hope of lower prices. This policy has been generally adopted in the printing trade, although there is no doubt that the job offices are undergoing a quiet period. Jobbers too are slightly more cautious in buying but for the most part they have confidence in the future of the trade and are stocking up in the belief that freer buying is going to set in by the first of the year. Output of paper from the mills is still being seriously retarded by low water and power shortage, particularly in the Ottawa district and in the meantime some of the mills have recognized the fact that a somewhat quiet period is at hand, with the result that the jobbers are enjoying the unique experience of receiving sales representatives from the manufacturing plants.

PULP.—There is a fair demand for bleached sulphite and contracts are now being renewed for the coming year in some cases at the high prices that have prevailed throughout the boom period. It is generally conceded that there will be a good demand for the coming season, although there has been a slight falling off owing to the quiet period in the paper trade and the hesitancy on the part of printers and jobbers to stock heavily. The prevailing prices for bleached sulphite are from $195 to $210 at the mill, depending upon freight rates, while unbleached is quoted at from $165 to $175. Ground wood pulp is a little easier in tone and is now selling at from $105 to $125, although there is no disposition on the part of the paper mills to pile up reserve stocks.

BOOK PAPERS.—A feature of the book paper trade is the effort now being made by the mills to place their output. This does not mean that there is any great lack of business, but is indicative of the paper trade generally which has now reached a stage where it behooves both manufacturers and jobbers to canvass for orders. For months past the output of the mills has been greatly oversold and the orders that came in were attended to in rotation. There has been a gradual catching up during the past few weeks and the jobbers are now rather enjoying the novelty of having the mills solicit their business. Mill representatives are now waiting on the jobbers for orders of book papers, not for immediate delivery but for future business. The mills desire to keep several months ahead with their orders if possible and at the present time are endeavoring to keep up their volume of business ahead. As there is an excellent demand for book paper they should have no difficulty in doing this although the jobbers report that there has been a falling off in orders. Buying is considerably more conservative than it has been for a long time and the printers continue to hold off, at the same time using up all their available stocks for their jobs, which it is claimed, will mean a renewal of buying when stocks get down to the vanishing point. During the past week a letter was received in Toronto from a prominent Scotch paper dealer in Canada for book paper from the British Isles, the matter of delivery is very problematical, owing to labor troubles, and that there is no immediate prospect of serious competition from this direction. In the meantime prices for the Canadian product keep up, although occasionally a jobber is found who is offering slight cuts. Jobbers in Toronto are now paying the mills 20c in carload lots for No. 1 M. F. laid down in Toronto. S. C. Book is quoted at 20½c. and No. 2 M. F. is selling at 18½c. No. 2 S. C. book is selling at 19c a pound although these quotations are still subject to prices prevailing at time of delivery.

KRAFT.—Business in kraft papers is reported as somewhat dull. It is pointed out that many of the jobbers are about to take stock and that for this reason buying has been light and will be light until the beginning of the year. The mills have been gradually catching up with their orders with the result that whereas a few months ago manufacturers reported orders on hand sufficient to keep the machines going for five and six months, the present unfilled orders can be turned out in one month's time. Although at the present time the kraft mills are only a month ahead with orders, a fairly satisfactory volume of business is coming in and by the first of the year it is expected that their lead will be considerably increased. Kraft is now quoted at 13c and kraft pulp at $150 or less, which prices have prevailed for some weeks past.

COATED PAPERS.—The coated paper mills report their customers as holding up on their buying, although the demand for their product is sufficient to warrant the mills buying considerable stock for coating. One mill in the Toronto district states that they are buying all the stock they can get, believing that the era of buying and selling by the jobbers is going to set in again very shortly. No. 1 coated is now selling at 20c at the mill and No. 2 at 19c.

WRAPPING PAPERS. — Jobbers in wrapping papers report that orders are light and that the buyers are holding off. Their customers are using no more paper than is absolutely necessary and the jobbers are now going after business. Shipments from the mills are coming through more freely and while business generally in the wrapping paper trade has fallen off, there have been no reductions in prices. Kraft papers are reported as considerably easier although manilas and fibres are still rather scarce.

TISSUES AND TOILETS.—Manufacturers report that although there is a very good demand for all light weight papers, orders have been decreasing in size and somewhat in quantity, although a satisfactory volume

of business is being handled. Tissues and toilets remain firm in price and no changes are looked for in the immediate future. Some manufacturers are preparing to turn out some cheaper lines in order to meet the American competition in this line and these should be on the market shortly.

MANUFACTURING STATIONERS. — Although there has been a falling off in the buying of books the demand for stationary keeps up and prices are firm. All of the manufacturers are busy and report having had a good season for Christmas goods. The raw stock situation has eased off considerably and deliveries are now coming through to the factories much more freely.

BOX BOARD.—Box board mills report that they now are only about four weeks behind with orders whereas only a few weeks ago several of the mills had tonnage guaranteed ahead for four and five months. The new list of reduced prices which went into effect a week ago has had the effect of meeting the American competition, which, although it threatened for a time, was successful in getting but very little Canadian business. At the present time there is only a fair demand for the product but it is quite likely that what business there is going will be placed with the Canadian mills who, when shortage and prices reached their appex, were careful to take care of the requirements of the Canadian dealers and gave good service. It is generally recognized that the United States mills only come over here to hit the market when it is dull over their and now that this period appears to have arrived there is a disposition on the part of the Canadian jobber and consumer to stand by their own mills.

NEW YORK MARKET.

New York, November 20.—(Special Correspondence)—In describing prevailing conditions in the paper trade a line should be drawn dividing the contract branch of the business from the spot market. One end of the trade—that applying to contracts—is characterized by steadiness and prices in this connection are maintained, with quotations in some cases evincing a decidedly upward tendency. The spot market for paper of all kinds, on the other hand, is distinctly weak, and prices are declining in most instances in consistent fashion. Consumers continue to keep out of the spot market excepting of course when in immediate need of paper, and even then they are confining their orders solely to amounts actually required. The result is that those mills which during the trying times of a paper shortage in recent months refused to accept contract orders and reserved the great bulk of their production for sale to transient buyers at the highest prices obtainable are now sadly in want of business, and are in frequent cases being obliged to close down or at least to reduce operations. Practically all of the recession in paper prices of the past few weeks has involved prices on spot shipments. The contract basis on about every description of paper is holding, but consumers are repeatedly acquiring supplies in the open market at sharp cuts in price; the decline in spot values having reached proportions where spot prices are today within close proximity to the contract basis.

To put it mildly, there is a pointed absence of important activity in the market. With business in all lines steadily slowing up, the consumption of paper has decreased and users and jobbers are refusing to buy except in hand-to-mouth fashion, presumably figuring that it is unwise to lay in stocks on a falling market. Mills with contracts on their books are keeping fairly busy notwithstanding they have had a good volume of their orders cancelled, but some manufacturers are in a bad way and are securing far less business at the lower prices obtaining at present than they were when quotations were at the top several months ago. Fortunately, the wave of commercial depression sweeping the country has not undermined the confidence of paper manufacturers, and while prices are being reduced by leaps and bounds in some cases, the decline is orderly and the market retains its equilibrium. It has been frankly admitted by conservative members of the trade that spot prices on paper have been too far out of line with those at which manufacturers have accepted orders from contract customers, and a consensus of opinion is that the nearer equalization of the two is bound eventually to make for a sounder and healthier market condition under which consumers will acquire greater confidence and will in due time resume buying on something like a normal scale.

Spot prices on newsprint are fairly well established at 7 cents per pound at mills. There have been reports of sales of some lots of imported newsprint at a shade under this figure, but it can be stated that most of the business current in print paper in standard rolls is being done at 7 cents or higher. Receipts of newsprint from European sources seem to be on the increase, and this, of course, is a weakening factor, for frequently when a shipment arrives here on consignment, the paper is disposed of for whatever can be realized. Just what tonnage is coming across the ocean is problematical as Government import statistics for the past several months are not yet available, but one has only to scan the manifests of steamers reaching this port to see that some pretty large quantities of newsprint are coming into the market. The contract basis on newsprint is maintained and the trade is on edge waiting for announcement from the leading producing company in the United States as to what its contract price will be on deliveries commencing January 1 next, which, it is understood, will be made public before December 1. There are rumors that it will be 7 cents a pound, or an advance of half a cent over prevailing contract prices, but for that matter there are various prices rumored, higher and lower than now obtain, and they are merely rumored.

Nothing of a startling nature has developed in book papers. Spot prices are gradually moving downward, whereas the contract basis rules unchanged. Wrapping papers appear in moderate demand though the average mill producing this kind of paper is looking for orders. Tissues are quieter than formerly and most mills are said to be near to a point of shutting down. Fine papers are in slack call but prices are holding comparatively steady. Manufacturers insist that the cost of producing writing papers has not decreased one iota and therefore contend they cannot afford to lower quotations.

Boards are in a somewhat steadier position although demand has improved but slightly, if any. The temporary retirement of manufacturers from the market, however, has created a more stable situation, and quotations are well established at $60 per ton at mills for plain chip and $70 for news board.

GROUND WOOD—Prices on ground wood have



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slumped badly this week. Additional receipts of mechanical pulp from European sources and the anxiety of importers to dispose of supplies as they arrive have led to price-cutting, and there have been offers of foreign ground wood down to $90 a ton ex dock and of domestic pulp for prompt delivery at $100. Demand is narrow, consuming mills as a rule getting along with contract supplies without having to operate as buyers in the open market, and indications are that if present conditions exist much longer a surplus of pulp will undoubtedly arise. Board manufacturers are absorbing little tonnage, and there is but a spasmodic demand from other consuming quarters.

CHEMICAL PULP—Members of the chemical wood pulp trade are marking time. There is little demand of worthwhile volume and the situation is such that buyers experience no difficulty in acquiring most grades of pulp at concessions in price although it cannot be said that the market tone is weak. Producers are not pressing consumers and are generally content to hold surplus lots of pulp, but at the same time few are turning down offers of prices within a near radius of what are commonly recognized as approximate market levels. Domestic bleached sulphite is available at 11 cents per pound at pulp mills and foreign bleached sulphite at 12.50 cents on the docks. News grade sulphite is holding steady at around 7 cents and domestic easy bleaching at 8 cents. Kraft has not changed from a quotational basis of about 6 cents for No. 1 domestic and 6.25 to 6.50 cents for Scandinavian kraft.

Arrivals of foreign pulp at New York during the week include 2,825 bales from Gothenburg, 5,836 bales from Rotterdam, and 130 bales from Trieste.

RAGS—There is little life to the papermaking rag trade. Mills are mostly keeping out of the market, presumably having ample stocks to cover present wants and not being desirous of purchasing on a falling market. In the absence of actual transactions involving sizable amounts of rags, prices are mainly nominal. Buyers in need of supplies can invariably find rags at attractive concessions from the prices asked and the bulk of what business is passing is being done at figures under quoted levels. Even new cuttings of some kinds are easing off, sales of No. 1 white shirt cuttings at 24 cents a pound at shipping points and of No. 1 new washables at 10.75 cents having been noted. Roofing rags are down further to about 1.10 cents a pound for No. 1 packing and one cent for No. 2 grade. Old whites and blues are largely neglected and easy in price.

Receipts of foreign rags at New York this week include 1,027 bales from Antwerp, 200 bales from Rotterdam, and 1,683 bales from London.

PAPER STOCK—Box board millls are still absorbing old papers in limited volume and demand from other sources also is light, with the result the market rules unusually quiet. Collectors and handlers of waste paper in New York City have instituted another strike because of a cut in their wages, but this development has scant influence on the market for the reason that consumers are not purchasing enough material to permit the curtailment of production to be felt. Prices on all grades of old paper, with the possible exception of white shavings, are moving lower, and in some cases it is questionable just how low purchases could be engineered. No. 1 mixed paper has sold down to 45 cents per hundred pounds at shipping points, folded newspapers at 90 cents, No. 1 over issue newspapers at 1.25 cents, heavy books and magazines at 1.85 cents and old No. 1 kraft at 3.85 cents. Dealers are endeavoring to impress upon consumers that now is an opportune time to lay in stocks but the latter seem resolved not to place orders until possessed of a more concrete idea of what their future requirements are likely to be.

OLD ROPE AND BAGGING—Old bagging is scarcely wanted by paper mills and prices are mainly nominal at about 1.75 cents per pound for No. 1 scrap bagging and 90 cents per hundred pounds for roofing bagging. Old rope is holding its own in price at a quotable range of 5.75 to 6 cents a pound for manila rope at shipping points.

INDUSTRIAL ITEMS.

The Gibbs-Brower Co., 261 Broadway, New York, who carry on the interesting business of buying and selling pulp and paper mills, have taken on the sole agency for the Koegel knife grinder, which appears to be quite a versatile machine.

Mr. F. G. Warburton, who designed the Harland sectional electric drive for the Laurentide, Howard Smith, and Interlake paper machines is in Canada supervising these installations.

Armstrong-Whitworth of Canada, Ltd., have taken over the manufacturing rights for the pulp mill machinery designs of Jensen and Dahl, one of the best known Norwegian firms in this line. The company's plant at Longueuil, near Montreal will be used for the new line.

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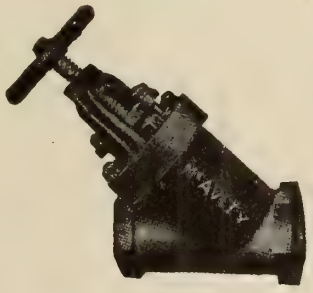
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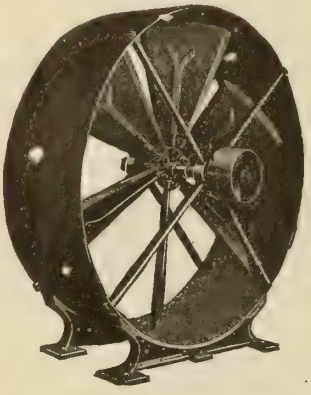


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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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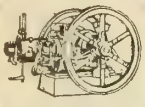
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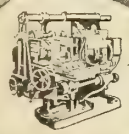
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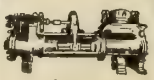

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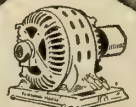

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-:- EDITORIAL -:-

SULPHUR IN ONTARIO.

An article appeared in the "Financial Post" a few weeks ago, contributed by Mr. D. E. Cushing, the Cobalt correspondent of that paper, in which the pulp and paper industry was criticized for not making use of the sulphur deposits in Ontario. Some of the statements made would give the impression that a novel suggestion was being put forward. Most of the points brought up have been referred to in the Pulp and Paper Magazine in our issues of August 30th and September 13th, 1917. In the first issue referred to, we showed that Canada is dependent on the United States for practically all of the sulphur used in the several industries that require it, but of the amount imported however, considerably more than half that used in pulp mills, in making the paper and pulp exported, goes back to the United States.

At a meeting of the Technical Section of the Canadian Pulp and Paper Association, a careful review of the sulphur situation, the amounts available in Canada, and the methods available for their utilization, was given by Dr. A. W. P. Wilson. Dr. Wilson is also the author of a report of the Mines Branch entitled "Pyrites in Canada," in which it is shown that this material, which is available, as far as proximity is concerned, to nearly every important chemical pulp mill in Canada, would require equipment considerably different from what is used at the present time.

The contribution of Mr. Cushing to the "Financial Post" intimates that these deposits have not been investigated nor seriously considered with a view to their use in sulphite manufacture. Exception is taken to a statement in that paper by a writer in the "Broke Hustler," which is published by the Abitibi Power and Paper Company. In the reply it is stated that only flour of sulphur is used by the pulp mill and no one company could afford to extract this (by roasting) from pyrites. It is possible, of course, to convert most of the sulphur in pyrites to the form mentioned, but such a procedure would seem to us an entirely unnecessary one since pulp mills in Scandinavia and sulphuric acid plants in this country are burning the ore and immediately getting the sulphur dioxide gas which is the material desired for use in their respective processes.

The "Broke Hustler" takes the safe attitude that the development of the sulphide deposits—they should not be called sulphur deposits as this confuses the public mind—is a matter to claim the attention of the mining men rather than pulp and paper companies. The latter will only be too glad to get Canadian sulphur, and would be willing to co-operate in an effort to make these Canadian deposits available. The "Broke Hustler" intimates that roasting of low grade ore dumps, which contain valuable metals, particularly gold, would produce flour of sulphur and permit the extraction of metal values. This hardly agrees with our conception of economic metallurgy, but it certainly is possible to extract sulphur dioxide from smelter fumes and liquify it for immediate use in the pulp mill. This matter was discussed in our report on the visit last June of the Technical Section to the plant of the International Nickel Company. It would appear from the mention in these papers of names connected with the gold mining industry, that only the sulphides of the more valuable metals are being considered. It seems to us more important as a source of sulphur for pulp making, that consideration be given to the enormous deposits of iron pyrites in Ontario and Quebec.

In support of the "Broke Hustler" with regard to the interest of the pulp and paper industry in the local source of sulphur, we shall quote the closing paragraph from our contemporary:

"Mr. Cushing ends by saying that A. F. Brigham, General Manager of the Hollinger Mine, has taken the matter up with Premier Drury. This looks as if there was a hen on, and that the criticism of the pulp and paper companies was intended to conceal another operation altogether. It is time that the public knew that the lack of development of the sulphur deposits is not due to the pulp and paper industries, but to the mining industries. It should also be known publicly that if the sulphur deposits of Northern Ontario are to be developed, now is the time to do it. The pulp and paper companies have been for some time considering the use of liquid sulphur dioxide from the nickel mine at Copper Cliff and other users of a sulphur ore. Unless the sulphur deposits are shortly developed to provide a supply of flour of sulphur at a reasonable rate, pulp companies will have their arrangements made for the use of this liquid, which would mean to them considerable reduction in the expense of plant."

When things don't come your way it is a sign that you should be going after them.

USE THE DEAD STUFF.

We are repeatedly getting reports of the amount of timber killed by fires and the spruce budworm and the quantities estimated as thus destroyed are continually increasing. The damage by fire in certain areas, particularly those under the jurisdiction of such protective agencies as exist in Quebec and where government railways do not operate, are greatly decreased. The ravages of the budworm, however, have now spread to most of the forests of eastern Canada and in some sections forty percent. or more of the standing timber has been destroyed. Immediate steps should be taken toward the removal of this material and its utilization. Where such stands occur on crown lands we should like to see an order requiring operators to cut first this infected or dead timber. If doing so should involve additional expense over the cutting of the live trees, a proportionate rebate of the dues should be made. If the Forestry Departments of our eastern provinces have not the power to require in the public interest that private operators follow a similar plan, we should urge the passing of such legislation as will enable such action to be taken. Furthermore, there should be concerted action with regard to this matter by the chief foresters of our eastern provinces.

The reason for requiring immediate action along this line should be obvious. In the first place if this timber is left in the forest it will only blow down, become infected with fungus and attacked by insects and be a complete loss besides creating a serious fire menace as a standing invitation to sparks from locomotives and strokes of lightning and a very serious handicap to the fighting of any fire that might get started. Let us suppose that this winter the normal cut is taken from the forest, approximately in the same proportion as present dead and standing timber. We shall have taken from the woodlands an amount of living trees equivalent to from sixty to perhaps seventy-five per cent. of the total which might have been dead timber, had only dead timber been removed; the living trees cut down will grow no more, and the dead ones left in their place will rot. trees will in effect be a thinning of the forest and a consequent improvement of growing conditions. The effect of taking out the dead timber now would thus serve several ends. It would serve for industrial purposes what otherwise would be waste, it would save for future growth under better conditions, trees which otherwise would be removed and would greatly improve the chance of the forest against fires and budworm. We believe that not only these steps should be taken but that in the cutting of this dead stuff the operator should be required to burn the slash and thus do away with practically every form of fire, fungus and insect hazard to the trees that would be left.

We realize that such a method of operation would entail some sacrifice, perhaps, on the part of some operators but we believe that the lumbermen and the pulp and paper manufacturers of Canada have sufficient public spirit to give the Forestry Department confidence in anticipating their full co-operation in so carrying on their operations as to most effectively preserve our forests and consequently to insure their own raw material for their own business. In asking operators to make such a sacrifice for the public good the Government, which is the trustee of posterity, should share the burden.

COBWEBS.

We are indebted to the Southern Cyprus Manufacturers' Association of New Orleans for an exceeding interesting and instructive book on birds with working plans for making 20 kinds of bird houses. This little book should succeed in encouraging the love and protection of our good friends the birds. We especially enjoyed the story of George Stephenson, inventor of the locomotive, and a bird.

It is estimated that Canada could produce annually 5,000,000 gallons of 95 per cent. alcohol from sulphite waste liquors.

We heard a man say that the ground wood market had gone to smash—meaning that pulp had sold for less than $100 a ton.

Munsey has bought the second oldest paper in the United States, the Baltimore American, founded in 1773. That paper has been worried about its supply before now.

WHERE IS WOODEN ?

Howard Wooden, 22, who is believed to be employed as a back tender or machine man in some paper mill, is requested to communicate with his former home in Richmond, Va. Trade publications in the United States have been asked for information as to Wooden's present whereabouts.

EFFICIENCY.

There has been much discussion in recent months of efficiency, bonus, production, safety, welfare work, and kindred subjects and we would like to utilize some space to explain what it is all about, in order that everyone may have a better understanding of the reason for all this agitation. Like everything else we will have to blame it on the war; the war caused a shortage of men; the war caused a shortage of goods — materials of all kinds; the war caused a shortage of ships and of railroad cars; in short, the war hit us where we all feel it; it raised the cost of living, that is, it seriously unbalanced a very delicate thing—our economic structure. And what we will want to know is, how are we going to get it back into balance? The answer is: "Work like hell!"—Shawinigan Falls Review.

Additional Notes on Progress in Study of Wood and Wood Pulp Infection and Decay*

At the June meeting of the American Pulp and Paper Mill Superintendents Association the speaker had the opportunity of giving a brief talk on wood pulp infection and decay. Since that time considerable work has been done and the problem of the possible prevention of the loss of pulp through such infection and the curtailment of the spread of decay through the wood storage pile is of such importance that a short outline of the results obtained with a frank discussion and interchange of ideas may not be amiss.

In discussing the results of this study it appears desirable to divide the work into two sections dealing, respectively, with the pathological and chemical investigations. The pathological work includes a study of the various molds and wood-destroying fungi commonly found on pulp and pulp wood with the object of preventing deterioration of the pulp during storage and of reducing decay in wood in the storage yard by improved sanitation and minor changes in methods of handling. The chemical study includes an investigation of the chemical changes involved during decay of the wood and wood pulps and a study of the losses involved in pulping infected wood in comparison with sound wood.

The speaker, in company with Mr. Humphrey, visited during the past summer some eighteen of the co-operating mills in order to secure data relative to the present methods of storage of wood and wood pulp and to determine the extent of prevailing losses. The following remarks are taken directly from a previous report but in view of the tremendous importance of this problem and the losses sustained by the industry we feel that a restatement will not be out of place.

Losses from decay in the wood pile at many mills are staggering, the amount of deterioration depending on the method of piling, age of the wood, and sanitary condition of the yard.

Broadly speaking, there are two general types of wood storage: (1) In the yard, either in ricks or in large conical piles; (2) Water storage, in which the wood is unloaded into the river. It it believed that with certain modifications yard storage is preferable. Water storage by complete submersion is theoretically ideal, as no decay can take place when wood is in a saturated condition; however, under present commercial practices this condition does not hold, for a large part of the logs are floating, with the exposed portion often dried out sufficiently for decay to take place. In addition to this the logs are often jammed or left exposed on the banks at low water; also, when unloaded from cars into the river high piles are built up extending out into the water and the greater portion of this wood is exposed under very favorable conditions for decay, particularly in a zone just above the water line.

As between ricking wood and dumping it from conveyors into large conical piles the concensus of opinion appears to be in favor of the ricks, provided these ricks are separated from each other by continuous air passages at least 3 feet wide to allow for uninterrupted circulation of air.

In general, present wood storage conditions at the mills are deplorable and too much emphasis cannot be laid on the necessity for reforming present practices.

Many of the yards are practically littered with rotten or infected woody or bark debris which serves as a source of infection for new wood and hence should be removed and burned. A considerable number of yards are on low ground which should be filled with dirt, surfaced with cinders ,to secure necessary drainage and keep down weeds and grass which impede the circulation of air around the base of the piles.

Likewise good sound foundations for ricked wood which are well off the ground are conspicuous for their absence. Not a single mill was properly equipped in this respect. Present practice consists either in piling directly upon the ground or on pulp logs laid lengthwise of the piles and often pressed deeply into the soil.

These conditions must be corrected before the mills can hope to control the decay problem. A summary of points to be observed as far as possible in modifying present practices is as follows:

1. Ship pulp logs as soon as possible after cutting to avoid their lying in the woods where high moisture content and growing vegetation tend to cause infection and decay.
2. Peel logs if possible, as this prevents borers from attacking the wood, and also hastens air drying, thus tending to prevent decay.
3. Remove decaying wood from the yard to eliminate the source of infection for new wood.
4. Drain and care for storage yards so as to reduce the soil moisture as far as possible; cut weeds to allow for better ventilation.
5. Fill in yard with cinders; this gives good drainage and keeps down weeds.
6. On removal of a pile of wood, clean up bark and burn skids if they are badly infected. Under all circumstances infected skid logs should be removed. The yard should never be placed on ground filled in with barker waste.
7. Do not rick wood directly on the ground. The best procedure is to put in concrete piers supporting stringers, which have been given a pressure treatment with coal tar creosote, on which to pile the logs. Such stringers should not be brush treated but should be pressure treated and will last at least twenty years. In case it is not considered feasible to equip the yard with concrete piers the next best practice would be to use wood blocking pressure treated with creosote as supports for the stringers. In any case, the stringers should be at least 12 inches, and preferably 18 inches off the ground so as to allow for ample ventilation from the sides.
8. Mark each log pile as it is received with date at which it was piled and if possible age of the wood. Use up wood in rotation. If ground in the yard is available pile so that the full length of the pile is exposed to the prevailing wind. Never place two piles with less than a three or four foot space between the piles.
9. Where timber is placed in conical piles by conveyors, a possible remedy may be to keep the wood saturated with water by means of an overhead sprinkler system, delivering the minimum amount of water necessary to keep the surface of the pile wet. This is

* Address by OTTO KRESS at Woodlands Section Meeting, Chicago, Nov. 12, 1920.

based on the fact that wood saturated with water will not rot because there is not sufficient air within the timber to allow the fungi to grow. Whether it is commercially possible to wet the piles down sufficiently and maintain them in this condition must, however, be demonstrated by actual test. If effective, the mills will have accomplished two objects, namely, protection against both fire and rot. It is our understanding that certain mills are now trying out this scheme mainly on the recommendation of Mr. F. J. Hoxie (1) of the Factory Mutual Fire Insurance Companies of Boston.

Fundamental laboratory studies are also under way to determine the moisture limits at which wood destroying fungi will rot the timber. The results of those tests will indicate just how wet the timber must be kept to check decay.

Study of Infection and Deterioration of Ground Wood Pulp and Possible Means for Overcoming the Same. (2)

When this investigation was undertaken it was understood that the study of the causes and possible prevention of infection and decay of groundwood pulp was of primary importance but from observations it appears to us that the prevention of further decay in pulp wood as received at the mill is of greater importance from a monetary consideration. While the mills are receiving and will continue to receive infected wood certain changes in storing, coupled with the use of the piles in rotation, will tend to minimize the loss from decay.

Following out the first supposition the problem was then initially attacked along the lines of preventing the development of molds, bacteria and wood-destroying fungi in stored groundwood and sulphite pulp by the addition of antiseptics to the wet laps either on the wet machine or after removal from it.

The method consists in applying the antiseptic solutions in the form of a fine spray by means of an ordinary garden sprayer working by compressed air. Altogether over 5,000 laps of groundwood pulp, approximately 12 inches by 24 inches, and 1,000 laps of sulphite pulp have been thus treated varying concentrations of 105 different chemicals of possible antiseptic value.

After applying the spray, part of the laps were inoculated with a mixture of a large number of molds previously isolated from badly infected pulp, and the remainder with several species of wood-destroying fungi likewise secured from decayed pulp. The laps were then stored in close piles in a special shed in which both the temperature and atmospheric moisture are held at a point favorable for the development of the organisms.

Inspections are made every four to six months and the conditions of the treated laps noted, as compared with untreated pulp stored in the same piles.

Records are taken of the moisture content of both the treated and untreated laps, at the time of spraying, as well as the amount of antiseptic solution applied.

At the present time the two oldest series of these tests have been running 13 and 14 months, respectively. Eleven of the antiseptics in the first series proved highly effective; only two were satisfactory in the second.

Recently one of the co-operating mills sent to the Madison laboratory about three tons of rotten groundwood pulp which was used as a source of further infection for the treated laps which had stood up against previous tests. These laps have been inserted in a large pile of the decayed material and thus given as severe a test as it is possible to devise.

Through the courtesy of one of the co-operating mills we have also been enabled to spray about one and a half tons of groundwood pulp. Thirteen of the more promising of the antiseptics and five additional oils which may prove toxic, were used. The solutions were poured into a barrel above and back of the wet machine. Copper pipes led from the bottom of the barrel to a pipe, perforated with small holes at regular intervals, which extended along the carrying roll and two inches above it. A felt strip was suspended from this pipe to the sheet of pulp. The perforations of the pipe were turned upwards about 15 degrees from the horizontal thus allowing the chemical to flow down the cloth onto the pulp. By regulating the flow of the chemical, measured amounts were put on definite amounts of the pulp. The sprayed laps together with an equal amount of unsprayed pulp from the same run were piled in a basement storage room under conditions favorable for its deterioration. Other pulp will be piled around it and the whole will be left for six months. Then it will be examined to observe the efficiency of the antiseptics against infection.

To date, some 70 odd organisms have been isolated from pulp and when it is considered that the antiseptic must prevent the development of any of these different organisms, a better conception is obtained of the difficulties encountered. Further, the costs of the treatment must be considered so as to avoid excessive cost per ton of pulp treated. The problem is also complicated by the high moisture content of the pulp as taken from the wet machine which is only one-third dry, thereby diluting each ton of dry pulp by two tons of water and reducing the concentration, and hence, the toxicity of the antiseptic. Further, some of the antiseptics which gave the best results are to poisonous and dangerous for mill use while others darken or discolor the pulp or injure its quality.

Naturally, the treatment of pulp on the wet machine with even the cheapest antiseptics will add to the cost of the pulp. As pulp, however, must be stored over periods of low water, the cost of such treatment must be looked upon as a necessary insurance. Naturally, pulp that will not be stored for a longer period, but will be used within two to three months, needs no protection except the taking of the necessary precautions to store it under sanitary conditions.

The following remedies are suggested to prevent decay of wood pulp during storage:

1. Proper rotation of the piles of pulp, storing if necessary in several smaller piles in order that the oldest pulp will be used up first.

2. The use of antiseptics applied probably in the form of water solutions on the wet machine, provided that the laboratory trials develop a successful and fairly cheap method of treatment.

3. Storage of pulp on concrete floors, avoiding contact of the pulp with the ground or with planks that

(1) Copies of Mr. Hoxie's address before the Technical Section of the Canadian Pulp & Paper Association, may be obtained from the Pulp & Paper Magazine at 10 cents each.—Ed.

(2) Some literature of this subject is available from the Forest Products Laboratory of Canada, Montreal.

may have become badly infected from previous pulp. Concrete floors should be provided with proper drainage and after complete removal of the pile should be hosed off, the drain capped, and the floor sprayed with an effective antiseptic as an additional precaution.

4. Avoiding piling of fresh pulp on old pulp, as this spreads the disease in case the older pulp is infected.

5. Removal of badly infected pulp, burning same if too badly decayed for use in paper making, also burning planks, skids and other infected debris in the neighborhood of the pulp pile.

6. Keeping down weeds near the pile and filling the surrounding area with cinders to assist in proper draining of the ground.

Study of the Chemical Changes Involved During Infection and Decay of Wood and Wood Pulp.

Through the courtesy of the co-operating mills, a number of shipments of infected spruce, hemlock, balsam and aspen wood and of infected pulps were received for chemical and pulping studies and for isolation of the typical organisms causing the decay.

A brief consideration of the chemical changes involved in the decay of the four chief pulp woods; viz., spruce, balsam, hemlock, and aspen, throws additional light on the astounding loses sustained through the decay of wood and the further losses involved in the pulping of such infected woods.

Complete analyses of sound and infected woods and of pulps made from these woods indicate quite clearly that wood does not break down to the extent that might be expected by a strictly selective action of the organisms either on the cellulose or the encrusting material but rather by a more uniform degradation of the wood. In cases of extreme decay, however, the cellulose breaks down to a larger extent than the encrusting material.

Assume a unit volume of sound wood weighing 100 lbs. bone dry becoming infected so that the wood now weighs only 80 lbs. bone dry. The volume through such decay has not changed but it must be remembered that pulp mills are purchasing wood on volume or cord basis and selling pulp and paper on a weight basis. A further loss in pulping now occurs either by the mechanical or chemical processes of pulping in the following way. Pulping trials on infected woods, figuring yields on the weight of bone dry wood pulped, gave us rather puzzling yields of 45 per cent. which are equivalent to the yields obtained on a weight basis from sound wood. A large number of cooks thus made by both the soda and sulphite processes on a number of shipments of infected wood in all cases, with but one exception, gave yields on the weight bases of approximately 45 per cent, or the same as is obtained from sound spruce, balsam, hemlock, or aspen. The exception was that of very badly infected spruce which with a cellulose content of 41.99 per cent gave a pulp yield of 39.64 per cent crude pulp containing 1.19 per cent screenings.

In Table I is given the essential pulping data on some shipments infected spruce wood.

The screened unbleached pulps obtained for cooks 6, 7, and 9 were analyzed for cellulose content and for Alpha, Beta, and Gamma cellulose content. The results of these determinations are shown in the following table.

Pulp from Cook No.	Cellulose p.c.	Alpha Cellulose p.c.	Beta Cellulose p.c.	Gamma Cellulose p.c.
Slightly infected wood	96.75	72.96	22.00	5.04
Wood nearly sound	95.73	75.83	17.85	6.32
Wood very badly rotted . . .	94.44	46.05	48.52	5.33

The data indicates plainly that as the decay progresses the percentage of cellulose decreases but far more indicative of the progress of the decay is the decrease in the amount of the Alpha or stable cellulose, and the very decided increase in the percentage of the Beta or unstable cellulose. This is true both for the raw wood and for the pulps pepared from them.

Papers made under similar machine conditions from pulps prepared under identical pulping conditions, from woods in various degrees of decay, show a decrease in the strength tests, especially in the following test which measures in part the tenacity and brittleness of the pulp. This is shown by a test of 364 double folds for waterleaf paper made from Cook No. 6 prepared from slightly infected wood, while waterleaf paper from Cook No. 9 from very badly decayed wood made under similar conditions showed a strength of only 26 double folds. Aside from the decrease in strength, chemical pulps made from infected wood are more dirty, tend in the case of pulps prepared from badly decayed woods, to hydrate readily and are decidedly darker colored. (Such pulp would show excessive loss on bleaching.—Ed.).

These apparent abnormally high yields of pulp can best be explained by the breaking down of the encrusting materials through the mechanisms of decay into simpler compounds that can be readily removed by the

* The samples represent different shipments of infected white spruce obtained from different mills. Cooks 8 and 9 are duplicate determinations. (See Tab. 1)

Table I.

Sample	Cook No.	Crude pulp p.c.	Screened pulp p.c.	Bleach requir. p.c.	Wgt. of wood per cubic ft. oven dry basis lbs.	Cellulose p.c.	Alpha Cellulose p.c.	Beta Cellulose p.c.	Gamma Cellulose p.c.
Infected Spruce*	6	43.9	43.5	14	25.8	46.90	27.75	61.45	10.80
Infected Spruce	7	44.6	43.8	14	28.2	54.18	42.86	37.68	19.46
Infected Spruce	8	47.4	46.8	16	24.0	.....	.....	.....	.....
Infected Spruce	9	39.7	38.4	20	24.1	41.99	18.97	72.92	8.06
Infected Spruce	10	45.9	45.1	16	24.0	.....	.....	.....	.....

cooking liquor without causing a decided degradation of the cellulose present in the wood. There is no question but that in the pulping of sound wood a percentage of the cellulose is broken into simpler compounds removed by the cooking chemical.

If wood were bought on a weight basis then proper allowance would be made for the percentage decay, but this is not the case. For example, if a unit volume of woods weighs in a sound condition 100 lbs. and after infection weighs but 80 lbs. then assuming a 45 per cent yield there would be obtained yields of 45 and 36 lbs. of pulp or an actual loss of 9 lbs. of pulp per unit volume of wood. Actual mill trials show that the cord of rossed spruce used weighs 2,400 lbs. so that in the example given there would have been on the same basis of decay a loss of 216 lbs. of bone dry chemical pulp.

The losses from a groundwood pulp stand point are even more serious. A mill run on sound and infected spruce showed yield figures, on a weight basis, of 94.5 per cent and 78.5 per cent, respectively, and on a cord basis a yield of 390 lbs. more pulp per cord of sound wood than was obtained per cord of infected wood. Aside from these actual losses there is a very decided further loss which, however, cannot be accurately estimated, from the decrease in quality of the stock made from infected wood. The difficulties encountered in using decayed pulp or pulp made from decayed wood are evidenced also by loss in production due to difficulty in drying the paper, increase in size consumption, and amount of longer and better fibred stock required to maintain the strength. Further, the infected pulp is always dirty, off color and decidedly brittle.

Paper Making Tests on Badly Decayed Groundwood Pulp.

In a previous paper by Kress, Humphrey and Richards,* the authors described the results of a study of the infection of groundwood pulp in the course of which paper machine runs were made on clean and infected pulp, and the resulting papers compared for strength, color, freeness from dirt, etc. In general, it was found that the infected groundwood of a condition similar to the shipment received at the laboratory, had the following drawbacks in comparison with clean pulp made from similar wood and under similar conditions:

1. Decided decrease in fibre length, thus affecting the yield, felting quality of the stock, strength of the finished paper, and slowness of the stock.

2. Too great freeness of infected pulp. While groundwood pulp is often considered too slow, the extreme freeness of the infected pulp would offer difficulty in carrying the necessary water on the paper machine and in securing a good formation in the finished paper. It should be remembered that only very badly infected pulp is too free. Pulp which is only partly infected is slower than sound stock, but as the infection progresses the fibres break up more and the resulting stock becomes very much freer than sound groundwood.

3. Infected pulp is very much darker, thereby dulling either white or colored sheets in which it is used.

4. The yield of finished paper based on the percentage of groundwood used is decreased approximately 10 per cent.

5. The strength of the finished paper is decidedly reduced. In a groundwood-sulphite furnish this decrease in strength would necessitate the use of a larger percentage of the more expensive sulphite pulp in the furnish.

6. Infected pulp on the paper machine offers difficulty in sticking to the couch and press rolls and in excessive foaming.

7. Infected pulp will require more sizing.

8. Infected pulp will make a very dirty sheet.

While sulphite pulp is normally not stored for a sufficient length of time to deteriorate, there is no question that infection will occur provided the pulp is stored under unfavorable conditions. Sulphite pulp, even though it is prepared from badly infected wood is undoubtedly sterilized during the digestion of the wood but later during piling may become infected.

Apparently, soda and sulphate pulps do not readily become infected and from correspondence with the mills we have not been able to secure an authentic sample of such infested pulps. Rag stock in a bleached half stock form is stored for long periods in drainers but infraction of this is extremely rare. One authentic case of such infraction, however, was brought to the attention of the laboratory.

Time does not permit to go into details as to the results obtained from the various pulping trials but the complete data will be published at a later date on completion of the study.

In Table II we have listed the more important chemical constants of three typical spruces, representing a sound wood, a partly infected wood typical of the wood ground daily by one of the large Wisconsin mills, and of the same kind as was used in our mill grinder run and, thirdly, a very badly infected spruce, so badly rotted that it was not used by the mill for pulping purposes. Taking the extremes of the sound for infected wood we find such differences as 5.44 and 11.92 per cent hot water soluble material, 24.000 and 62.36 per cent strong NaOH soluble, and 54.70 and 41.99 per cent total cellulose. Time does not permit us to discuss the significance of the analytical constants which have such decided bearing on the pulping characteristics of the wood and of the quality of pulp produced. The curves which I have drawn for presentation at this meeting show the relation of the more important chemical data obtained from a sound spruce and three spruces of varying infection, also the data on sulphite pulps made from these woods under similar pulping conditions.

Triplicate samples of both groundwood and sulphite pulp have inoculated with the various individual molds and wood destroyers isolated from samples of infected

*The Paper Industry, October, 1919.

Table II. — Analytical constants of sound and infected white spruce on oven dry weight at 105 C.

Kind of wood	Ash	Cold water soluble	Hot water soluble	Ether soluble	1% NaOH soluble	7.14% NaOH soluble	Copper number	Lignin	Cellulose	Alpha cellulose	Beta cellulose	Gamma cellulose	Pentosan	Methyl pentosan
Sound spruce	0.38	3.47	5.44	1.58	15.07	24.00	5.55	31.31	54.70	63.55	10.37	26.08	11.00	1.88
Inflected mill run spruce	0.75	5.54	9.75	1.39	39.92	49.28	17.48	35.21	46.90	27.75	61,45	10.80	9.45	2.66
Badly infected spruce	0.61	6.58	11.92	1.40	44.00	62.36	23.59	38.20	41.99	18.97	72.96	8.06	8.50	3.77

pulp shipped to the laboratory. The first set of these inoculated samples was opened after six months growth and the samples are now being analyzed. The two other sets of infected samples will be examined at two periods between now and June 1, 1921. In this way definite information will be obtained as to the technical changes involved during decay through the action of individual organisms. Some of these groundwood samples even after only six months test are very badly decayed, the worst showing an actual decrease in weight of 18.13 per cent.

The following table gives a comparison of the original sound groundwood and the six months infected pulp:

	Cold water soluble	Hot water soluble	1 p c NaOH soluble	7. 14p c NaOH soluble	Lignin	Cellulose
Sound groundwood	0.13p c	1.11p c	10.13p c	18.28p c	31.0p c	60.0p c
Six months inflected groundwood	6.09p c	11.06p c	46.30p c	62.80p c	35.30p c	43.45p.c

Aside from the very large loss due to decrease in weight of the pulp, the large cold and hot water soluble content of the infected pulp would cause a further loss in conversion of the pulp to paper.

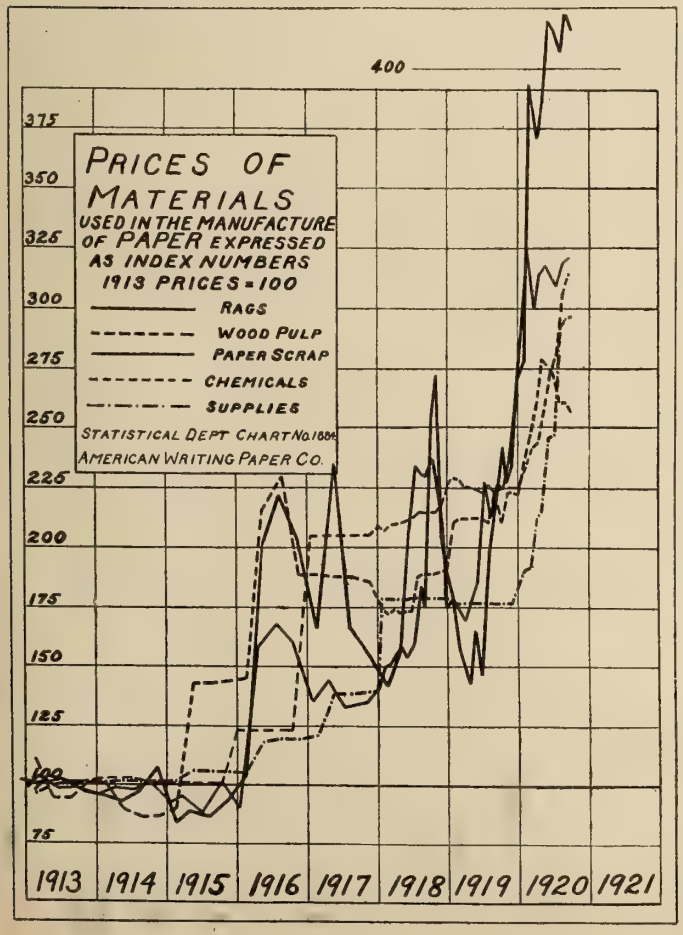
Some interesting work is being done at the laboratory to determine the nature of the cleavage products produced during the decay of the pulp. The direct loss in weight is, no doubt, due to carbon dioxide, water, and possibly methane, which are the end products produced through such decay. It will be attempted to measure the quantity of these products produced from a unit weight of the infected pulp.

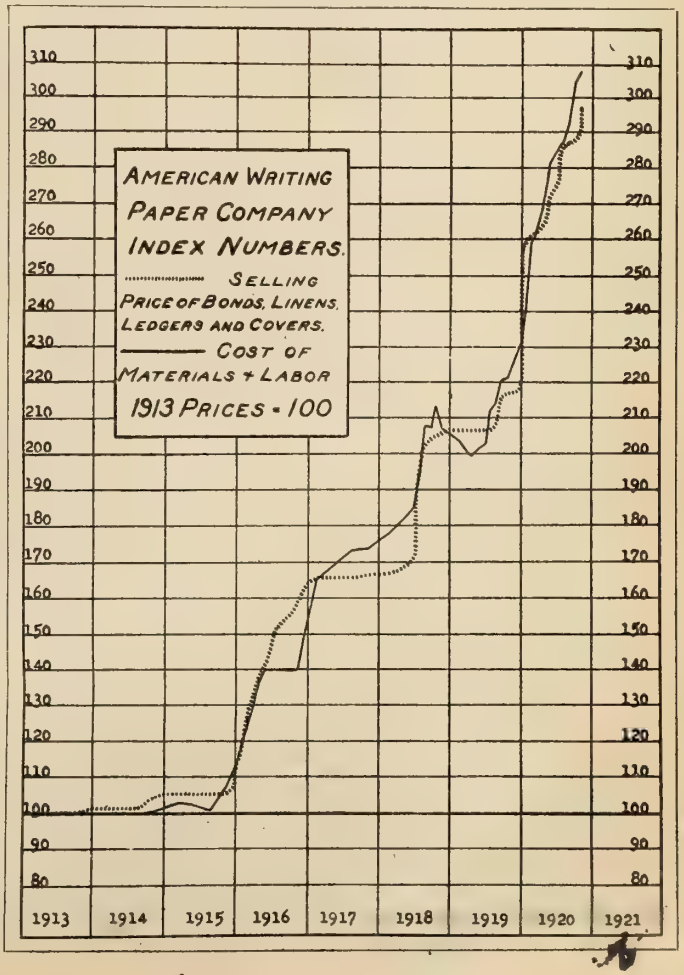
When it is remembered that the pulp yield on Northern woods is directly proportional to the weight per cubic foot then the purchase of wood weighing either 28 and 24 pounds per cubic foot makes a decided difference in the weight of actual wood cooked per day. Further, infected wood is brittle, causing a large loss in chipping as is shown by the following table:

Kind of Wood.	% Loss in Screenings of 5/8" Chips
Sound Norway spruce	4.43%
Nearly sound white spruce	5.62%
Infected white spruce	13.22%
Infected white spruce	15.60%
Very badly infected white spruce	17.02%

It is also to be remembered that chips made from infected wood occupy the same volume space in the digester but will give decidedly lower yields of inferior pulp while consuming the same cooking liquor and steam.

The paper industry must use wood not suitable for lumber as the latter industry can afford to pay more for their raw material. This means that the pulp mills will purchase inferior wood that is only too often badly infected and unless the proper precautions are observed this infected wood will deteriorate very rapidly during storage. Proper scaling is supposed to compensate for rot in the wood as bought by the mills but observation indicates that the pulp mills are in general not making sufficient deduction to cover this.





A Paper Mill Chemist's Views on German Paper Clothing

There have been many expressions of opinion from textile authorities regarding paper clothing manufactured in Germany, nearly all of which have discredited the probability of such clothing becoming popular. The following article by Martin L. Griffin, formerly chief chemist of the Oxford Paper Company, of Rumford, Me., presents an expert view on the subject from the paper manufacturer's point of vantage in the Daily Mill Stock Reporter:

During the later stages of the war with Germany and her allies, when their resources were fast waning and cotton was no longer available either for explosives or clothing, sulphite pulp was restored to and various fabrics made from pulp, first as a tissue paper and then as a textile yarn were made. A very general use appears to have been made of such fabrics for clothing, furniture coverings, railway carriage seats, etc. Clothing made of such fabrics attracted considerable attention toward the close of the war both in England and the United States on account of its apparent utility and cheapness, and has been given considerable advertising.

There is now an exhibit of paper textile products travelling about the country presumably to show to what extent Germany was reduced to clothe her people and her genius for science and invention; but neither special knowledge, unusual skill, or any invention are revealed in these articles made from paper pulp by the process of papermaking and textiles. It is inaccurate and misleading to speak of these products as paper suits or paper clothing, since they are made from cloth whose yarns are spun and woven by the usual textile processes. The slitting of tissue paper into narrow strips and twisting into yarn to be used as twine has been known and practised commercially for a long time.

Fabrics made from paper yarns have been on sale in the large department stores at various times for ladies' wear. Cloth of this type possesses novel characteristics, being made from a filament of paper, it has a smooth surface free from hairy fibres common to ordinary textiles. Coarse fabrics for floor coverings and rugs have been exploited on a considerable scale at times. These German made paper suits were advertised in England for sale at some two or three shillings and conveyed the impression that they possess much utility for summer wear and would help reduce the higs cost of living. Nothing of the kind. I had imagined that paper and not cloth made from paper stock had been used for this paper clothing until I had seen a suit of it. There can be no economy and little utility in attempting to make a fabric requiring the double process of paper and textile manufacture.

Taking the tissue paper from paper mill process is simple. The paper is first slit up into narrow strips ranging from a quarter of an inch to one inch depending upon the number of the yarn desired. These strips are then dampened, twisted in a ring spinning frame wound upon bobbins and the yarns are then ready for weaving in the ordinary way. The cloth is finished in many respects like ordinary cotton textiles having due regard to the fact that the fibres of the paper pulp are relatively very short and that the yarns are accordingly very weak especially when wet. Careful directions accompany each article as to how the garment must be handled in washing. Shirtings and the like are given a special treatment to soften and make them more pliable. The dying is usually done with direct and sulphur colors in jigs and pads, and as would be expected does not penetrate but only colors the surface leaving the central part of the yearn untouched by the dye. So far as I have examined the dyes are little more than stains and bleed badly when wet.

Some of the characteristics of a two-piece workman's suit which I happen to have are as follows: The cloth is of a coarse weave, count 30x9, and differs from plain weave in that the warp threads are in pairs while the weft is single ply. This gives just double the strength in the warp direction. The tensile strength dry was 75 pounds to the inch lengthwise and 37 crosswise. After wetting out, these tests fell to 59 and 26 pounds, which recovered after drying 72 and 33 pounds, showing that by careful handling in washing and avoiding rubbing, such paper cloth will stand considerable handling. The two-piece suit weighed 3 1-4 pounds and gave the impression of weightiness. The weave was open, making a porous cloth which was very stiff. The cloth was a navy blue and the garments were cut out, sewed and finished in places with strips of cotton cloth in the ordinary fashion.

I confess I was much disappointed in the paper suit so called. I had imagined that a suit of clothes made of real paper had been produced. I believe it is perfectly possible to make a better article of clothing from paper pure and simple. Starting with a good strong rope, linen or kraft paper and treating it to the incipient parchmentizing process and thereafter softening it produces a product of great strength and tenacity and resistance to wear. From an artistic point of view a smooth surface to clothing such as paper presents would not be attractive but it would be a very easy matter to give it a "linen finish" or any other surface treatment desired. The crimping effect on paper has enhanced the utility and value of paper greatly for certain purposes and is applicable to this purpose for giving pliability stretch and other desirable qualities.

If the time should come when such clothing appeared desirable for palm-beach suits which could be worn, smart and natty, for a day for half a dollar and then cast off, avoiding the laundry bill, I feel sure the American papermaker is the man who will do it without any assistance from the textile man and needs no pointers from Germany.

TO MAKE PHOTOGRAPHIC PAPER AT EDGEMONT, OHIO.

A report from Dayton, Ohio, is to the effect that sensitized photographic paper will be one of the chief products of the Dayton Photo Products Company, organized here recently and capitalized at $3,200,000. The company owns an invention which includes a convertible motion picture camera for home use, capable of taking, printing and projecting motion pictures by reflection with a non-combustible film. A special feature of the production of the machine is the sensitized photographic paper which will be manufactured at the company's plant, located in Edgemont.

U. S. PRODUCTION OF NEWS PRINT IN OCTOBER.

The following is a review of the reports received from domestic manufacturers of news print paper, from jobbers buying and selling news print paper and from leading publishers using news print paper by the Federal Trade Commission's report.

The average or normal production of total print and standard news based upon the total combined production for the years 1917, 1918 and 1919 amounted to 112,736 tons of total print and 101,400 tons of standard news for a period corresponding to October. The actual production amounted to 124,818 tons of total print and 114,232 tons of standard news, an increase in the case of total print of less than 11 per cent over the average for the three-year period and an increase in the case of standard news of less than 13 per cent over the average.

The production of news print for October, 1920, compared with October, 1919, shows a slight decrease for total print and an increase for standard news. The increase for October, 1920, over October, 1918, amounted to 18 per cent for total print and 21 per cent for standard news.

Mill stocks of both total print and standard news decreased during October, 1920.

The idle machine time, 2,186 machine hours, reported to the commission was 923 hours more than that in September. No lost time due to labor conditions was reported by news print mills.

Imports and Exports.

The imports and exports of printing paper not dutiable (practically all news print) and of wood pulp for the month of September, 1920, compared with the month of September, 1919, were as follows.

	Sept. 1920 Net Tons	Sept. 1919 Net Tons
Imports of news print (total) . . .	65,411	46,574
From Canada	63,321	46.574
From Germany	676	.....
From Sweden	1,414	.....
Exports of news print (total) .	3,182	4,703
To Argentina	1,334	901
To Cuba	658	1,031
To China.	102	192
To Uruguay	173	98
To other countries	915	2,481
Imports of ground wood pulp (total).	26,812	18,593
Imports of chemical wood pulp (total)	74,614	43,973
Unbleached sulphite	40,422	24,294
Bleached sulphite	12,529	7,055
Unbleached sulphate	20,711	11,932
Bleached sulphate	952	692
Exports of domestic wood pulp .	1,757	4,081

The imports of news print for September, 1920, were 18,837 tons more than for September, 1919. The export for September, 1920, were 1,521 tons less than for September, 1919.

The tonnage to "Other Countries" under the "Exports of News Print" for September, 1920, includes 135 tons to Canada, 113 tons to Venezuela, 110 tons to Chile, 109 tons to Dutch East Indies, 72 tons to Philippine Islands and 32 tons to Panama.

The imports of ground wood pulp for September, 1920, were 8,219 tons more than for September, 1919. The exports of domestic wood pulp were 2,324 tons less than for September, 1919.

Stocks of rolls in the hands of jobbers at the end of October were 88 tons less than the stocks in the hands of the same jobbers at the beginning of the month. Stocks of sheets were 323 tons greater at the end of October than at the beginning of the month. The net increase in the total stocks of news print in the hands of jobbers at the end of October amounted to 235 tons.

Commitments to sell roll news were 670 tons greater than commitments to buy. Commitments to sell sheet news were 906 tons less than commitments to buy. Total commitments to sell both rolls and sheets were 236 tons less than commitments to buy.

Publishers' stock decreased 4,646 tons during the month. The average daily tonnage used during October was 726 tons more than the average used in September.

Seventy-five publishing concerns held about 65 per cent of the tonnage on hand at the end of the month.

The domestic consumption of standard news by metropolitan dailies using between one-half and three-fourths of a million tons annually for October, 1920, when, compared with October, 1919, shows that the consumption for the month of October for both years was approximately the same, and increased slightly more than 35 per cent for October, 1920, over October, 1918.

Average Prices Paid by Publishers.

The weighed average price of contract deliveries from domestic mills to publishers during October, 1920, f.o.b. mill in carload lots for standard news in rolls, was $5,790 per 100 pounds. This weighted average is based upon October deliveries of about 44,000 tons on contracts involving a total tonnage of approximately 310,000 tons of undelivered paper manufactured in the United States.

The weighted average contract price based on deliveries from Canadian mills of about 21,000 tons of standard roll news in carload lots, f.o.b. mill in October, 1920, was $5,343 per 100 pounds. This weighted average is based upon the October deliveries on contracts involving about 100,000 tons of undelivered Canadian paper. The greater number of these are short-term contracts expiring before 1921.

The weighted average market price for October of standard roll news in carload lots f.o.b mill based upon domestic purchases, totalling slightly less than 8,000 tons, was $9,362 to 100 pounds. This weighted average may be less than market quotations on account of contract relations, quantity discounts, mill stock ownership and other causes unknown to the commission.

ARNOLD HANSSON'S PROMOTION.

Mr. Arnold Hansson, a well-known Canadian Forester has received the appointment of Chief Forest Inspector of the New Zealand Forestry Department, under Mr. M. L. Ellis, formerly of the Forestry Department of the Canadian Railway.

Mr. Hansson is a Norwegian by birth, but some time ago became a British subject. He received his B.A. and F. E. degrees from Christiania University, Norway, and Master of Forestry from Yale University. He has extended experience in forest work throughout the United States and in Canada. After several years with the Laurentide Company at Grand Mere, Quebec, Mr. Hansson entered into private work as a consulting forest engineer with headquarters at Montreal. In this capacity he was retained by the Abitibi Power and Paper Company to conduct special work in connection with their forests. An excellent war record with the Canadian forces is another of Mr. Hansson's distinctions; two years he spent in active service.

A Canadian Forester's Training

The Final Two Years of His College Course Treat the Forest as a Productive Organization.

By Dr. C. D. HOWE, Acting Dean, Faculty of Forestry, University of Toronto.

(Continued from Page 1165, Nov. 11, 1920).

For the first two years of a course in forestry, the student for the most part considers trees separately as individual organizations, but in the second two years he is taught to look upon trees, both in regard to their life history and their economic relations, collectively as stands, types, forests. Just as the town is not merely an organization of people, so the forest is not merely a collection of trees, but like the town is a community, an organization dependent for its development and growth upon certain external conditions and upon certain internal conditions of its own making. Indeed, the simile may go a step farther, for in a town the organization, the structure remains intact, but the component individuals are constantly changing, and so it is with the forest; the forest is always a forest, unless destroyed by some catastrophe—but the individuals are slowly but constantly shifting in time and in space. Because men can comprehend the laws and conditions which bring about these changes in the forest, we have the profession of forestry, since forestry is the fashioning, the moulding of a community of living trees to the needs of man, the application of brain power to the economic production of wood. Man has already applied his intelligence to the energy of lightning and falling water and directed it into economic channels, resulting in enormously increased wealth so man can apply his intelligence to the energy of nature as expressed in the growing forest and direct it into economic channels, and it would result in enormously increased wealth for our country. The possibilities in Canada are almost unlimited, and the results would be glorious—and profitable.

Science in Forest Control.

This is the point of view in regard to the forest presented to the students during the last two years of their course, and they are shown in the forest as well as in the class room how man can control and improve the forest by his knowledge of the laws of its growth, health and hygiene. For example, in reference to these laws, the students are taught how a forest cover influences the amount of light that gets through to the ground, how some trees can grow in the shade of their neighbors and others cannot. In fact, the light relation is the most important factor in determining the composition of a forest, and it is the forester's most effective tool. The students are also introduced to the mysterious cycle of forest growth and soil fertility. The forest feeds the soil by the decay of its leaves and wood. The products of decay of one year or a group of years contribute to the support of the forest life of the following year or group of years. The previous generation gives up its life that the present generation may live.

Soil and Light Factors.

Light and soil fertility then are the magic keys that unlock the secret chamber wherein is contained the knowledge which man uses to fashion the forest to his wishes. The equipoise between light exposure and soil fertility on one side and forest growth on the other is extremely delicate. Minor disturbances and adjustments are constantly taking place under natural conditions, but the balance suffers great distortion under the usual logging operations and still more in the case of fire. This explains why the character of the forest usually changes and may pass through several stages occupying several hundred years before the original forest comes back after severe cutting operations and especially after fires, and this is the fundamental reason that logging operations must be directed with intelligence and technical knowledge if our forests are to be kept continuously productive in terms of valuable species, and the reason, too, that adequate fire protection is absolutely essential to any plans for continuous supply of timber.

Woods Experience.

In the third year also especial attention is given to the economic and industrial aspects of the forests, in particular the methods of converting the forests of the country into current wealth. The various steps in the creation of wealth by the application of labor to the forest resources are followed from the cutting of the tree to the production of paper or of a shoe last, or whatever the final product may be. Forest labor is discussed, its character, length of employment and methods of payment, together with workman's compensation acts. The students come in contact with the tools commonly used in bushwork. The advantages of the various types of axes and saws are demonstrated by actual use. The methods of felling and log-making and the organization of crews are studied in contact with such work. The organization and equipment of a logging camp are explained and later the students learn to appreciate certain characteristics of the average bunkhouse by living in one for several weeks. The students learn how logdecks are made and how the logs are taken down to the landings for transport by rail or water. They learn the relative costs and advantages of aerial tramways, forest railroads, river driving and rafting and the applicability of the various types of transport to the mill to the different forest regions of the country.

Learning the Markets.

The methods of manufacture and use of the various forest products follow the above as a natural sequence. Here the object is not only to give the forestry student an intimate knowledge of the final markets and uses of Canadian woods, but also to give him an understanding of the various factors that enter into the cost of production. The students are required to visit and make reports upon the organization, equipment and production of saw mills, the grading and piling of lumber, upon the manufacture of cross ties, poles, posts and piling, of flooring and siding, shingles and laths; upon the production of cooperage, veneers, boxes, matches, excelsior and various wooden-ware products. They are required to give special study to the rapidly developing wood pulp and paper industry. The pro-

cesses of manufacture of mechanical and chemical pulp and their conversion into various grades of paper are studied in detail.

The Function of Forestry.

Unless the tearing down processes are equalled or exceeded in volume by the building up processes, life will cease, and so it is with the forest unless wood material equivalent in amount to the enormous quantities removed each year in the form of lumber and plupwood, is replaced each year by new growth, the forest will cease—at least as a commercial asset. To recuperate, to regenerate, to restore is the function of the forester. His greatest and most important work is through intelligent direction of cutting and logging operations to replace the annual loss through the agency of the axe and disease, windfall and fire in the forests which nature has already created free of charge. A part of his work, however, is to create forests anew on worn out farm lands and on areas where forests have been completely destroyed by repeated fires. Forestry students are thoroughly prepared for this kind of work. They learn about the adaptability of different species for planting under the different climatic and soil conditions in the various parts of the country. They are taught methods of preparing the nursery, raising and caring for the young trees. They learn the different practices in field planting. At the completion of the subject, their book knowledge is reinforced by a week or ten days of actual work in the Ontario provincial nurseries.

(To be continued.)

PRICES.

"They say the bottom has dropped out of commodity prices."

"Yes and no," says the organ of the Parsons Trading Company.

High prices induce greater production, and the greater production tends to lower prices, and this desirable effect is noticed first in those things where it takes least time to increase production—the annual crops, and goods made from them. There is no question that the "fantastically high" prices for food and and for clothing fibres—wool, cotton, etc.—persuaded many planters and stockmen to go in more heavily on those lines. They overdid it a bit, seen from their view point, for old crop stocks were not exhausted, and prices fell.

The world is sobering after the long "spree" of spending. The persistent frugality of some thousands, the renewed economies of some millions, have at last allowed demand in many lines to be overtaken by supply, and prices drop.

It is said most of the war-rich have spent their money, and that it is getting back into thriftier hands. The merchants must sell, and if the monthly sales, say, of a mail order house drop from $27,000,000 to $16,000,000, the answer is a 25% horizontal cut. An ominous condition, a drastic remedy.

But it is clear that any deep horizontal cut affects, temporarily, the prices for all other obtainable goods, but that horizontal cuts cannot be kept horizontal, and each commodity in the long run must find its own price level.

When the tide comes in the waves dash higher than high-tide level. When the tide goes out there is a sweep which leaves momentarily exposed patches of beach which are really below low-tide level. There is a tremendous sweep, and sometimes people think the tide will ebb indefinitely; but there is a limit and a turn.

As long as there are stomachs to feed and backs to clothe, there will be little over-production in annual crops, one year's surplus being merely the next year's insurance against shortage.

With housing and the lumber trades, which require longer time for their products, relief cannot come so promptly. If it takes thirty years to grow a tree fit for pulp-wood, and the forests have been wantonly depleted, prices will drop to permanent lower levels only gradually. Sudden sharp breaks, due to temporary and technical conditions, will be followed by quick recoveries.

In paper, one of the most important trades dependent on timber, the general commodity price movement, and the new wage demands of printers, have alarmed some buyers, and for the moment certain grades are more easily obtainable than heretofore. But price shading has been limited chiefly to spot lots of odd sizes and weights; future contracts are strong. Nobody wishes to go through another winter like 1919-1920.

Paper prices will come down, though not to pre-war levels. Meanwhile it is safer to have the paper one needs, at a fair market price, than to wish for it. and lack it, at a price which economic conditions do not yet permit.

WOODLANDS SECTION MEETS NEXT WEEK.

The necessity of holding a meeting of the Woodlands Section of the C. P. and P. A. has prevented giving it very much publicity. From the following it will be evident that much of importance will be done in Toronto. The live ones will be there.

Program of Woodlands Section meeitng Dec. 8th and 9th, 1920, King Edward Hotel, Toronto.

Program for Dec. 8th.

10 o'clock.—Chairman's address; Paper by Dr. C. D. Howe, University of Toronto, entitled "Performance of a Few Culled Acres"; General discussion; Report by Ellwood Wilson, of Imperial Forestry Conference; Adjournment for lunch.

Afternoon.—Paper by R. O. Sweezy, on the comparisons between planting, seeding, and natural growth; Paper by Mr. H. Graeslund, who will tell what is being done in Sweden in regard to forest policy.

Program for Dec. 9th.

Thursday, the 9th will be an open meeting commencing at 10 o'clock and, during the day, opportunity will be given to look over different mechanical appliances which will be on exhibition by the manufacturers.

10 o'clock.—Open discussion on use of aerial appliances.

The Laurentide and Price Companies will contribute much useful data.

SPANISH RIVER PLANS ADJUSTABLE CONTACT

Reports that the Spanish River Pulp & Paper Company had set its 1921 price at 6.50 were current in New York last week, but the G. H. Mead Company, which sells this company's products in the United States, said that next year's newsprint price had not yet been set. It was stated in the Mead company's telegram that the 1921 contract will probably provide for adjusment of price on July 1 and that the Mead company had closed some contracts extending beyond the end of 1921, providing for adjustment of price.

THE FUTURE OF TIMBERLANDS, PULP AND PAPER.

No one should be deceived by the present lull in business in so far as pulp and paper are concerned, as this particular line is in a class by itself and any decline in price will be very transitory as this industry differs from any other, owing to the short supply of wood, its raw material, which will be the price controlling factor for the future.

There are so many paper companies who own either no lands at all or very small holdings who will be forced out of business on that account, that there will be a continued shortage of pulp and paper from the time business once takes on its normal stride, which in all probability will be not later than next March.

The foregoing statements apply with equal force to the lumber situation, and as soon as building begins next spring prices for lumber will be higher than have yet obtained.

Within two years timber lands will be selling in the State of Maine, for instance, for fifty dollars per acre. I am willing to stake my reputation on this, and I shall leave it to my friends to state whether or not my predictions in the past in connection with timber lands have been correct.

When one considers that land in Maine has already sold for thirty dollars and more per acre, and stumpage contracts have already been made at prices running up to nine dollars and fifty cents per cord, it is not a very far cry to fifty-dollar land and thirteen-dollar stumpage.

Within two years there will be little, if any, wood going out of Canada, and I shall leave the reader to imagine what will happen when this annual supply of a million and a half cords is no longer available to the American mills.

This will be simply a case of self preservation on the part of Canada. as her own mills have absolutely no wood to spare. The Province of Quebec has already been forced to notify some of her large limit-holders that they must reduce the cut on their Crown Lands one-half. This will necessitate the purchasing by the Canadian mills of all fee land wood which has been going across the line ; otherwise they will be prematurely forced out of business themselves.

Personally, I will not sell an acre of land. a cord of stumpage, or a cord of wood at any price. This is the advice which I have given all of my friends for the past year. I am not cutting a cord of wood on my own holdings, but am buying wood and stumpage, and have stocked my mills for the coming year in this way.

The facts above stated are all indicative of our only too short timber supply, and further emphasize the necessity of practicing greater conservation.

A word further to the paper mills. Don't be deceived by a present supply of wood in the mill yard and at the railroad sidings, as every cord of extra wood cut this year means a cord less standing.

In the wood we are now cutting we are simply robbing our children.

The present accumulation of cut pulp wood has been brought about by the four following causes :

1. A temporary recession in business during the readjustment period, which was bound to come.

2. The increase in price for wood, which helped to pay for the longer haul, as much of the wood that has been cut recently is from the very back end of many of our timber lots.

3. An attempt on the part of land owners in the bud worm killed area to salvage at least a small portion of the bug killed timber.

4. The fact that lumber has temporarily dropped in price, owing to the delay in building, causing a diversion of logs from lumber to pulp wood.

The great trouble with the paper companies is that they are always living in the present, forgetting the past when at times they have hardly known where the next carload of wood was to come from, and disregarding the larger and more permanent shortage of the future.

The latest reports which I have just received from cruisers in New Brunswick now raise the amount of loss in the standing wood supply of that Province from the recent attack of the bud worm to approximately fifty per cent., so when you look at the present pile don't lose sight of any of the above facts.

It is far better to look this situation squarely in the face and endeavor by every means at our command to prepare for the future. Therefore, anything that can be said or done which will tend to arouse the public to a realization of the danger that is confronting us with regard to our future timber supply is a public work of the first importance.

FRANK J. D. BARNJUM.

Annapolis Royal, Nova Scotia.
November 27, 1920

Note:—We happen to know that Mr. Barnjum is ready to practice what he preaches—cut dead trees out, whether or not the Government requires it.—Editor.

GERMANY'S PAPER BOOM.

Information reached London today that a great boom in Germany's export trade in paper is impending. Production is rapidly rising in the "Fatherland" and has now attained 75 per cent of peace-time quantities and far exceeds the home demand.

The cause of the present abundance of paper for report is that nearly all German newspapers and publications have reduced their sizes. Newspaper publishers are agitating for cheaper newsprint, which, besides increasing the home demand will also increase the tendency to dump abroad. In 1919-20 the Bavarian State profits from the sale of timber amounted to 5,000,000 marks, as against 19,000,000 marks in the preceding year. Germany's capacity as paper manufacturer is said to be 30 per cent greater than in 1914. One cause of this increase is that makers of wall-papers, whose business has been stagnated by domestic troubles, have taken to making newsprint.

Improved paper-making machines are now being manufactured at Krupps. The complete solution of the fuel problem is likely to see Germany restored to her pre-war position as Europe's greatest paper exporter.

From the fore-going information, which is partly correct it is quite evident that Germany is working out the coal problem for the benefit of industry. We do know that large shipments of newsprint have reached England and the States and that a great effort is now being made for Germany to get back to her pre-war status.

Mr. H. Furminger, superintendent of the Beauharnois Division of the Howard Smith Paper Company, and Mr. Wesley Tilton, superintendent of the Cornwall Division, called on the Toronto office of the company during the week.

3000 CUTTING ABITIBI'S PULPWOOD.

The work of the Woods department is of especial interest at this time though there is a romance about the bush that makes it always an interesting subject. The sailor is not a more romantic figure than the man who goes into the silent places to reap the harvest of timber.

On the Abitibi limits this season there are eight company camps in full swing, with nineteen jobbers and innumerable sub-jobbers taking out anywhere from 2,500 cords to 55,000 cords. This means that the woods resound to the axes and saws of over 3000 men from dawn to dark.

But this is not the only source of supply of wood for the Mill. All over the country within range of the mill, are settlers busy clearing off their land and selling the timber to the Company. Naturally this is in small lots from each clearing, but in the aggregate it comes to a large number of cords when it is assembled.

The cut this year is likely to go to the objective or even surpass it for the weather has been extremely favorable. A long dry fall without snow is ideal for logging especially if it follows a dry summer. In that case the black spruce swamps have not so much water in them and if they freeze before the snow comes in quantity, it is possible to get out many more logs than otherwise.

Most of the work in the bush starts in the middle of August ; all the big camps are opened then. In fact the season has been so propitious that many of the big jobbers have got on so well with the actual cutting operations that they are a week or two ahead of what they would have been in a usual year. They expect to be finished with the cutting by mid-January. Others who got a later start will not be through by that time but the prospects as said above are for a record cut on account of the weather.

The two big new camps opened this year are Camp 28 on the Mistango river and Camp 30 on the first lake of the Edwards chain. Frank Boyer, who used to be on the boom at the Mill, is in charge of Camp 30.

The depots at Lowbush and La Reine on a Sunday look like a county fair. The yards are crowded with the teams of those who have driven in with supplies, men in all sorts of costumes and seeking every kind of thing imaginable. An indication of the traffic through a depot is shown by the fact that sometimes 700 meals are served to people coming to a depot during a month.

THE STRENGTH OF TREES.

Few people have any idea of the strength of trees. In Boston, Mass., recently, an old elm, more than three feet in diameter, had to be removed from the common. Several of its limbs had been struck off by lightning, and it was supposed to be in a dangerous condition. So one of the tree-levelling devices used in France for tearing down buildings, trees, etc., was brought into play. This is a machine that is worked by a couple of men moving a lever back and forth. A cable was fastened to the tree trunk, and it should have come up by the roots, all theory being correct. Instead, it broke the first cable of steel—one inch thick—and then, when two were wound around that old trunk, the tree shivered a bit and broke them. The contractor gave it up as a bad job, and put several men on with axes to cut the roots.

PULP AND PAPER EXPORTS UP 34 PER CENT.

Canadian pulp and paper exports during October reached a total value of $16,706,005, compared with $11,863,578 for the corresponding month last year, a gain of $4,842,427. They were made up as follows:

October	1919	1920	Gain
Paper	$5,954,916	$8,128,254	$2,173,338
Chem. pulp	3,965,946	6,590,944	2,624,998
Mech. pulp	1,942,716	1,986,807	44,097
Totals	$11,863,578	$16,706,005	$4,842,427

The paper exports included 4,411 cwts. of book paper, valued at $43,802, 1,288,089 cwts. of newsprint, valued at $6,915,294, and other paper valued at $1,169,158.

Pulp exports included 279,000 cwts. of sulphate, valued at $1,827,448; 208,620 cwts. of bleached sulphite, valued at $1,963,401; 402,565 cwts. of unbleached sulphite, valued at $2,800,095, and 536,329 cwts. of ground wood, valued at $1,986,807.

The countries of destination were: Paper—United Kingdom, $408,482; United States, $6,167,488; other countries, $1,552,284. Pulp—United Kingdom, $583,343; United States, $7,447,528; other countries, $546,880.

There were 124,390 cords of pulpwood valued at $1,752,923 exported during the month, compared with 56,399 cords, valued at $596,486, during October a year ago, all of which went to the United States.

For the first seven months of the fiscal year, April to October inclusive, pulp and paper exports amounted in value to $103,949,481, compared with $55,609,550 in 1919, and $46,799,134 in 1918, a gain of $48,339,931 over 1919, and of $57,150,347 over 1918. They were only $685,857 less than the total exports for the fiscal year ending March 31st last. They were made up as follows:

Seven months.	1918	1919	1920
Paper	$25,073,415	$33,074,162	$51,154,018
Chem. pulp . .	18,817,444	17,974,334	40,170,498
Mech. pulp . .	2,908,275	4,561,054	12,624,965
Totals	$46,799,134	$55,609,550	$103,949,481

Exports of pulpwood for the seven months amounted to 778,246 cords, valued at $9,556,255, compared with 571,843 cords, valued at $5,686,179 in the corresponding period in 1919, and 1,047,748 cords, valued at $9,980,535, in 1918.

DUTCH LIFT PAPER EXPORT EMBARGO.

The Netherlands Minister for Agriculture, Industry and Commerce, announces that the decision of 8th January last which re-imposed, with certain exceptions, the export prohibition on paper, has now been repealed, and that paper of all kinds may, as from 12th October, and until further notice, be exported from the Netherlands without the necessity of obtaining an export license. This relaxation does not, however, apply to old paper and waste paper.

DOZED ON MILL BELT.

Adrien Gauthier, 18, of St. Marguerite, Que., died in the hospital at North Bay, last week, as a result of an accident at Sturgeon Falls. Gauthier had crept on one of the broad belts of the milling machinery and had fallen asleep. One of the workmen started the machinery and the young victim was drawn in, his leg being crushed. Medical assistance was summoned but Gauthier succumbed to his injuries.

ABITIBI PULP AND PAPER CLASSES STARTED.

The technical classes on pulp and paper making were started at Iroquois Falls, Ont., Monday Nov. 15, under very auspicious circumstances. The attendance was good at all three classes, during the week, and everyone took great interest in the opening of the courses in Wood Technology and in Acid Making. After the opening lectures those who attended talked enthusiastically over the outlook for a very interesting and very instructive course throughout the winter.

A gauge of the interest taken is that of the three classes in Wood Technology the attendance at the two which have been held was Monday 5.15—36; 7.00—62.

The first lecture on Acid Making was given Wednesday evening and again the attendance was good and their interest shown insures the success of the course. There were twenty-three at this class.

The Opening Classes.

At the opening of the class in the afternoon, which is chiefly for those working days to whom the afternoon class leaves a clear evening, R. W. Hovey spoke a few words in explanation of the course before Clarke Davis gave his lecture on Wood Technology.

An Elaborate Course.

At the evening meeting, Monday, R. A. McInnis opened the proceedings by stating that these courses were got up entirely for the men. He had an opportunity of looking over some of the lectures and he could assure his hearers that they were the most elaborate and complete treament of the newsprint manufacture so far developed. It was only fair to the men who have spent so much time on the preparation of the courses to say this. Some of these men had given up practically all their spare time since last April to the preparation of the data.

To get results two things were necessary:

First.—That those taking the courses realize their value to themselves;

Second.—They must attend regularly, irregular attendance meant a miss-fire. They would get dabs at it but not the whole story.

The results you will get from these courses will be of great value to you and that will amply repay the men who give the courses for their time and labor.

The First Lecture.

Clarke Davis of the Forestry Department gave the preliminary lecture on Wood Technology in a well-balanced combination of technical and popular treatment. It was of a preliminary nature and he ended just as the subject was leading to the direct study of the woods which are of special interest to the paper or pulp maker.

First Acid Making Class.

The first of the acid making classes was on Wednesday evening when R. W. Hovey gave the general divisions of the course which will include a general outline of the process, raw materials, sulphur dioxide production, the cooling of the gas, the absorption of the gasses to form bisulphite, the recovery system, and tests.

He gave an outline of the process from the burning sulphur to the finished acid and an explanation of the analysis of the acid, and discussed the meaning of total, free and combined acid.

In regard to the raw materials he dealt with pyrites, sulphur, limestone and lime in relation to their properties used in the acid making process.

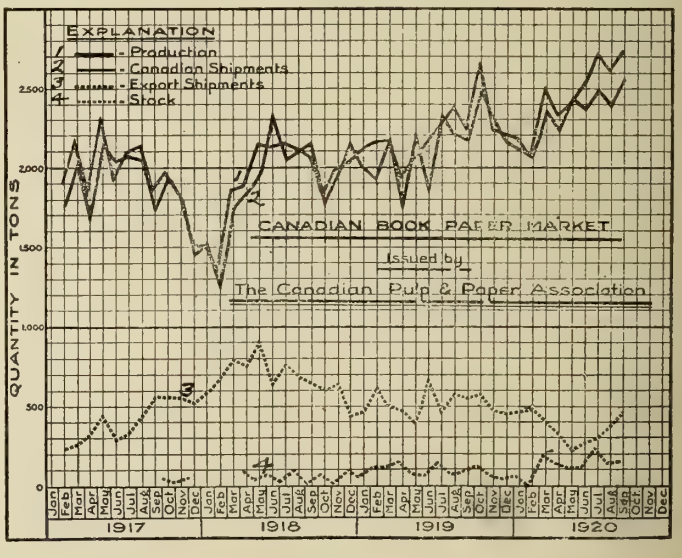
He then took up the burning of the sulphur, describing the various methods of supplying sulphur to the burners and the theory of what takes place in the burners.

All May Attend Classes.

The committee wishes it thoroughly understood that all may join the clases. Everyone will be welcomed, and accommodation arranged for in one or another of the classes. Owing to the numbers attending the classes it was necessary to divide the classes into three. The natural division was to make an afternoon class as so many of those who wished to take the courses quit at five o'clock. A class was accordingly made to take in a good portion of those who finished their day at 5.00 p.m. and thus give their evenings free. The other classes are especially for the shift men, and are Monday and Wednesday at 7.00 sharp.

It might be well to emphasize again that anyone taking the classes every Monday night or every Wednesday night, will get the complete course. In the case of shift workers, on the 4 to 12 shift they will not be able to attend that week but the following week by attending Monday and Wednesday both, they will catch up for the week they were unable to attend and will then go on as before with Monday courses or Wednesday courses.

Where Canadian Book Paper Goes.



This curve was outlined from the discussion of the tariff on paper, in last week's issue. It shows that almost all the book papers made in Canada were sold in this country. This was done in spite of many attractive offers of foreign trade.

HOW TO SAVE MONEY.

Wife (at breakfast): "Could I have a little money for shopping to-day, dear?"

Husband: "Certainly. Would you rather have an old five or a new one?"

Wife: "A new one, of course."

Husband: "Here's the one—and I'm four dollars to the good!"—Stray Shots.

Edison may be a great inventor, but he hasn't discovered a way to make a pair of pants last as long as a vest.

British Trade News

(From Our London Correspondent).

London, Nov. 16, 1920.—Excellent results are shown by the preliminary financial statement of Wall Paper Manufacturers, Ltd., for the year ending August last. It may be recalled that the Deferred capital came off the "Waiting list" in 1918 and received 5 per cent.; that rate being also distributed for 1919. The profit, after providing for Excess Profits Duty, etc., was £751,887, compared with £336,614 for the previous twelve months (then postponed repairs had to be allowed for, but to what extent was not stated). The Deferred shares are now receiving 10 per cent and a bonus of 2½ per cent; the transfer to contingencies fund is nearly doubled at $65,000, and the sum carried forward is something over £20,000 more at £181,054. In June last the deferred capital was increased by the capitalisation of profits, and £641,000 bonus shares were issued to deferred shareholders in the proportion of one to two.

Major Barnes, in the House of Commons, has asked if he could direct the Central Committee on Trust to undertake an investigation into the effects of trade associations in the printing and paper trades. Sir Robert Horne says that if Major Barnes will send him any information he may have relative to such associations he will forward it to the Central Committee for consideration. The Standing Committee on Prices of the Central Committee established under the Profiteering Acts have already under consideration the question of instituting an inquiry into prices, costs, and profits in connection with printing paper.

In a London public auction room, the other day, an auctioneer put up for sale various quantities of papers and the prices realised were interesting. This is an unusual way of disposing of paper. Here are the results:—

Ten bundles of brown kraft 29½ in. x 45 in., each bundle 58 lbs. weight—£11.

Eight similar lots—£9. 10s. to £10. 10s.

Four bales of white tissue, each containing 40 reams 20 in. x 30 in., each bale weighing 2½ cwts.—£26.

White printing paper of 21 lots 35-in. x 45-in., weight per bale 102 lbs., each lot consisting of 10 bales. Five lots realised £11. 11s. each, 14 lots £11. 10s. 6d. and two lots £12. 12s. A lot of 3 bales went for £3.

Other small quantities were disposed of, but the prices realised were just as much interesting as the sale itself. Some of the buyers got very good bargains, particularly in M. G. printing paper which was lying in one of the warehouses at the Docks.

Pulp Supplies.

The supplies of groundwood from Canada during October have been somewhat disappointing and the figures for the ten months are much below those of last year. For comparison I will quote the supplies in tons received from all countries:—

	October 1919	October 1920	Jan. to October 1919	Jan. to October 1920
Sweden	7,757	8,116	76,876	77,496
Norway	17,587	17,879	246,790	263,937
Canada	28,928	16,176	81,814	73,001
Other countries	.....	.....	16,600	25,006

From these figures one can see Sweden and Norway have got a good share of what went to Canada last year. Norway's position in the ten months trading has greatly improved notwithstanding all the labor troubles and set-backs the pulp producers had to endure since the beginning of the year.

What Newsprint Does.

Messrs. Thomas Owen & Co., Ltd., Cardiff, have paid an interim dividend at the rate of 15 per cent per annum, free of tax, on the ordinary shares for a half-year. They are big producers of newsprint.

Total Pulp Imports.

The imports of pulps from all countries, which are considerably below those of the past three years, are given as follows by the Trade Board:—

	Tons. Oct. 1919	Tons. Oct. 1920	£ Oct. 1919	£ Oct. 1920
Bleached chemical	1,404	2,545	50,443	175,743
Unbleached chemical	41,507	35,485	1,000,453	1,495,593
Chemical, wet	.....	1,000	.....	17,500
Groundwood, dry	805	1,146	13,388	30,626
Groundwood moist	52,276	48,791	474,565	780,171

For 10 months trading the enormous sum of £24,369,029 has been spent on pulps of all kinds and not £3,000,000 has Canada received out of the huge total—the balance going to the Scandinavians.

Bleached Sulphite.

Bleached sulphite is supplied to the British papermaker from the following countries:—

		Tons.	£
Finland	Jan'y-Oct.	231	21,095
Sweden	"	4,011	213,256
Norway	"	14,273	652,187
Germany	"	525	24,002
Other countries	"	5,450	287,078

For the first time Finland appears in the returns with 231 tons valued at £21,095. Norwegian supplies have more than doubled, but Swedish shipments are lagging.

Paper Exports to Canada.

Canada imported from the British paper mills during October the following papers: Printing paper, fine, 763 cwts., value £3,322; writing paper, fine, 17 cwts, value £240; other makes, 106 cwts, £2,409.

The exports of the British paper mills show a considerable increase over pre-war days as the following figures depict for October last:—

	1913	1920
Writing paper ..cwts.	21,296	29,381
Printing paper ..cwts.	128,456	128,933
Other makes ..cwts.	6,275	8,192

Canadian Newsprint.

Canadian newsprint is reported to be offered to buyers lately. There are also great quantities of Newfoundland paper being used. One cannot help but notice the difference in many of the newspapers that use paper from these sources.

Notelets.

A few days ago Mr. W. Raitt, cellulose expert to the Indian government sailed for home. Before doing so he arranged for an experimental pulp factory for the Imperial Forest Research Institute to send out for construction. It is hoped to deliver the machinery next year about February or March.

Mr. Harry B. Coates, Turner Paper Mill, Yorks, has won the Papermakers Association gold medal in the City and Guilds of London Institute examination in paper technology. He is self-taught.

Technical Section

NEW MEMBER.

The latest addition to the membership of the steadily growing Technical Section is R. A. McInnis, who has been elected an associate member. Mr. McInnis is mill manager of the Abitibi Company, at Iroquois Falls, Ont., and has always taken a keen interest in the Section and supported its aims.

REVIEW OF RECENT LITERATURE.

A-1 Lignin: its composition and reactions. PETER KLASON. Translated by Paul Bartholow. Paper, 20, 36, 38, (June 30, 1920). A description of various reactions of lignin and lignosulfonic acid, showing that lignin must contain the acrolein complex R.CH:CH. CHO, and showing its relationship to vanillin, coniferyl alcohol, coniferyl aldehyde, and cinnamic aldehyde.—A.P.-C.

A-1 Acetyl content of wood. H. PRINGSHEIM and H. MAGNUS. Z. angew. Chem., **33**, 56, (1920); J. Soc. Chem. Ind. **39**, 263A, (1920). The authors reply to a criticism by Schwalbe and Becker (J. Soc. Chem. Ind., 39, 185. 1920) of their previous communication regarding the respective amts. of acetic acid obtained from pine woods and wood from deciduous trees. Beechwood lignin contains 37.8% acetyl as against 19.85% in pine wood lignin. Boiling the wood for 3 hrs. with 2.5% H_2SO_4 is not sufficient to extract all the AcOH. It is necessary to treat the wood for 6 hrs. with 8 times its quantity of 3.5% NaOH under a press of 6 atmospheres.—A.P.-C.

A-1. Researches on lignin. II. Potash fusion of the lignosulfonic acids. M. HONIG and W. FUCHS. Monatsh., **40**, 341-9, (1919); J. Soc. Chem. Ind., 39, 330A, (1920). The removal of the sulfonic groups from the Ba salts previously described (see J. Soc. Chem. Ind. **37**, 502A, 1918) by fusion with KOH is only complete at 250-300°C. In each case protocatechuic acid was the only phenolic product obtained (Cf. Melander, J. Soc. Chem. Ind., **38**, 625A, 1919), the yield corresponding to 13-9% of the purely organic portion of the original material. The sulfonic acids are therefore complicated aromatic sulfonic acids, containing the C— skeleton of protocatechuic acid.—A. P.-C.

A-2; Deterioration of cotton on wet storage. N. FLEMING and A. C. THAYSEN. Biochem, J., **14**, 25-8. (1920); J. Soc. Chem. Ind., 39, 263A, (1920). Deterioration of damp cotton is brought about by a **streptothrix** and by a **schizomycete**, both of which cause a breaking down of the cuticle. Deterioration is retarded if the moisture content of the cotton is below 9%. The amt. of deteriorated cotton may be estimated microscopically by counting the fibers after the sample has been treated by Ball's viscose process.—A. P.-C.

A-3 Ramies and textile nettles as paper fiber. CHARLES GROUD. Papier, **23**, 73, (April 1920); Paper, 15-6, 30, (July 7, 1920). Translation of article in Le Papier.—A. P.-C.

A-15; K-7 Cellulose mucilage. C. G. SCHWALBE and E. BECKER. Z. angew. Chem. **33**, 57-8, (1920);; J. Soc. Chem. Ind., **39**, 330A, (1920). The parchment ("pergamyn") cellulose mentioned in a previous paper (J. Soc. Chem. Ind., **38**, 858A, 1919; Paper, **25**, 875, 1920; Pulp & Paper, **18**, 497, 1920; J. Soc. Chem. Ind., **39**, 58A, 1920) had a high methyl value indicating that the treatment had left considerable quantities of lignin unattacked. The physical properties of a no. of cellulose mucilages were investigated; that from cotton wool was almost entirely free from fibers exhibiting structure, but some of the parchment cellulose mucilages contained fiber debris. In the case of mucilage prepared from soda or sulfite pulp by grinding in an edge runner, the Schopper-Riegler sieve apparatus is useless for determining the degree to which the fiber has been converted into mucilage, but the apparatus gave more trustworthy results with mucilage prepared by prolonged beating in the Hollander.—A. P.-C.

A-15; K-7 Cellulose mucilage. Hygroscopic properties of paper containing mucilage. C. G. SCHWALBE and E. BECKER. Z. angew. Chem., **33**, 58-9, (1920); J. Soc. Chem. Ind., **30**, 330A. (1920). Parchment ("pergamyn") cellulose and parchmentised paper and similar products have a moisture content of 68% after exposure to the ordinary atmosphere, but after exposure from 4 hrs. in air saturated with water vapor the water content increased to 17-26%. Previous heating at 120°C decreased this property of absorbing water. —A. P. C. (See also article by Miner & Sieber, Pulp and Paper Magazine, Sept. 9, 1920).

B-3. Does normal forest growth overcome natural destruction? Paper, 21-2, (June 30, 1920). The forest destruction due to posts, wind, and fire are such as to more than outweigh the regular growth when considering a state or country as a whole. Added to this is the destruction due to timber cutting. The importance of tackling the problem immediately is evident.—A. P.-C.

B-9. Practical possibilities in Alaskan pulpwood lands. Paper, 9, 26, (June 30, 1920). A discussion of the practicability of utilizing the pulpwood resources of Alaska.—A. P.-C.

A-16. Acid resistant bronzes for sulfite mills. A. KLEIN. Wochbl. Papierfabr. **51**, no. 27, 1915-1916 (1920). The composition of the bronzes is discussed but nothing is said about their use.—C.J.W.

E-2. Process for obtaining fat from sulfite-cellulose liquors by biological methods. W. JEROCH, and Kriegsausschuss f. pflanzliche u. tierische Oele u. Fette, G. m. b. H. German Patent 305,091. Jan. 25, 1917. Aerated and neutralized sulfite liquors to which a nitrogenous substance, such as beet juice, has been added, and inoculated with a culture of **Endomyces vernalis**.—C.J.W.

E-2. Apparatus for the evaporation of liquids, which are liable to burn, such as sulfite cellulose liquors. C. TITTEL. German Patent 322,462. Nov. 17, 1917. Troughs, divided into small compartments by parallel cross partitions with openings alternately at opposite ends, are arranged side by side in step formation. Each is provided with an overflow and independently oper-

ated heating coils, so that any desired number of successive troughs can be put into operation as a single unit, and, if need be, the liquid in different stages of concentration in the individual troughs can also be handled separately. C.J.W.

E-2. Utilization of sulfite waste liquors. A. KLEIN. Wochbl. Papierfabr. **51**, no. 26, 1840-1842 (1920); translated by Clarence J. West, Pulp Paper Mag. Can. (Oct. 14, 1920). A general review of the German literature during the period 1914-1919.—C.J.W.

K-6. Straw; Utilization of the waste lyes from the alkaline digestion of—. S. HERZBERG. G.P. 319,068, 13.11.17. Alkaline lyes from the treatment of straw are electrolysed to obtain the caustic soda in a concentration suitable for further use. The degree of evolution of oxygen or of oxidation of organic substances at the anode varies with the strength of the current.—J.S.

K-6. Paper; Removal of ink from writing. H. GETHE. C.P. 321, 545, 26.7.19. The paper is passed through four consecutive baths, of which the first and third contain oxalic acid, the second potassium permanganate, and the fourth aluminium sulphate; it is afterwards passed between hot rollers.—J.S.

K-10. Paper, pulps, paper yarns and fabrics; Sizing and waterproofing of—. E. FUES and E. BRAUN-MULLER. G. P. 318,923, 3.1.17. The paper material is treated with colloids such as dialysed solutions of hydroxides of trivalent metals, preferably iron or chronium, with or without the addition of solutions of other, preferably organic colloids.—J.S.

R-5. Polish paper conditions. Paper, 18-9, (June 30, 1920). Seizure of machinery by the Germans and Russians, and lack of raw materials during the post-war period hampers the Polish papermakers, so that production is much reduced and exports low.—A. P.-C.

R-12. How the cost accountant works in the paper industry. John Balch, Chemical Paper Mfg. Co. Paper, 14, (June 30, 1920). Cost accounting has become a comprehensive proposition and demands men with executive ability who can correlate cost work with efficient management. Cost information to-day must be available before action takes place to have a value.—A. P.-C.

CO-ORDINATING SCIENCE.

What America needs is not to give up its individual initiative in science but to add to its means for co-ordination and organization. We need a wider recognition, an increased social evaluation, of the place of scientific research in our national life, and hence a willingness not only to encourage and support individual scientific effort but also to insure a greatly augmented productivity of all present research agencies and a much more effective co-ordination of them both with regard to planning and with regard to executing the broad, inclusive scientific investigations which are required for the solution of the problems concerned with the most effective use of our national resources, with the highest production in our agriculture and industry, and with our national health and well-being. In a word we need more, and better, and better-co-ordinated science for the preservation and development of our national strength. The National Research Council is an organization that hopes to contribute in some degree, however modest, to the meeting of this need.—By Vernon Kellogg, in "International Conciliation."

NEW CELLULOSE PERIODICALS.

The T.A.P.P. I. Committee on Bibliography desires to call the attention of the paper industry, and especially those interested in scientific and technical cellulose chemistry, to two new German periodicals which are devoted entirely to cellulose.

Zellulose-Chemie. Wissenschaft Beiblatter zu der Zeitschrift "Der Papierfabrikant."

This periodical, which is issued as a supplement to "Der Papierfabrikant", is edited by Emil Heuser of Darmstadt. Volume 1, number 1, appeared April 30, 1920. It appears at monthly intervals, each number containing from 8 to 12 pages. The scope of the magazine may be seen from the following contents of the first five numbers.

No. 1—Apr. 30, 1920—Advances in Cellulose chemistry, by Emil Heuser.

No. 2—May 28, 1920—Methylation of cellulose, by Denham and Woodhouse. (Translation of articles appearing in the Journal of the Chemical Society **103**, 1735 (1913); **105**, 2357 (1914).

No. 3—June 18, 1920—Trimethyl glucose from cellulose, by Denham and Woodhouse (Translation from the Journal of the Chemical Society **111**, 244 (1917). The estimation of cellulose in wood, by W. H. Dore (Translated from Paper **26**, no. 1, 10 (1920).

No. 4—July 16, 1920—The enrichment of "Kraftstroh" with fungus protein, by Pringsheim and Lichtenstein.

No. 5—Aug. 20, 1920—Preparation of alcohol from wood, by Emil Heuser. The constitution of cellulose; an abstract of the work of Hess, appearing in the Z. Elektrochem., 1920, p. 233.

In addition to the major articles, each number contains a number of abstracts of articles from journals on the subject of cellulose.

Der Papierfabrikant is published by Otto Elsuer, Berlin, S. 42, Germany.

Zellstoffchemische Abhandlungen.

This monthly magazine is edited by Carl G. Schwalbe of Eberswalde, and is published by Carl Hofmann, Berlin, SW 11, Germany. The price of the first five numbers of 1920 is 20 marks.

The first number (June, 1920) contains an article by Rudolf Sieber on the determination of the calcium content of fresh sulfite liquors according to Feld-Sander; and also the first part of an article from the laboratory of Ost in Hannover on the acetolytic decomposition products of cellulose, by R. Prosiegal. The July number completes the article by Prosiegal and contains in addition an article by Schwalbe and Ernst Becker on the chemical composition of mechanical wood pulp.

CLARENCE J. WEST,
Chairman.

Mr. Justus C. Sanburn, Chemist, Strathmore Paper Company, Mittineague, Mass., has been appointed by President Hatch of the Technical Association of the Pulp & Paper Industry, chairman of a Committee on Beater Furnish, which will co-operate with a committee of the Cost Association in determining methods of estimating the quantities of materials added to the beater in the production of certain papers. Mr. Sanburn has accepted the appointment and is now studying the situation.

The cinchona tree; of tropical climes, produces the quinine of commerce.

UNITED STATES NOTES

When operations were suspended for the week on Saturday, November 20, in the Corinth, N.Y. plant of the International Paper Company, notice was given to the employees that work would not be resumed until the following Tuesday. This marked the beginning of a five-day week schedule.

More than 850,000 pounds of German dyes are now available to American users of colors. In a special bulletin sent out by the Textile Alliance, Inc., which is handling the importation of the German product into the United States, a large list of dyes with prices, including duty and royalty, if any, is appended. The Alliance will accept orders on these dyes, subject to certain restrictions, among them being the agreement to use the dyes within six months from the date of delivery, and the proviso that consumers will not resell the colors without permission of the War Trade Board. Import licenses must be secured through the Alliance.

Changes in the correspondence work of the United States Army designed to save paper were announced last week as having been approved by Secretary of War, Newton D. Baker. The changes, which are described as drastic, follow the recommendation of a board of officers which investigated the "paper work" of the army. Present army regulations require that all communications relating to personnel must be prepared typewritten in triplicate, passing twice through the hands of numerous intermediate officers before final disposition is made of the matter involved. The changes approved by Mr. Baker eliminate many of the intermediate officers and permit the use of stamped indorsements, doing away with the necessity of various writted "O. K.'s."

Michigan, Wisconsin, and Minnesota in the Middle West; New York, Maine, Pennsylvania and New England, generally, in the East, and the entire Pacific Northwest are included in a reforestation plan approved at the recent business conference of the American Paper and Pulp Association at Chicago. The program suggested involves the spending of $10,000,000 annually for addition of new forest lands. The plan had previously received the indorsement of the American Newspaper Publishers' Association and all of the associations comprising the wood using industries. Forest fire protection in the state, as well as national and private forests, is included in the scheme, and a Federal appropriation of not less than $1,000,000 a year for this purpose, when duplicated by individual states within their own areas, is asked. While the manufacturers advocated this national and state legislation. they favor an organized woodlands section to aid in the application to privately owned timber land of the principles asked of governmental agencies. Among the suggestions for this section are the establishment of an "International Forest Experiment Station" to test growing of paper-producing trees, use of the tractor in logging and similar problems.

Through the acquisition of a 26,000 acre tract of timber land in Jefferson and Lewis Counties, N.Y., the Gould Paper Company has almost doubled its holdings in that section. The lands were purchased from the Tug Hill Lumber Company a week ago. While it is proposed to take some pulpwood from the newly acquired property, reforestation and maturing of trees will be carried on there mostly. The tract which figured in the deal is located about twenty miles from Glenfield, N.Y.

The Cost Association of the Pulp and Paper Industry has removed its headquarters from Fifth Avenue, New York to a new suite of offices on the sixth floor of 18 East Forty-first street, New York.

John L. Bagg, who heretofore has been associated with the Parsons Paper Company, was elected treasurer of the Miller's Falls Paper Company. An announcement to this effect was made by the directors of the company following a recent meeting at Miller's Falls. Mr. Bagg is to succeed the late Angus Cameron.

The coming report on paper to be purchased, by the Government Printing Office has just been completed by the committee on paper specifications and will be submitted to the Joint Congressional Committee on printing soon after the next Congress gets into session. The committee will recommend among other things that bids be asked for only one year instead of for yearly and half-yearly periods, but with the proviso that 20 per cent of contracts need not be filled if prices go up or down.

The Diem and Wing Paper Company of Cincinnati, O., recently opened additions to its quarters in New Orleans so as to have ample facilities to handle there a line of Warren Standard printing papers along with its other local business. The Diem and Wing people are now the distributors for the Warren papers at Cincinnati, Columbus, Louisville and New Orleans C. W. Graessle is the manager of the New Orleans division.

The plant of the Wasuc Mills, South Glastonbury, Conn., owned and operated by John W. Purtil and Son, was totally wrecked last week by a fire which brought out all the fire-fighting equipment of Glastonbury, East Hartford and neighboring towns. The factories were completely gutted despite the combined efforts of all the forces. As the elder Mr. Purtil is in Florida, it could not be ascertained whether the plant would be rebuilt.

Colin K. Urquhart, widely known to the trade both in the United States and Canada, died November 21, at his home in Brooklyn. Mr. Urquhart, a native Brooklynite and Cornell University graduate, was associated for years in various capacities with the Lockwood Trade Journal Company until his retirement from active business in 1914. He served at various times as editor of the **Paper Trade Journal, Lockwood's Directory** and the **Paper Mill.** Mr. Urquhart also had been associated with the **American Stationer.** Before entering the paper trade field, Mr. Urquart was intimately associated with the late Whitlaw Reid in the capacity of confidential secretary. Mr. Urquhart is survived by a widow and a son, Colin K., jr.

PULP AND PAPER NEWS

Paper shortage is given as the reason for the lack of High School text books, loose leaf note books and the junior class British histories in the Collegiate Insitutes and High Schools of Toronto, according to Hon. R. H. Grant, Minister of Education. The Minister stated that he had gone to Ottawa, and with the representatives of other provinces, tried to get the Government there to put an embargo on the fine paper used in these books, but this was refused.

The many friends of Mr. H. B. Donovan, sales manager of the Canada Paper Co., Ltd., will be pleased to know that he is progressing favorably at his home in Oakville, Ont., and that he is expected to be back at his office in Toronto by Christmas, for a time at least.

Mr. R. O. Hughes, of Hughes & Easson, paper jobbers of Auckland, New Zealand, called on the paper trade in Toronto during the past week.

Mr. I. H. Weldon and Mr. Fred. Duncan, President and Secretary-Treasurer respectively of the Provincial Paper Mils, Limited, Toronto, received a shaking up in a railway accident this week on the G. T. R., at West Toronto, while on their way to their mill at Georgetown. Fortunately neither gentleman was injured.

Mr. Ralph H. Booth, President of the Booth Paper Company, Detroit, was in Toronto and other Canadian centres this week, looking into the newsprint situation.

Mr. Wilfrid Southwood, publisher of The Era, a Windsor, Ont., weekly newspaper, has been granted a company charter covering the issue of a daily paper. The new daily will be published early in the new year and will be the third of three daily papers in Windsor in addition to the Detroit papers which have a large circulation on the Canadian side of the river.

Mr. N. L. Martin, Secretary of the Canadian Paper Trade Association, and Mr. I. H Weldon, President of the Provincial Paper Mills, Limited, have returned from a successful hunting trip to Hartley's Bay on the French River.

The George Shepard Printing Company, Limited, has been incorporated under the Ontario Companies Act to take over the business formerly run by George Shepard, 42 Colborne Street. Toronto. The capital stock is $40,000 and the provisional directors are George Shepard, M. W. Shepard, Perry A. Shepard and E. W. White.

A representative of the sales department of the George H. Mead Company, who was in Toronto this week, brought back the news that there were twenty-six cases of smallpox at Sturgeon Falls and that there was some anxiety at the mill of the Spanish River Pulp and Paper Mills, Ltd., as to what effect the outbreak would have upon the operations at the company's mill.

Mr. George Webster, of the operating department of the Laurentide Company, was in Toronto this week watching some of the Laurentide paper go through some new presses installed at the Toronto Globe office.

Mr. J. G. Sutherland, President of the Port Arthur Pulp and Paper Company, Limited, visited the head office of the company in Toronto this week.

The current issue of the Ontario Gazette contains the announcement of the incorporation of the Cornwall Pulp and Paper Company, Limited, with a capital stock of $200,000. The new concern is a close corporation of Buffalo men, largely, and in the company will figure several men prominent in American pulp and paper circles. The President and General Manager is Mr. J. B. O'Brien, who also holds a similar position with the Niagara Wall Board Company, and the treasurer is Mr. C. C. Hullinger who is also connected with the Niagara Wall Board Company and the Maine Pulp and Paper Company. Other directors are Mr. P. C. Deevle, of Toronto, President of the L. R. Steel Service Corporation, Limited; Lewis H. Manley, a director of the Davenport Coal Company, of Buffalo, and Fred. Dobmeier, a Buffalo attorney. The invested capital has all been subscribed in Buffalo and New York. The company has leased a building at Cornwall, with an option to buy, and will manufacture groundwood pulp, while ultimately the enterprise will expand into a paper mill. The capacity will be forty tons of groundwood pulp daily, five grinding machines having been already delivered, and manufacturing operations will begin at the first of the new year. Two rossers for rough wood will be installed and it is planned to use peeled wood as the enterprise develops.

The Canada Box Board Company, Limited, with mills at Frankford, Montreal and Campbellford, has changed its name to the Canada Paper Board Co., Limited, with Mr. David F. Robertson as general manager.

Mr. M. J. Hutchinson, formerly manager of the Ed-Monton Bulletin, has been appointed manager of the Canadian National Newspaper Association, an organization of trade and class papers, in succession to Mr. Earl Wilson, and will take up his duties in the Toronto office on Adelaide Street, about Dec. 1st. Mr. Hutchinson, who is a Peterborough boy, was at one time on the staff of the Hugh C. Maclean Company and also the Acton Publishing Company, Toronto.

Mr. William Wallace, who in 1918 was appointed private secretary to Hon. N. W. Rowell, K.C., has been appointed manager of the Canadian Daily Newspaper Association, in succession to Mr. John Imrie. Mr. Wallace was a former member of the Toronto Star staff. He served in France with the 75th Battalion and won an M. C.

Mr. E. A. Crippin, paper jobber, Spadina Avenue, Toronto, has been appointed Canadian representative of the Grammen Paper Mills Company, of Norway, manufacturers of grease-proof and copying tissues.

The Mill Relations Committee of the Canadian Paper Trade Association has arranged with the various mills manufacturing book papers, manila, writings, covers, posters, tag manilas and bristols for a scale of discounts as follows: A base price to jobbers and carload buyers; a one-ton price, being 10 per cent advance on the base price; a 500-pound price, being 20 per cent advance on the base price; less than 500-pound lots, being 25 per cent on the base price. All of these lots to be sold on the basis f. o. b. mills.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Nov. 27.—A mill representative in close touch with the newsprint situation, who was in Toronto this week, estimated the lessened production in the Canadian mills, during the last couple of months, at about 9,000 tons, and the statement was made that November would show even a larger falling off, owing to the shortage of power caused by low water. Some of the mills were forced to close down for a time during the month and others, although hard hit, were greatly hampered in their production. As an off-set to the lessened production, although not affecting present conditions, it is pointed out that although paper stocks have been declining on the market active construction operations are proceeding on various paper mill enterprises in Canada. The Kaministiquia Pulp & Paper Co., at the head of Lake Superior, is pushing its work and will likely be in operation by the middle of December with an output of twenty five to thirty tons of ground wood per day, which will be shipped to the United States. A newsprint mill will eventually be added. Constructive work is also well advanced on the mill of the Port Arthur Pulp and Paper Company, and although building operations have been hampered by lack of carpenters, it is expected that the early spring will see the mill in operation. As will be noted, too, in our news notes, a new ground wood pulp mill is about to be established at Cornwall, in addition to the Howard Smith proposition, and this will ultimately develop into a paper mill as well.

In regard to the recent heavy decline of many pulp and paper stocks in the market, it is pointed out that the losses were in the speculative stocks and all the companies were affected by the change, and after all, the biggest decline might, from speculative reasons, have taken place in the case of companies which were most firmly established and whose earning powers were the highest. It is stated that Canadian paper companies would have an advantage for some time to come because of the low cost of production through proximity to raw materials, while at the same time having the advantage of the price being fixed in the United States market where production costs are higher. When the production here surpasses the production across the line the price will be fixed in Canada. In the meantime it is interesting to note that the International Paper Company has fixed its price for the first quarter of the coming year at six and a half cents, which is the same as during the past three months, but nothing has yet been decided as to what the Canadian mill will charge for the same period. Quite a number of grinders have been closed down lately in Canada owing to low water and the ground wood shortage is very marked.

WRAPPING PAPERS.—Although there is a distinct dullness in the wrapping trade paper, prices are holding firm and it is generally believed that the prevailing lull in business is of a temporary character. Consumers are still holding off buying, hoping for a drop in values but the jobbers say that by the first of the year they will have to come into the market again. No large stocks are being held either by the jobber or the consumers. Several of the jobbers reported this week that they had about one month's supply of wrapping on hand and that they were not experiencing the old difficulty of getting sufficient stock to carry on with. There are now practically no unfilled back orders at the mills, it is stated. All the arrearages have been overtaken and although the new orders are fairly liberal the mills have reached the stage when they are looking out for business. The same conditions apply to the paper bag business. The stores are not stocking up and it is not likely they will until business conditions are better than they are at present or unless there should be a drop in the paper market.

BOOK PAPERS.—Book papers continue to stand in a class by themselves in respect to shortage and demand and so far the mills have been unable to keep up with the requirements of the jobbers and consumers. It is stated that some Old Country book paper is on the way and one shipment has already arrived in Toronto. The price laid down here, however, is too high to permit of any very serious competition being established in this quarter.

TISSUES AND TOILETS.—Prices fixed on September 22nd last remain unchanged and it is likely that no alteration in the price schedule will take place until raw stock becomes easier. High prices for pulp still prevail and the mills are holding off in their buying due to the high rates they have to pay for the raw material and the lessened demand for their product. Smaller orders continue to characterize the trade and very few big contracts are being made, but a fairly satisfactory volume of business is being done and the smaller orders are mounting up. While the toilet and tissue mills have to pay long prices for their raw stock there is no difficulty in getting it, but like the jobbers and consumers, they, too, have visions of a falling pulp market and are buying nothing except what is absolutely required for immediate use.

BOX BOARD.—Stocks of all board lines have been greatly depleted during the past few weeks owing to lessened buying and mill representatives report that while there has been a distinct falling off in demand, a fairly good business is being done in small orders and the trade is optimistic. It is anticipated that by the first of the new year buying will have resumed its usual activity.

RAG AND PAPER STOCKS.—Prices on new cotton cuttings shaded off slightly during the week, when mills practically stopped buying. Only the continued scarcity of material keeps prices at their present level. Old rag prices are purely nominal as most of the larger dealers have withdrawn from the market and will only buy against firm orders from consumers. Business among the smaller dealers is at a standstill and the outlook for the winter is reported as very blue. The waste paper business has vanished into thin air. With the exception of hard and soft shavings, no business of



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INQUIRIES SOLICITED.

any volume has been booked for the past two weeks. Mills that formerly ordered in one hundred to five hundred ton lots have now either stopped buying altogether or are buying one or two cars at a time to tide them over. Prices quoted are only approximate and represent dealers' values only. All quotations given by packers and mills are subject to change without notice, in fact the real price at which stock is saleable today is so low that even were the dealers to get the paper for nothing, the labor in packing, grading and handling would eat up all the profits. The feeling of optimism that characterized the trade a few short weeks ago has now given way to a feeling that "the worst is yet to come". It would appear, however, that any firm buying on the part of the mills would send the price up as the visible supplies in the dealers' warehouses are practically negligible.

Following are quotations on rag and paper stock:

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$21.00—$22.00
No. 1 unbleached cotton cuttings	$16.50—$17.00
No. 1 fancy shirt cuttings	$11.50—$12.00
No. 1 blue overall cuttings	$11.00—$11.50
Bleached shoe clip	$15.50—$16.00
White cotton hosiery cuttings	$16.00—$16.50
Light colored hosiery cuttings	$12.50—$13.00
New light flanellette cuttings	$14.50—$15.00
No. 2 white shirt cuttings	$12.00—$12.50
City thirds and blues (repacked)	$ 2.25—$ 2.50
Flocks and satinettes	$ 1.00—$ 1.20
Tailor rags	$ 0.90—$ 1.00
Gunny bagging	$ 1.25—$ 1.50
Manila rope	$ 5.00—$ 5.25
No. 1 white envelope cuttings	$ 8.00—$ 8.50
No. 1 soft white shavings	$ 7.50—$ 7.75
White blanks	$ 4.50—$ 5.00
Heavy ledger stock	$ 3.75—$ 4.00
No. 1 magazine	$ 2.00—$ 2.25
No. 1 book stock	$ 2.00—$ 2.10
No. 1 manila cuttings	$ 4.50—$ 4.75
No. 1 print manila	$ 1.75—$ 1.85
Folded news	$ 1.40—$ 1.50
Over issue, news	$ 2.50—$ 2.60
Kraft	$ 4.75—$ 2.00
No. 1 clean and mixed papers	$ 0.80—$ 0.90

Edmonton, Alberta, Nov. 27.—Drillers operating under the direction of the provincial government have struck a large field of pure salt at Fort McMurray, it was announced today. They have bored through thirty feet of the mineral at a depth of 650 feet, it was said.

CHEMICAL QUOTATIONS.

New York Prices.

		Car lots	Less car lots.
Acetic Acid, 28 percent	100 lbs.	3.50 - 3.75	4.00 - 4.50
Hydrochloric Acid (nominal)	100 lbs.	1.85 - 2.25	2.75 - 3.00
Sulphuric Acid 66 deg., drums	Ton	21.00 -22.00	22.50 -23.00
Aluminum Sulphate, commercial	lb.	.03¼ - .03¾	.04 - .04⅓
Aluminum Sulphate, iron free	lb.	.04 - .04½	.04 - .05½
Barium sulphate (precip.) (blanc fixe)	lb.	.04½ - .05	.05½ - .06
Bleaching powder (calcium hypochlorite)	lb.	.05½ - .05¾	.06¼ - .06¾
Chlorine, gas, liquid-cylinders (100 lb)	lb.	.09 - .09½	.10 - 10½
Litharge	lb.	.12 - .12¼	.13 - .13½
Methanol, 95 p. c. (wood alcohol)	gal.	... -	1.85 1 1.90
Potassium prussiate, yellow	lb.	.73 - .75	.78 - .80
Salt cake	ton	... -	52.00 -55.00
Soda ash, light	100 lbs.	2.05 - 2.10	2.20 - 2.40
Sodium hydroxide (caustic soda)	100 lbs.	4.00 - 4.10	4.30 - 4.50
Sodium hyposulphite	lb.	... - ...	.04 - .04½
Sulphur, crude	ton	16.00 -20.00	.... - .....

NEW YORK MARKETS.

New York, November 27—(Special Correspondence)—What is considered one of the most important developments in the paper trade in some time is the announcement by the International Paper Company from its main offices in New York that its price on newsprint to contract customers during the first quarter of next year will be on the basis of 6.50 cents per pound f.o.b. mills for newsprint in standard rolls in carload lots or more. This is the same price prevailing for the final quarter of 1920. There have been numerous rumors, going the rounds of the trade in recent weeks relative to the contract price to be fixed by the I. P. for 1921. Some have alleged that the price would be advanced, 7 cents having been the figure commonly named, while others have inferred that the contract basis would be lowered. The announcement issued this week puts to rest all of the varied rumors, and, moreover, would seem to support those members of the paper trade who have contended that contract prices on all kinds of paper are most likely to undergo scant change during the course of the next few months.

With market conditions as now exist, the main-

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Magenta Powder.
Bismarck Brown R. conc.
Safranine B.S.
Safranine R.F.F.
Methylene Violet 2R. conc.
Methylene Violet 2B. conc.
Malachite Green Crystals.
Methylene Blue B.B. conc.
Methylene Blue 1814.

SUBSTANTIVE COLOURS

Paramine Fast Pink B.
Paramine Sky Blue F.F.
Paramine Blue 2B.
Paramine Black B.H.
Paramine Yellow R.
Paramine Brown G. conc.
Paramine Brown M.
Paramine Fast Bordeaux B.
Paramine Green G.
Paramine Violet N.
Paraphenine Yellow G.
Diazamine Fast Yellow H.
Rosophenine 10B.
Benzopurpurine 4B.

Paper Black 3181

ACID COLOURS

Orange II.
Orange IV.
Naphthol Blue Black 10B.
Acid Prune V.
Brilliant Bordeaux B.
Ponceau G. conc.
Ponceau 4R conc.
Croceine Scarlet 5R.
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tenance of the contract basis on newsprint by the largest producing company in the country carries greater weight and importance than is probably noted on the surface. With newspaper publishers all over the States holding off in buying paper for the admitted reason that they expect prices to decline, the fixing of a price to contract customers over the first quarter of next year at the same level now obtaining should have the result of reviving confidence among paper consumers in the stability of prices and cause them to resume buying on something approaching a normal scale. Whether this will come about is at present problematical, but members of the local paper trade take a decidedly more optimistic view of matters than they did before knowing what the I. P. contract basis next year is to be. A consensus of opinion also is that the International made a wise move in fixing the price that it has, it being commonly felt that the present would be an inopportune time to advance prices, when the general trend of prices on nearly all commodities is toward lower levels, and that the maintenance of prices on an unchanged basis should be creative of an improved sentiment among paper consumers. President P. T. Dodge, of the I P., announced some time ago that contract customers of his company would be allocated but 80 per cent. of the tonnage of newsprint next year that they have secured from his mills in 1920, the reason for this reduction in tonnage being that the International has acquired so many new customers in recent months that in order that all can be supplied tonnage commitments must necessarily be decreased.

Spot prices on newsprint in rolls have gradually worked down to where they are hovering around 7-cents per pound at mill, with occasionally a sale reported at an eighth of a cent under this figure, but quotations appear steady at this basis and it would seem that there is small likelihood of the recession in spot values continuing because there is now only a matter of half a cent per pound between contract and open market prices. Publishers, if they have any comprehension at all, should quickly see that newsprint prices have about touched bottom, and there seems little question that when this sinks well into the craniums of buyers, demand for print paper should broaden to a considerable extent in view of the fact that the average publisher of daily newspapers in this country is confining his consumption of newsprint within a limit where he is omitting quite a lot of advertising. In other words, there is a tremendous unfilled demand for print paper that is pent up by the determination of publishers not to buy in the open market until satisfied prices have struck bottom, and with every indication pointing to the minimum level having been reached for at least a period of four or five months, buying should be resumed in more normal fashion.

There are few important changes otherwise in the paper market. Spot values continue on the downslide under a lack of business activity, but contract prices are maintained. There is very little demand for any kind of paper from transient buyers, and the trade is suffering from the same dull conditions affecting practically all commodity lines. Spot prices are quite irregular and extremely difficult to determine. It all depends on how badly the buyer is in need of paper or on how urgently the manufacturer or dealer wants business. Consumers with cash in hand can acquire most grades of paper in sizable amounts at about any prices they offer in some quarters, which means that certain paper concerns, principally jobbers, are feeling the tight money conditions to such a degree that they are being obliged to liquidate stocks for whatever they can realize.

Boards have steadied at a quotable basis of about $60 per ton f.o.b. mills for plain chip and $70 for filled news board. Demand has not expanded to any worthwhile extent but there is a better undercurrent in the market, due in the main to curtailment of output by manufacturers, who evidently have decided to pursue a waiting policy until business conditions in general, and more especially in their own line, have improved.

GROUND WOOD.—An easy tone still characterizes ground wood prices although quotations are close to the same levels named a week ago. Domestic ground wood of prime quality for prompt delivery is quoted at around $100 per ton at grinding mills, with the probabilities favoring some consumers being able to buy at $5 a ton less, while imported pulp is available at $85 to $90 ex the dock. There is only a slight demand coming from consuming quarters, yet everyone on the selling end of the trade is more or less bullish regarding the outlook and profess to believe prices will recover some of their losses during recent weeks before the winter is over. Much emphasis is put on the light stocks at both grinding plants and consuming points and it is felt that this factor alone will bring about enhancement of values if demand attains more normal proportions.

CHEMICAL PULP—There is very little stirring in the chemical wood pulp trade. Papermakers are doing as little buying as current requirements will permit and are limiting orders almost entirely to small tonnages needed for immediate use. Prices are marked by an easy tone, as would be expected under the circumstances, yet there have been no sharp declines in prices and producers in a majority of cases are naming comparatively firm figures. Studying conditions closely, it appears that some supply of foreign pulp is coming into this country on consignment and this pulp is being offered at price concessions, but signs point to domestic manufacturers having but little production to dispose of to other than contract consumers, which serves to preclude any notable selling pressure on domestic pulps. Quotations on spot shipments of domestic bleached sulphite range from 11 cents a pound at pulp mills upward, on domestic easy bleaching sulphite at between 8 and 8.50 cents, on news grade sulphite at 7 to 7.50 cents and on domestic kraft pulp at 5.75 to 6 cents. Foreign bleached sulphite is quoted at 12.50 to 13 cents ex dock, foreign easy bleaching at 9 to 9.50 cents, foreign unbleached sulphite at 8.50 to 9 cents, and foreign kraft at 6.25 to 6.50 cents.

Imports of foreign pulp at the port of New York this week included 5,639 bales from Rotterdam and 351 bales from Vancouver.

RAGS.—Current demand for papermaking rags can be described as virtually nil. Of course there is some little business passing off and on, but there is no concerted movement of any grade of rags, paper mills claiming to be in less need of rag stock than ordinarily and that they have sufficient rags on hand to supply present requirements. Prices are at best nominal. Dealers ask one price and then when given an opportunity to make a sale readily cut prices to the level demanded by consumers. Even new cuttings, which have held relatively firm for a long time, are easing off in value, and white shirt cuttings of No. 1 quality are to be had at 22.50 to 23 cents per pound at shipping

points, new unbleached muslins at 17.50 cents, new lawns at 20 cents, new blue overall cuttings at 11.50 cents and new No. 1 washables at 10.50 cents. Old whites are off slightly at around 10.50 cents for No. 1 repacked and 5.50 cents for No. 2 repacked, while reports allege that repacked thirds and blues have been bought by mills at 3 cents at shipping points. Roofing rags are quoted at a basis of about 1.10 cents per pound for No. 1 packing.

PAPER STOCK.—Trying conditions continue to prevail in the paper stock market. Consuming mills are not in want of much supply and packers are provided with a narrow outlet for their production, with the result prices are weak and steadily moving to lower levels. Quotations to mills on a f.o.b. shipping point basis are about as follows: No. 1 soft white shavings, 7 to 7.25 cents; No. 1 heard white shavings, 8 to 8.25 cents; ledger stock, 3.25 to 3.50 cents; white news cuttings, 4 to 4.25 cent; old No. 1 kraft, 3.85 to 4 cents; heavy magazines, 1.65 to 1.80 cents; folded news, 85 to 90 cents per hundred pounds, and No. 1 mixed papers, 45 to 50 cents per hundred.

OLD ROPE AND BAGGING.—Both old rope and old bagging are in an inactive state and prices are moving downward. No. 1 manila rope is quoted at about 5 cents per pound at shipping points, and No. 1 scrap bagging at 2 cents. Old mixed strings are available at 2.25 cents and No. 1 gunny bagging at 2.50 cents.

NON-UNION.

While an Irishman was gazing in the window of a Toronto book store, the following sign caught his eye: "Dicken's works all this week for only $4."

"The divil he does," exclaimed Pat in disgust. "The dirty scab."

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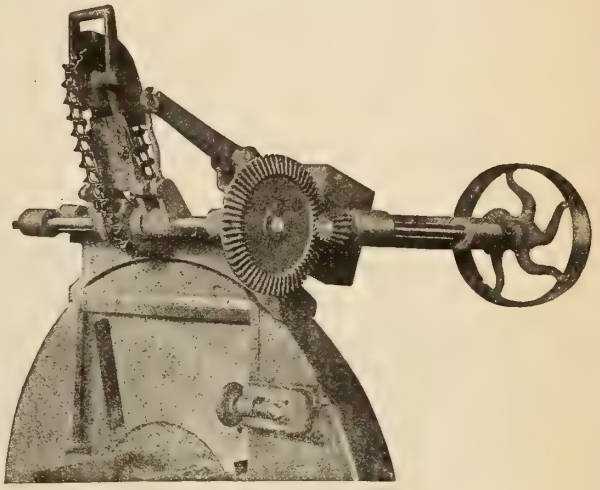
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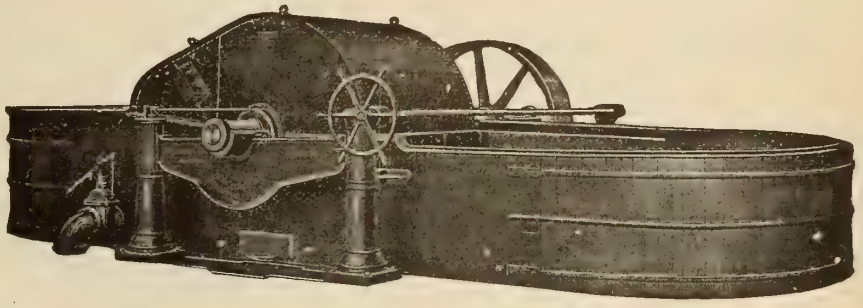
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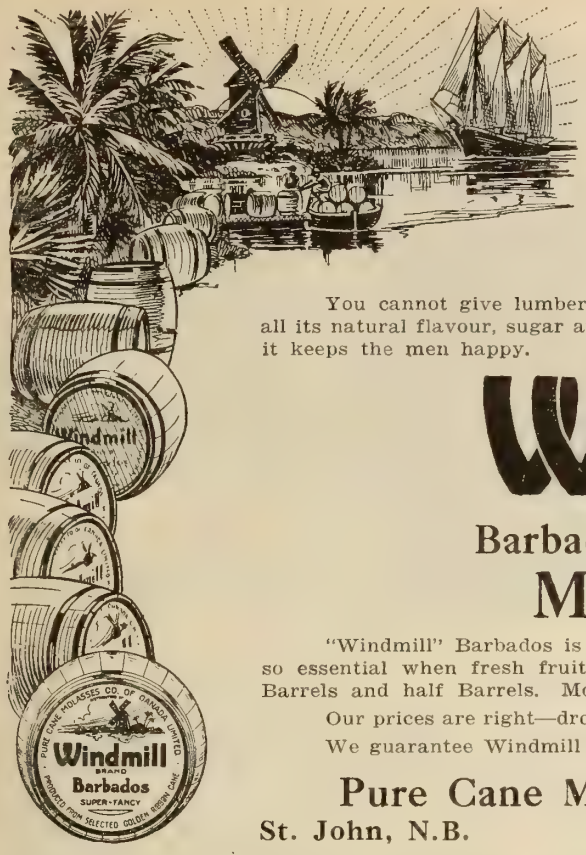
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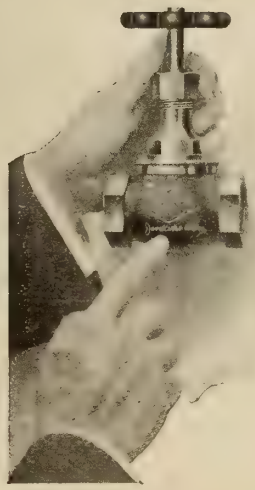
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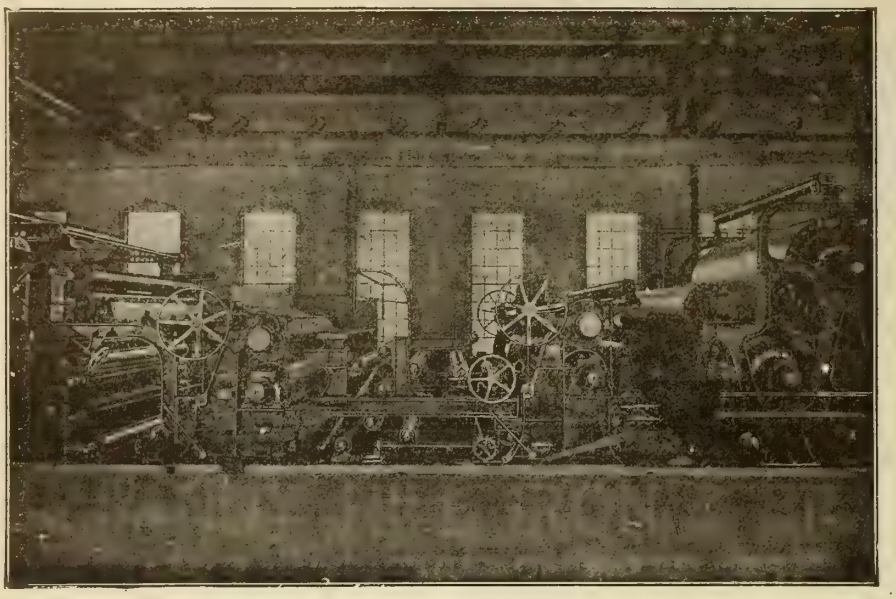
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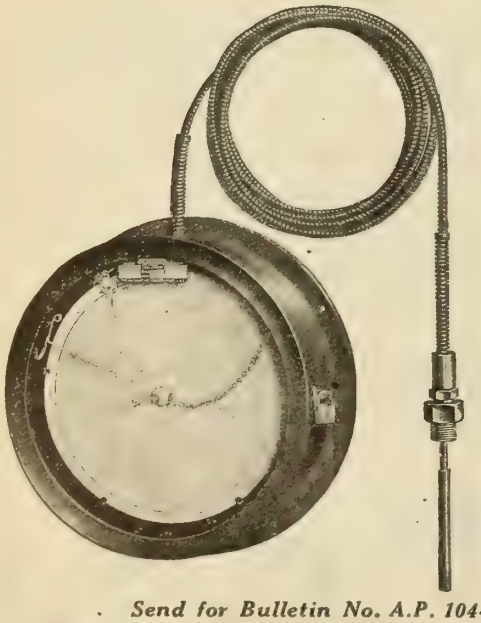
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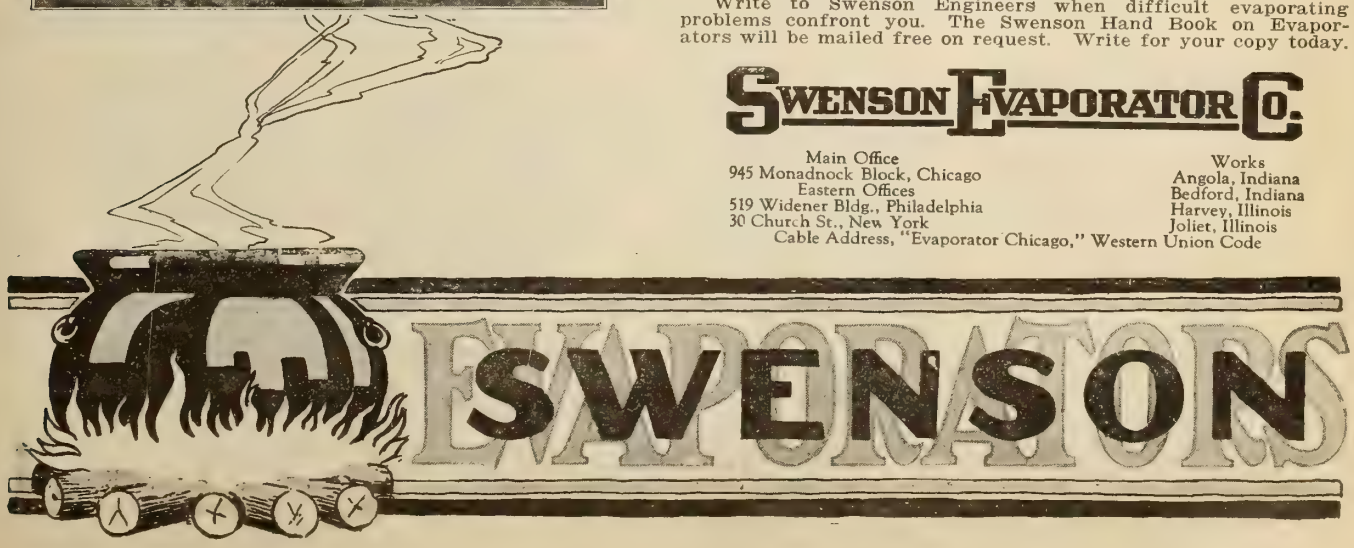
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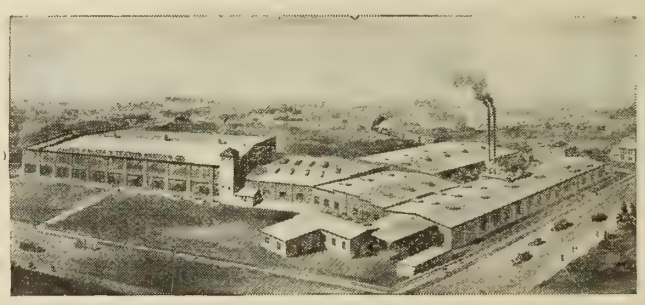
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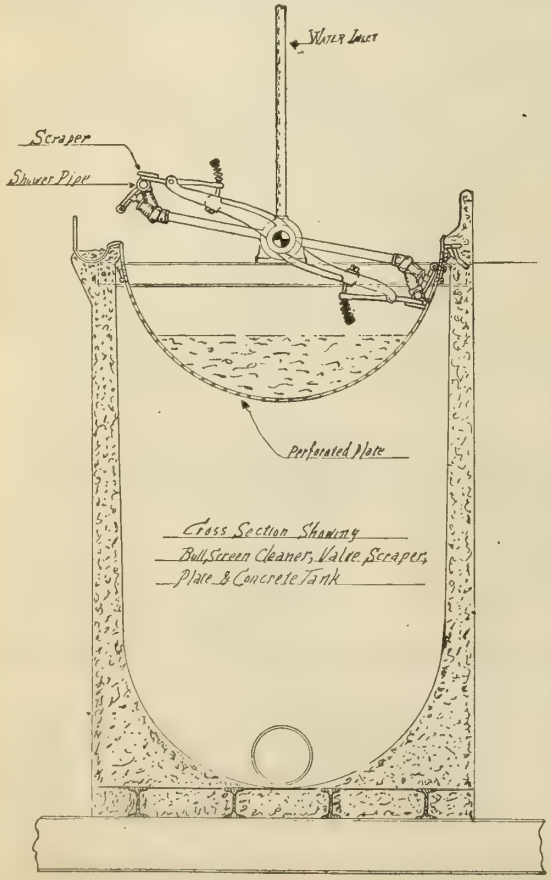
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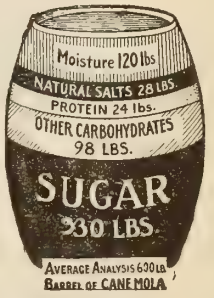
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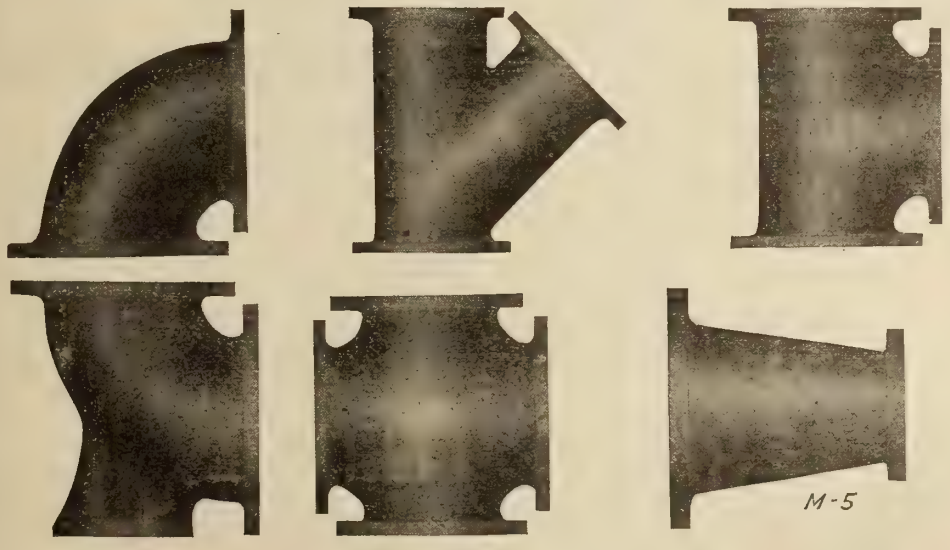


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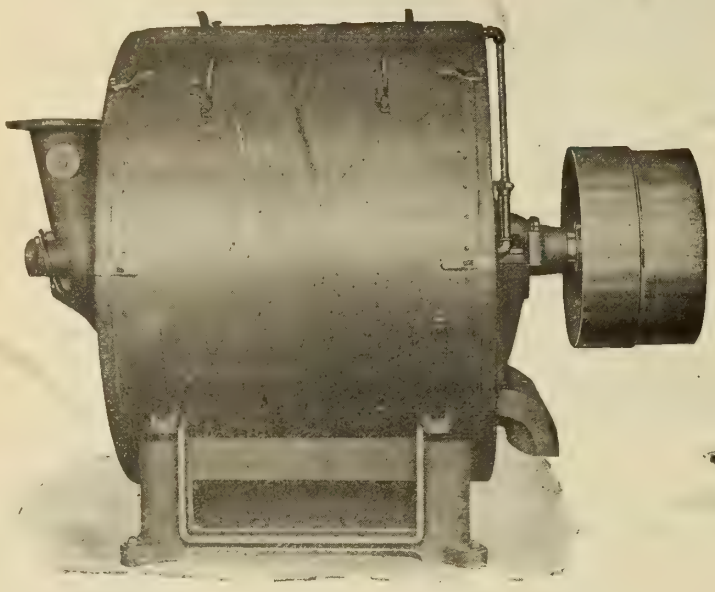
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BENIAH BOWMAN,
Minister of Lands and Forests.

Toronto, 1920.

N.B.—No unauthorized publication of this notice will be paid for.

Pulp and Paper Magazine

OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. **GARDENVALE, P. Que., December 9, 1920.** **No. 50**

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EDITORIAL

A BOOMERANG.

A prominent newspaper publisher of Toronto recently addressed a Montreal gathering and his remarks on the subject of Government control of the price of newsprint costs of production ran from $50 to $60 action of the publishers of Canada in demanding such regulation has turned out to be a boomerang, the effect of which is just now beginning to be most seriously felt. It will be recollected that at a time when newsprint costs of production ran from $50 to $60 per ton, a ruling was made at Ottawa at the instance of the newspaper publishers of Canada, without proof by them that such ruling was really necessary, which required the mills to sell their product for $50 per ton. This was, for some mills, less than manufacturing cost, for all mills it represented a loss of the difference between the Government fixed price for domestic and the sales price obtainable elsewhere. The speaker referred to admitted that there was an actual saving to publishers at the time of thousands of dollars and at that time the immediate relief thus furnished seemed the most desirable of events. The public, and especially the advertising public, was of course quite well aware that the paper manufacturers were bearing a large proportion of what should have been legitimate publishing expense and they too, benefited by the condition which made it impossible and certainly inadvisable for publishers to raise advertising rates. It must be remembered that this took place at a time when all other commodities were rising in price and the same Government which set a *maximum* price on newsprint which was in some cases actually below cost of manufacture, also set a *minimum* price on wheat which was in excess of any price for this commodity within our recollection.

The publishers, therefore, lost the opportunity at the psychological moment for increasing the rates from their principal source of revenue, an increase which could legitimately have been made at a time when practically all costs were mounting. Having thus begun gradually to increase rates in harmony with increasing costs, assuming that newsprint had not been tampered with, their revenue would have reached a level where the effect of the increase would have been of benefit for the whole period of price inflation and they would have been in a position where they could decrease their rates without great loss and in harmony with declines in costs that must become general and even now are becoming evident in most lines. Instead of having been able to follow this economically sound and recognised procedure, many publishers are now finding themselves with a stock of high priced paper and faced with the necessity of contracting supplies at prices which, because of persistently high cost of manufacture and abnormal demand, still show no immediate signs of recession, and they cannot therefor concede decreases in advertising rates without incurring considerable loss. This loss should already have been provided for and largely absorbed by the initial increases at the logical moment.

We have thus paraphrased the digest that was given us of the publisher's remarks. He is to be commended for his frank expression of what has actually been the result of meddling with the law of supply and demand. There are doubtless many others who have come to the same conclusion but who are not courageous enough to admit it. It is practically impossible that any such situation should again arise as was experienced during the great war. The relations between mills and newspapers are again quite harmonious and there is not much inclination to harbor any ill feeling for what has passed. The price for newsprint is still high and is likely to remain high as long as the demand is greater than the supply. This condition has not improved of late and the effects of recent low water levels and the usual decrease in production due to the coming of winter, will not improve matters. The tendency lately has been for the consumer to meet the situation by using less paper and getting out smaller issues. That has been the practice for many months in England and a leaf from their note book might help out considerably on this side. With naturally decreased production and the difficulties of transportation in the winter time, the going will not be any too smooth for the next three or four months.

The Toronto World must have seen our comment on the proposition for a government pulp mill. It takes the idea of prison labor and suggests a model criminal community in the form of a pulp mill, including woods operations, where prisoners will be employed at real wages. The same kind of scheme has been proposed in the United States but never worked out. As a method of re-establishing a criminal's self-respect, there is much to commend it; as a means of supplying The World with cheap paper in competition with the enterprise of honest, law-abiding citizens there is everything to condemn it.

MILL MEN AND TECHNICAL MEN.

The announcement just received from the Secretary of the Canadian Pulp & Paper Association, that the manager of one of Canada's largest newsprint mills has joined the Technical Section, suggested a few comments on the desirability of mill men becoming members of this branch of the Association. For those whose education has been rather along the lines of academic subjects, or practical experience in the administration of the business, the Technical Section provides an opportunity for joining as associate members. The privileges of membership are the same, though the opportunities for service are somewhat different, the full member having been trained in such a way that he is expected to serve the industry best by conducting investigations, developing technical control, establishing scientific methods, and in other ways applying his special educational training to the improvement of the processes of pulp and paper manufacture. The associate member, on the other hand, whether he be a practical mill man or one who is especially concerned with administrative affairs, could render service in a capacity peculiar to his position and training. He could support and encourage the work of the technical man and make it easier to translate the suggestions and discoveries of the active member into practical helpfulness in the operation of the mill.

It is distinctly worth while for the man who is qualified to join the Technical Section as an associate member to do so. It gives him a feeling of fellowship with the technical men from whom he expects to get considerable help in improving the operation of his mill. The feeling of belonging to the same family is conducive to more harmonious relations between the technical men and the so-called mill men. Both classes are essential to the development of the industry and to the economic success of the individual plant. The mill whose manager has just joined the Technical Section has made a marked success in introducing technical control and has achieved a wonderful result in getting the co-operation of the men in the mill and the men in the laboratory. The personality and the efforts of this manager are largely responsible for the result and a similar success is possible in other mills. The personality of the technical staff is also an important factor; a little humility along with much enthusiasm and good nature helps a lot. There is a good supply of such qualities in our mills, so it is not surprising to see Canadians making progress along these lines.

We feel that the representation of the whole industry as far as possible in the Technical Section, will be most helpful to the success of the pulp and paper mills in Canada. No one need feel embarrassed at the meetings of the section. The technical man naturally talks of concentration, retention, horse power, specific gravity, etc. These terms should not be a foreign language to anyone in the industry; and they won't be, when more mill men take advantage of such opportunities as are available in night schools, extension classes and correspondence courses.

INTERNATIONAL DID NOT RAISE ITS PRICE.

In our editorial comment in the Pulp and Paper Magazine for November 25th reference was made to the price to be charged by the International Paper Company for the first quarter of 1921. Advice of its decision to charge 6½c. came just as we were going to press and in formulating the paragraph referred to we had in mind that 6 cents was being charged by some companies for current shipments during the fourth quarter of 1920. No change is made as will be seen from the prices for the current year, viz.: 4½, 5, 5¾ and 6½ cents, respectively, for the 1st, 2nd, 3rd and and 4th quarters. We regret very much that this editorial has inadvertently placed the International in the position of having raised its price instead of clearly commending its action as should have been done for its moderation in not charging more than current rates. Not only has the International refrained from increasing its price of newsprint, but has actually absorbed some increased items of manufacturing cost rather than pass them off on the customer.

COBWEBS.

Some people have great imagination and imagination properly employed is a most helpful thing. It is a strange flight of fancy, however, that will make a supposedly intelligent man assert that the price of newsprint in Canada is bolstered up by the effect of the tariff. A moment's consideration will show that newsprint is being sold at an equal, if not an actually lower average price, and we believe in no case a higher price, in Canada than the same manufacturers obtain for their product in other countries. Furthermore, tariff or no tariff, newsprint cannot be bought in any other country and sold in a Canadian market as cheaply as Canadian publishers could buy it from their fellow citizens, and finally, the Canadian paper manufacturer has sufficient patriotism and pride to see that no fault of his will require Canadian publishers to use other than Canadian newsprint, a remark which also well applies to other lines of paper manufacturing.

Sir Lomer Gouin, for many years Quebec's political leader, who is closely connected with our industry as a director of the Laurentide Company, has just been elected to the board of directors of the Bank of Montreal. Sir Lomer has given up his editorial connection with La Presse.

Let's go to Iroquois Falls for Christmas. Every house-holder is to receive a turkey.

Mechanical Logging and Practical Reforestation*

By ELLWOOD WILSON, Chief Forester, Laurentide Company, Grand'Mere, Quebec.

Mr. Chairman and Gentlemen: The question that I am supposed to speak about today is so big that it is very hard to know what to say and what to leave out,

A very interesting fundamental proposition comes up and that is the conflict between the so-called practical man and the theoretical man. Now there are two differences which distinguish these classes of men. In one case you have a man who has gotten everything that he knows by experience. In the other case you have a man who has had put into his head all the experience that it is possible to have obtained on the subject in a general way.

It depends very greatly on the personality of these two classes of men just how they function, but other things being equal, the theoretical man can obtain rapidly the experience which the practical man already has, and not only that, when he is face to face with new circumstances, he is able to replace himself and utilize his knowledge better than the practical man.

The so-called practical man, when he faces a new set of conditions which are not covered by his experience, very often in attempting to utilize his experience falls down on the problem placed before him.

Fundamentally, there is not the difference between these two classes of men that we are often led to believe; they are much closer together than you would gather from many discussions which we have heard, but in discussing this whole question of the future development of logging operations, I want to say a little bit about the fundamental principles. In my experience the only way to tackle any problem is to get rid of all the non-essential features and get right down to bedrock, get right down to the essentials of the problem and then you are able to discuss it intelligently and in a way which is much more practical and much better than you could do otherwise.

This whole question of the improvement of logging operations is more or less a psychological question, that is, it is a question of men's minds and men's way of thinking about things rather than any practical question of method or operations.

For instance, the men who have been operating in the woods in the past are men who have, to a great extent, grown up in the woods and they have been more or less supposed to have some sort of occult faculty, some sort of super sense which particularly fitted them for the work in the woods. In my experience, that has not proved to be true, and the time has come when the operations in the woods must be placed on the same basis as operations in the mill. Nobody would think today of running a big paper mill without trained chemists, without trained engineers, without trained cost accountants, etc., but up to this time we have not had this class of men in the woods. We are only just beginning to realize that logging, after all, is a branch of engineering, that it requires a certain amount of technical education, a certain amount of technical training without which nobody today can be a successful logging operator. We have got to realize that fact, and with all due honor to the men who have blazed the trail in the past, who have gotten out our logs and who have kept our mills supplied with raw material, the day has come when we must change our methods and get more men with technical training in the woods.

In the past the question has been to get out raw material at the lowest cost possible, regardless of anything else. The managers of the mills have said: "We want so many thousands cords of wood a year," and if logging costs went up the least little bit, there was immediately a holler and the man responsible for getting the material, the timber, out of the woods and into the mill was hauled over the coals if his costs were a little more than in the past. Conditions under which labor has worked in the woods have been very difficult and we have come to realize today that the men who work in the woods must have the same comforts and the same decent living conditions that the men who work in the mill have.

We have come to face a good many difficult problems and in the solving of these problems, we want the very best trained minds that we can get, but we have to do away with old-fashioned ideas, with old superstitions and with old fetishes; we have got to face these problems in the same way that we have faced engineering and operating problems in our mills.

The increased cost of labor, the increased cost of material and the increased cost of equipment of all kinds require that we must pare the cost of our operations down just as much as we possibly can. There is only one way to approach these problems and that is a thorough, practical one; it is on the basis of experimentation. I have always believed that the only way to find out whether a thing was right or wrong—using those words in the sense of whether it is best or not—is to try it out and if the average business man would spend as much time in trying new methods as he spends in trying to think up objections to new methods, we would be a great deal farther ahead.

It is surprising to me, very often, how men who stand high in their industries, who have had long experiences, when approached by a new idea very often immediately, without any particular knowledge or without any particular thought, begin to think up reasons why that particular idea cannot be put into practice. I have been accused personally of putting forward a great many crazy ideas, but I can say perfectly frankly that I have never put forward an idea yet which has not been carried through, and I think that any man who gets a new idea and will study the thing out carefully and examine his idea and himself thoroughly and then begin to talk about it, can very often put it across.

In our woods operations, as I say, we are faced with rising costs all along the line and we have made absolutely no progress so far as I know, since we first began logging in the old days. We are using the same methods of hauling and almost the same methods of

*Address to Woodlands Section American Pulp and Paper Association, Chicago, 12th November.

cutting. We have to some extent, of course, substituted the saw for the axe. There has been some effort in the East to use tractors in logging. Of course we have to leave out of this discussion the large timber operations in the west in which machinery of all sorts has been used and where they are coming more and more to do away with hand labor. The large size of their timber and the difficulties of getting it out makes such things imperative.

In previous years our labor costs have been so low that we have been able to use man power and horses to a very large extent, but the day of that practice is almost past and what we need now in our woods' operations is men who will think out new mechanical methods for getting out the small amount of timber per acre which stands in our Eastern forests and men who will develop these methods and put them into practical use so that we can cut down the expense of our logging operations.

Another thing which has come up today which is of the utmost importance is the question of the continued yield of our forest lands. In the language of a forester, we have got to come to a basis of sustained yield. We are not going to be able any longer to mine the timber from our forests as we have mined our coal and metals and oil. The forest is not, and never was, intended to be mined; it is a growing crop and it must be handled on entirely different lines than our mining operations.

In order to do this and do it practically, there have got to be some laws in logging enforced so that the forest after logging will be left in a condition where it can continue to produce trees. The time has gone by when we can go into the forest and cut down trees here and there and everywhere, burn up the forest by carelessness; somebody carelessly dropping a match, and sweeping away all our chances of future crop. We have got to leave the forest in a condition to give us another crop and not only another crop but a crop in the very shortest possible time.

In order to do this, we have got to adopt some selective system of cutting. This, of course, will naturally raise the cost of our timber, but only temporarily, mind you. Once this system is established, the cost of logging instead of rising constantly as it does at the present time, will more or less average itself out over a series of years. To make this clear by an example, take a new tract of territory and follow out its history, especially as we have logged in Eastern Canada. Going into a new tract, logging operation would commence on a river or on a lake and all of the timber which could be gotten out easily and cheaply would be taken out the first year at a very low cost. The second year the operation would have to go back a little further with rising costs. The third, fourth and fifth years, it would be necessary to go further back, with the costs still rising.

If the timber had been taken out back to the watershed the first year, the cost of that year's operations would have been greater but all the timber from the river right back to the end of the operation would have been brought out at once. The next year the same thing would have been done with costs approximately the same, so that while the cost would have been higher the first year, over a series of years the cost would have been uniform.

Everybody knows that when you let a contract to a jobber or contractor to go into the woods, he is not going to care about your interests at all, he is going to take out the timber which it is easy for him to get out and which will net him the biggest profit, and this system of using contractors and jobbers has been the ruination of more forest areas than anything else I know of. It was an easy way to get out the logs and a fairly cheap way to get out the logs, but when you consider the results in the long run, we are going to be a great many years in paying for that sort of logging operation.

A Bit of Prophecy.

I would like to prophesy a little bit as to the future of logging operations. From what I can see of the trend of affairs in the West and some of the things which are taking place in Scandinavia, and when I think of what has been accomplished in the change of methods in our paper mills and in our great industries. I look forward to the time when our logging operations will be carried on much more by machinery than they are at the present time. I think we are just on the verge of having a mechanical saw which can be carried around easily from tree to tree and with which one or two men can do the work of a dozen. I think that it will only be a very short time until we will have a machine very much like the pneumatic or electric drill at the present day with which the branches can be taken off the trees and can be swamped much more economically that at the present time. I think that American ingenuity will very soon develop types of tractors or mechanical haulers which will enable us to get our timber out to much better advantage and much cheaper than the present method of skidding it out with horses.

All of these things are perfectly feasible, they are certainly not out of the way and if we would get the best mechanical talent possible and put these problems up to men who have been trained in developing various types of machines, we would soon have great advances.

You all know the forest today is a collection of good trees and trees which, up to the present time, we have found no use for.

In order to log to the best advantage today, we have to cover very large areas to get a relatively small amount of timber and I feel sure that the practical men of today and the business men of today will very soon come to realize the futility of covering ten or twelve square miles to get a small cut of timber and they will come to the opinion that was expressed in England at the Imperial Conference this year by forty out of forty-five delegates that the day of natural reforestation is very rapidly nearing an end.

This is a very broad statement but at the same time when you come to analyse the situation I think you will, after due consideration, more or less agree with me on this matter. You take large areas of timber and perhaps get from them on an average of five to six cords to the acre as we do in Canada, where we cut under certain Government diameter regulations—I believe you make runs as high as fifteen or twenty cords to the acre—you must take your men into the woods, take your provisions long distances and cover large areas in order to get out this five, ten or fifteen cords to the acre. When you stop to consider that after you have taken out that timber you have got to wait forty or fifty or sixty years for another crop which, so far as anybody knows at present will be but a very small fraction of the crop which you have taken out in your first cut, you will realize what huge areas must be covered to get the timber which you need. It would not seem economical or practical to you, and you will surely come to the idea which has been forced on the experi-

ence of European countries, that if we are going to carry on our industries, the best way to get the timber is to operate areas as near the mills as possible. Plant the areas with the very best possible stock you can get with the very largest amount per acre and then when your logging proposition comes along, look how the whole thing is going to be simplified. Instead of driving or hauling or railing your wood all the way from 50 to 200 miles, let us say, you are going to be able to go out within ten or twenty miles of your mill, put in your portable electric railway, utilize machinery which will cut your trees down just the way you cut your corn crop today and you are going to get instead of five, ten and fifteen cords per acre, forty of fifty cords. You will reduce your logging costs and simplify all of your operations. Instead of huge wood piles which we see in some of our Northern countries to carry us through the winter with insurance and money from the stump to the mill. We are going to utilize a tree the same day it was cut, perhaps, or the day after.

I know that a great many people will be skeptical and a great many people will think this is a crazy idea, but when you come to study the whole thing out carefully and to get right down to brass tacks in the matter, you are going to see that for the future this is going to be the ideal method. You can say, "Of course we won't live to see this; what business is it of ours to provide timber for the next generation"; you can make the same reply that has been made to me many times by managers of wood lands department, "What do I care about this, my job is to get wood as long as I am working for this company and when my successor comes along, let him face the problems that are created by the way I am logging today."

I have even heard managers of companies talk in that way, but gentlemen, today we are coming to realize that we cannot shirk the responsibility of the next ten or fifteen or twenty-five years. We have no right today to create a set of conditions which are going to be difficult for our successors. It is not honest; it is not good citizenship; it is not good business.

The paper and pulp industry is, to a great extent, a stabilized industry which in all human probability ought to go on for generations. The mills and the tremendous installations which we have today should not be scrapped in ten or fifteen or twenty-five years, they ought to go on functioning for several generations to come and people who own woodlands certainly have responsibility to see that those woodlands are kept in productive condition.

Now I am not talking about anything sentimental and I am not talking about anything theoretical, I am talking about practical questions, questions which must be met in a practical way and solved in the very best manner possible, and I think that when we come to study these questions out, when the people who are operating think about what the conditions are in the woods, and when the men who are interested in getting out the timber realize that the forest, after all, is nothing but a great big garden, and that if you are going to operate it profitably you cannot leave it to take care of itself any more than you can leave your garden to seed itself over to the next spring and expect to have a decent crop of vegetables nor any more than you can leave your farm to take care of itself and then get good crops.

You have got to face the problem that your forest is a living, growing organism which if properly handled will yield to you the same amount of wood year in and year out just as long as you care to take care of it. Now once we realize that proposition and once that comes home to the practical men who are in charge of mills and woods operations, we are going to see the whole problem solved and solved very rapidly, and I have the greatest hope and the greatest faith that this is going to come about and come about very rapidly.

I just want to say one word about this magnificent program which the American Pulp and Paper Association have laid out for a national forest policy. I think it is wonderful that every one has been able to get together and agree to this policy, but there seems to me to be a little element of "Let George do it." We are putting this thing up to the Government. We say the Government must do this; the Government must appropriate money; the Government must enact legislation for forest protection, etc., but don't you realize that we are never going to get anywhere unless every man who owns timber, who is interested in the management of timber, does these things for himself first, and then the Government end of it will take care of itself. Unless we begin to do our own work; unless we have fire protection and reforestation on our own lands, we are not going to get anywhere, and unless we take this matter to heart and practice what we are preaching to the Government and what we are preaching to the public, we are not going to get very far with our scheme.

SUCCESSFUL MEN HAVE STUDIED.

About four years ago B. C. Forbes gathered material for his book, "Men Who Are Making America." He selected 50 men as characters for his publication. In his research he learned that 24 of the men were born poor ; 17 of the men were born in moderate circumstances ; the remaining nine were born rich.

Biographies of the lives of the 24 men of poor parents show that most of them, practically all of them studied at night. They were forced to work for their livelihood during the day and at night they prepared themselves for advancement.

The men have excelled in various lines of business; banking, automobile, steel and kindred industries; in fact, all sorts of lines.

So doesn't it prove the value of studying at night; of taking some well directed course in order to prepare one's self for the job higher up?

The research also shows that the men born of poor parents studied at night, while those of the rich parentage gained their learning in the class rooms of college.

Thus it proves that, rich or poor, one must study to advance.

If you haven't the opportunity of going to college, you have the opportunity of the night schools!

You have the same chance as the other fellow. Are you going to allow him to look upon you from an advanced position while you are working at the same job ten years hence, or are you going to do the looking?

Your chance is now. Grab it.

They say you can lead a horse to water but you can't make him drink. 'Tis so with many workmen—we can lead them to the trough of Safety but they refuse to drink, but they will sooner or later wish that they had taken on a camel's supply.

AIR MAPS FOR WIRELESS PATROL REPORTS.

(From the Canadian Forestry Magazine.)

In prefacing this article, it may be stated that the following method of map squaring has been adopted by the Forestry Branch, Provincial Government, Quebec, and several large paper and lumber companies who operate aerial surveys and fire patrols of their respective timber limits.

Maps to be used are standard topographical maps, scale 500 or 7.8 miles to 1 inch. These maps can be obtained from the Department of Interior at Ottawa, and are published in sheets, which can, of course, be joined up to make one large map of any given territory, and each sheet is given a distinctive reference number. Key to these sheet numbers can also be obtained at Ottawa. To proceed with the actual squaring of these each sheet is divided into 9 squares, every degree of latitude into 9 squares, every degree of latitude and longitude forming a square, and numbered from top left-hand corner 1 to 9. Each of these 9 squares is subdivided into 6 squares, which are lettered "A" to "F"; the sheet is now divided into a total of 54 squares.

Proceeding along the same lines, in the process of reduction, each of the squares lettered "A" to "F" is divided into 36 squares, and numbered from top left-hand corner 1 to 36. Again, using the same method of reduction, the last mentioned squares are divided into 4 and lettered a. b. c. d. in small letters. The final reduction of squares is arrived at by dividing each of the latter squares a. b. c. d. into 100, but as the squares are not very small, graduations of 10ths are placed on two sides of the squares, these graduations serving as a scale or protractor applicable to any square. It is just a matter of measuring latitudinally and longitudinally to any given point in square to locate same on map.

It may be here mentioned that care must be taken when squaring maps, to divide each square separately in order to follow curvature and variation of latidunal and longitudinal lines. The accompanying photograph will serve to illustrate the method more clearly.

Suppose an aerial patrol, in reporting an outbreak of fire, sends in by wireless to the nearest station a message as follows:—"Fire 34-1a-2b-5-4, you simply look up sheet 34, square 1a, 2b, scale latitudinally 5 graduations and longitudinally 4 graduations pin point the intersection of these lines, and you have as near the exact location as possible. Of course, it will be readily understood that fire location will be more easily discovered by airmen.

By aerial photography, as used in mapping out the war zone in France and Belgium, mosaic maps will be made, and will prove invaluable in correcting positions of lakes, rivers, etc., in unsurveyed territories, but the whole operation depends upon accurate squaring of maps not only as a guide to the airmen, but in compiling and joining up of mosaic maps. This method of making maps, etc., is as yet in its experimental stage in regard to Canada, but there seems to be no reason why it cannot be made a success, given the right men to do this work. However, this season, it is hoped, will produce results which will be awaited with great interest by many private companies.

Reverting to fire patrol by airplane, immediately a fire is reported by the airman and map-location given, the Fire Protection Association is notified; they record same and despatch men to fight the fire. Direction of such forest fires should be observed and reported on from time to time, and fire fighters guided as to best means to combat same.

Conventional signs denoting location of the air harbour, aerodromes, supply stations, etc., will be marked on the mosaic maps as soon as same are definitely located.

DISAGREES ON ESPARTO.

The Editor, Pulp and Paper Magazine of Canada,

Dear Sirs,

In your issue of October 7th, Technical Section, you have a paragraph marked "K 6," dealing with the rational treatment of esparto.

We think some of the Scotch Canadians would have quite a huge laugh over this particular article, and rather than allow your readers to remain under a false impression, we must flatly contradict practically the whole of it.

In the first place, we are quite aware the yield of esparto is low, but we are not aware that 12-14 per cent of the cellulose is lost, seeing dry esparto is not wholly cellulose.

Secondly you say short soft fibre lacking strength, which is wrong as everyone knows, who has treated esparto.

Thirdly excessive formation of lumps on the machine, which is absolutely ridiculous, being no more apparent in esparto paper than in wood fibre papers, which have come under my knowledge, and I have dealt with most of the known fibres of to-day.

Fourthly you say it bleaches to a dull yellowish white and requires 12 per cent of bleach — wrong again! Spanish esparto bleaches pure white, only the lower grades are in a way creamy, and the consumption of bleach is certainly nothing approaching 12 per cent with a modern plant. Some mills, to my knowledge, are bleaching with 8 lbs. per cwt.

Fifthly, it causes fuzzing of the sheet at the couch roll, whatever this means one can only guess, but you can take it from one who has been 25 years at the game, there is no more trouble with esparto here, than there is with wood or rag papers — in fact less.

Sixtly, you say its cost is high, to-day one is able to manufacture esparto into paper much more cheaply than any easy bleaching sulphite on the market.

The last portion of the article is just a little more silly than the earlier part of it. Possibly the whole thing has been written with a view to drawing information, but that does not matter, one simply cannot allow a misleading statement like this to appear in any paper like yours.

Yours faithfully,

SCOTS WHA HAE.

P.S.—The average yield of esparto varies from 44 per cent to 50 per cent.

What is the yield of wood pulp in the raw state up to the finished article? re Paper.

NOTE.—There should be an average at least one letter a week, discussing articles in the Pulp and Paper Magazine. Our paper is an open convention where anyone may have the floor. We thank our fellow Scotsman for his frankness. He should be more specific, however, as to what kind of wood pulp he is asking about.—Ed.

A compromise is an arrangement by which both the bird and worm would be late.

A Census of the Pulp and Paper Industry of Canada

From a Census of the Industry for 1918 Prepared by the Dominion Bureau of Statistics, R. H. Coats, Dominion Statistician.

That the expansion of the pulp and paper industry in Canada continues is shown by a comparison of the statistics for the calendar year 1918 with those of the year 1917, as presented in the present report.

The number of mills operating in 1917 was 83 with a production of $96,340,327. In 1918 the number of active mills had risen to 94 and the volume of production to $119,309,434, an increase in the number of active mills of 11, or 13.25 per cent, and in production of $22,969,107, or an increase of 23.84 per cent.

The consumption of pulpwood in 1918 was 2,210,744 cords, as compared with 2,104,334 cords in 1917, or an increase for the year of 5 per cent. The total cut of pulpwood for manufacture and for export which in 1917 was 3,122,188 cords increased to 3,560,280 cords in 1918. The quantity cut for export rose from 1,017,854 cords in 1917 to 1,349,536 cords in 1918, an increase of 331,682 cords or 32.50 per cent.

Capital investment in the pulp and paper industry is another measure of its growth.

Capital Investment.

The total capital invested in the industry, in 1918, was $241,344,704 of which $12,520,765 was invested in paper mills,$71,708,223 in pulp mills and $157,115,716 in pulp and paper mills. Classified by items of capital, land, buildings and fixtures amounted to $118,805,581, machinery and tools to $60,627,266, materials on hand, stocks in process, etc., $39,652,078 and cash, trading and operating accounts and bills receivable to $22,259,779. By provinces, the amount invested was British Columbia $42,705,988; Ontario, $88,576,807; Quebec, $101,456,296; New Brunswick $7,852,225 and Nova Scotia $753,388.

The increase in the total capital investment, as shown in the bulletin for 1917 for the two year period, 1915-1917, was 39.6 per cent. or an annual average of 19.8. The increase for 1918 was 29.21 per cent. or an increase of almost 10 per cent. over the annual average for the preceding year.

Salaries and wages rose from $20,358,019 in 1917 to $26,974,225 in 1918, an increase of $6,616,206, or 32.5 per cent. The number of persons employed on salary increased from 1,563 in 1917 to 1,929 in 1918, or a percentage increase of 23.41. The average number of persons working for wages which in 1917 was 21,402 increased during the year 1918 to 23,934 or 11.83 per cent.

The number of persons employed in paper mills was 1,775 male and 531 females with payments of $2,050,615; in pulp mills the number was 7,328 males and 105 females with payment of $7,508,834; and in pulp and paper mills 15,609 males and 515 females with payment of $17,414,776.

Woodpulp.—The production of woodpulp in the Dominion for the calendar year 1918 in all classes of mills amounted to 1,557,193 tons, as compared with 1,464,308 ton sin 1917 and 1,296,084 tons in 1916. Of the 1918 product 820,584 tons were used by the producing mills in the manufacture of paper and 736,609 tons were made for sale. The amount received for pulp sold was $41,302,882 or an average price per ton for all classes of pulp of $56.07. The quantity and value of each kind of pulp made for sale is given in the following summary:

Kinds of Pulp	Quantity, Tons	Value
Ground wood pulp	273,180	$ 7,133,711
Sulphite fibre	318,882	22,464,063
Sulphate fibre	144,547	11,705,108
Totals	736,609	$41,302,882

There is also an item "miscellaneous products" amounting to $1,305,639, which is made up of sawn lumber and certain by-products of the industry.

The quantity and value of materials used in the manufacture of wood pulp, by kinds of wood were:—

	Cords	Value
Spruce	1,638,733	18,887,125
Balsam	447,243	4,604,987
Hemlock	89,007	1,038,867
Poplar	9,885	100,987
Jack Pine	25,851	254,384
All other	25	125
Totals	2,210,744	24,886,475
Other materials used		4,938,667
Total cost of wood pulp materials		29,825,142

The newsprint group which in 1917 accounted for 80.8 per cent. of the total tonnage and 62.4 per cent. of the total value fell in 1918 to 75.93 per cent. of the tonnage but shows a small increase in per cent. of total value, being 63.22. Book and writing paper which were 5.6 per cent. of the tonnage and 14.9 per cent. of the value in 1917 fell to 4.97 per cent. of the tonnage and 14.68 per cent. of the value in 1918. The other groups show increases in tonnage and value over 1917, the percentages for 1918 being as follows: wrapping papers which in 1917 were 5.9 per cent. of the total tonnage and 9.1 per cent. of the total value rose in 1918 to 6.32 per cent. of tonnage and 10.04 per cent. of value; boards which in 1917 were .3 per cent. of tonnage and 5.7 per cent. of value rose in 1918 to 9.07 per cent. of tonnage and 7.59 per cent. of value; other paper products which were in 1917 1.3 per cent. in tonnage and 2.4 per cent. of value rose to 3.71 per cent. and 4.47 per cent. for tonnage and value respectively in 1918.

The average value per ton of newsprint paper rose from $56.35 in 1917 to $62.91 in 1918, an advance of $6.56 per ton or 11.64 per cent.: book and writing paper rose from $193.40 per ton in 1917 to $222.90 per ton in 1918, an advance of $29.50 per ton or 15.25 per cent.; wrapping papers rose from $112.12 per ton in 1917 to $119.99 per ton in 1918, an advance of $7.87 per ton or 7.02 per cent. Boards on the other hand show a decline from $65.50 per ton in 1917 to $63.26 per ton in 1918, a decrease per ton of $2.24 or 3.42 per cent.; other paper products also show a decrease having fallen from $132.06 per ton in 1917 to $91.11 per ton in 1918, a marked decline of $40.95 per ton or 31 per cent.

The number of mills engaged in the production of paper is shown by classes, as follows: Newsprint, 23 mills; book and writing paper, 16 mills; wrapping paper, 16 mills; boards, 13 mills and other paper products 18 mills.

Materials used in the Manufacture of Woodpulp.—The consumption of pulpwood in all mills making pulp, whether purchased or cut from own limits in 1918 was 2,210,744 cords of the value of $24,886,475, as compared with 2,104,334 cords of the value of $18,817,483 in 1917. The average price per cord was $8.94 in 1917 and $11.25 in 1918, being an increase per cord over the previous year of 25.83 per cent.

The production of paper by provinces is summarized in the following table by tonnage and value:

	British Columbia	Ontario	Quebec	Canada
Newsprint	113,142	325,023	296,618	734,783
"	$7,576,711	$20,673,268	$17,980,835	$46,230,814
Book and writing paper	.....	30,989	17,161	48,150
" "	.....	$ 6,319,007	$ 4,413,800	$10,732,807
Wrapping paper	9,374	12,388	39,418	61,180
"	$1,244,504	$ 1,330,316	$ 4,766,552	$ 7,341,372
Boards	.....	51,922	35,827	87,749
"	.....	$ 2,810,527	$ 2,740,882	$ 5,551,409
Other paper products	.....	4,906	30,956	35,862
" "	.....	$ 735,840	$ 2,531,302	$ 3,267,142
Other products (value only)	$ 442,990	$ 1,399,811	$ 1,734,568	$ 3,577,369
Total (paper tonnage)	122,516	425,228	419,980	967,724
Total (value all products)	$9,264,205	$33,268,769	$34,167,939	$76,700,913

Pulpwood consumption in the provinces continues to occupy the same order as in the reports for previous years. Quebec leading with 1,085,478 cords, Ontario being second with 784,691 cords, British Columbia third with 218,774 cords, New Brunswick fourth with 110,133 cords and Nova Scotia fifth with 11,668 cords. The quantity of pulpwood consumed shows an increase in each of the provinces except Nova Scotia, where the decrease amounted to 6,706 cords.

Spruce with 1,638,733 cords continues to lead all classes of wood in the production of pulp, being 74.12 per cent. of the total consumption of all woods. Balsam Fir is next in order with 447,243 cords or 20.23 per cent., hemlock with 89,007 cords or 4.03 per cent., Jack pine with 25,851 cords or 1.17 per cent., poplar with 9,885 cords or .45 per cent., and all other woods with 25 cords and an inappreciable percentage. Spruce and hemlock show slight decreases in the quantity used as compared with 1917, while the principal remaining woods show increases. The disappearance of tamarack and larch in 1918 is due to the improper naming of these woods in certain districts.

Spruce was reported as used in 57 mills, balsam fir in 35 mills, hemlock in 7 mills, poplar in 8 mills and Jack pine in 2 mills.

For the first time in the history of the industry the quantity of wood used in the manufacture of sulphite pulp exceeds that used in the production of ground wood, the figures for 1918 being 1,044,697 cords and 873,084 cords respectively. The percentage of wood used in the various processes in 1918 were for mechanical or ground wood pulp 39.50 per cent., for sulphite fibre, 47.25 per cent., for sulphate fibre 12.90 per cent. and for soda fibre .35 per cent. or a total of 60.50 per cent. for the chemical process, as compared with 39.50 per cent. for the mechanical process. The increase in the proportion of wood used in the manufacture of pulp by the chemical processes does not represent an equal increase in the production of pulp by these methods.

The quantity of pulp produced per cord of wood in the provinces varies considerably in each of the processes. British Columbia is highest in the production of pulp by the mechanical process, averaging 2,485 pounds per cord. Quebec is next with 2,078 pounds, Ontario third with 1,917 pounds, New Brunswick fourth with 1,893 pounds and Nova Scotia fifth with 1,825 pounds. In the sulphite process British Columbia again leads with an average production of 1,059 pounds per cord, followed by New Brunswick with 1,046 pounds, Quebec with 1,042 and Ontario with 1,002 pounds. In the sulphate process Ontario is first with 1,176 pounds per cord, British Columbia second with 1,163 pounds per cord, Quebec third with 1,145 pounds and New Brunswick fourth with 1,050 pounds. Ontario and Quebec are the only provinces producing pulp by the soda process, the quantity per cord being 1,000 pounds and 961 pounds respectively.

The value of the wood used in the various processes rose from $8.94 in 1917 to $11.26 in 1918, an increase of $2.32 per cord or 26 per cent.

The value of wood used in the mechanical process rose from $8.07 in 1917 to $11.40 in 1918 or 41 per cent. In the sulphite process the rise is less marked as only the higher grades are used, the prices being $10.18 per cord in 1917 as compared with $11.64 in 1918, an increase of about 14.5 per cent. The value of wood in the sulphate process rose from $8.10 per cord in 1917 to $9.41 per cord in 1918 or 16.2 per cent. By the soda process the increase was from $10.07 per cord in 1917 to $11.23 per cord in 1918 or nearly 11.5 per cent.

The value of all other materials used in the manufacture of wood pulp amounts to $4,938,667, as compared with a total cost of $1,602,212 in 1917. The items comprising this total were sulphur, 58,950 tons valued at $1,830,319; limestone and lime, 127,014 tons valued at $729,793, sulphate of soda, 20,495 tons valued at $522,423; soda ash, 3,708 tons valued at $159,430, bleach, 3,061 tons valued at $140,287, and all other miscellaneous materials for which quantities were not specified valued at $1,556,415.

The total capacity of mills making ground wood pulp in the Dominion in 1918 was 1,146,154 tons dry weight, of which the mills in the province of Quebec reported a total capacity of 620,784 tons or 54.16 per cent. of the capacity of the Dominion. Ontario mills had a capacity of 382,270 tons or 33.35 per cent. British Columbia mills of 103,600 tons or 9.04 per cent. Nova Scotia mills of 31,500 tons or 2.75 per cent. and New Brunswick mills of 8,000 tons or .70 per cent.

The actual output of ground wood pulp in the Dominion during the year was 879,510 tons or 76.74 per cent. of the total capacity. In Quebec the actual output of ground wood pulp was 493,520 tons or 79.50 per cent. of full capacity; in Ontario the actual output was 277,922 tons or 72.70 per cent. of full capacity; in British Columbia the actual output was 91,588 tons or 88.40 per cent. of full capacity; in New Brunswick the actual output was 6,463 tons or 80.80 per cent. of full capacity and in Nova Scotia the total actual output was 10,017 tons or 31.80 per cent. of full capacity.

In the equipment in mills making chemical pulp by the various processes sulphite pulp occupies the first place with a yearly capacity of 613,477 tons and an actual output of 494,322 tons or 80 per cent. of the full capacity. The sulphate process is next with a yearly capacity of 191,620 tons and an actual output of 179,600 tons or about 94 per cent. of full capacity and the soda process last with a yearly capacity of 5,600 tons and an actual output of 3,761 tons or 67 per cent of full capacity.

A summary table for the Dominion showing the quantities and values of the principal materials used in the manufacture of paper in 1918 follows:—

	Quantity Tons	Cost Value at Mill
Ground wood pulp	679,395	$14,215,895
Sulphite fibre	242,685	13,665,361
Sulphate fibre	35,587	2,260,443
Soda fibre	4,775	397,621
Other chemical fibre	2,419	219,654
Rags	20,138	1,412,367
Oil or waste paper	46,350	1,320,338
All other paper stock	8,764	634,149
Soda ash	968	47,280
Alum	8,382	375,366
Clay	9,212	217,922
All other materials (value only)	.....	2,782,940
Total cost of materials	.....	$37,549,936

The total cost of materials in 1917 was $28,617,334 and in 1918, $37,549,336, an increase of $8,932,002, or 31.2 per cent.

Fuel Consumption—The total cost of all fuel used in the industry, for the year ending December 31st, 1918, was $10,191,084, of which bituminous coal accounted for $9,151,522, or about 90 per cent, of the entire fuel cost.

The quantity and value of fuel used in the industry by classes, are given below:—

Kind	Origin			
	Canadian		Foreign	
	Quantity	Value	Quantity	Value
Bituminous coal, slack	11,388	84,832	212,938	1,650,681
Bituminous coal, lump	2,972	30,711	255,960	1,880,230
Bituminous coal, run of mine	128,979	1,981,579	399,362	3,523,480
Lignite coal	788	7,410	43	833
Anthracite coal, lump	.....	.....	162	1,762
Anthracite coal, dust	.....	.....	12,174	90,090
Coke	.....	.....	36	676
	Gals.			
Gasoline	91,451	22,002	.....	.....
Oil fuel	1,820	373	13,947,600	519,390
Wood (cords)	53,296	356,753	.....	.....
Other fuel (not specified)	.....	17,914	.....	22,539
Total fuel	.....	2,501,394	.....	7,689,690

Capital—The report shows the distribution of capital under four heads (a) land, buildings and fixtures, (b) machinery and tools, (c) materials on hand, stocks in process, finished products on hand, fuel and miscellaneous supplies and (d) cash, trading and operating accounts and bills receivable.

Miscellaneous expenses.

The total cost of miscellaneous expenses for the year amounted to $13,425,547, and comprised the following principal items:—

Rent of offices, works and machinery	$ 268,224
Rent of power	1,429,873
Insurance (premiums only)	694,510
Taxes (internal revenue, war, etc)	872,880
Taxes (provincial, municipal, etc.)	700,680
Royalties, use of patents, etc.	12,181
Advertising expenses	60,301
Travelling expenses	362,178
Ordinary repairs to buildings and machinery	3,116,042
All other miscellaneous expenses	5,908,678

THE THIRD THING.

The are two sources of wealth, to employer and employe alike: One is interest on money invested, and the other is reward for energy and ability put into work. If you have a Liberty Bond, it's money invested. The interest is the reward. In working, the reward or the pay will sooner or later come in direct proportion as energy and ability are put into it.

This holds for employer, too. He has capital and business ability. One without the other is worth nothing.

There's a third thing, and employer and employe have this thing together, or the works are gummed. It's Co-operation. Take out the Co-op of labor, and business won't succeed. Take out the Co-op of business, and labor won't succeed.

Some fellows feel they don't get their share of pay and advancement. Do they deserve it? Do they earn more than they're paid for. If they do, they should have it and the boss will be glad to give it to them if they will show him.

If they are not earning their pay, some one is losing — either the boss or the other employes. In any case, it's an injustice that some day will come back where it started from.

It's a Ten to One shot that the boss is trying to give a fair deal, and that if he isn't all he needs to know is that his employes are giving him one. If they are, and a little more, they'll get that reward—more pay and better jobs..—Babson Institute.

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Practical Training for Foresters

Three Quarters of Total Time of Attendance Is Spent In Field and Laboratory.

(Continued from last issue.)

As has been pointed out in preceding articles, the students in all forestry schools gain practical experience in the bush, forest nursery or mill during the summer holidays and at the same time earn money for the partial payment of their school expenses. The total time thus employed during the three summer vacations of the course amounts to ten or twelve months. Thus quite or more than one quarter of the time during the course is actually given to woods work. While the school is in session the students' time is about equally divided between attendance upon classroom lectures and upon laboratory or field work. It will be seen, therefore, that during the entire four years of the course the students spend three quarters or more of their time in practical work in some form.

In the Practice Camps.

The statement in the paragraph above includes the work in addition to their time spent in the practice camp, since the students of all the forestry schools spend from one to three months in the forest under the direct supervision of their instructors. At this time they put into practice as far as possible the things they have learned in their textbooks. In the first place, they usually lay off the boundaries of their practice area and divide it into working sections. The students construct a map showing twenty-five or fifty or one hundred foot contour intervals. This of course, discloses the topography and drainage and thus indicates where the hauling roads and camps may be conveniently located. The next procedure is to make a forest type map which locates, for example, the pure stands of hardwoods and softwoods and the mixed stands of these species. It also shows the distribution of the barrens, burns, swales and muskegs if present. The students then estimate the timber on the tract in terms of board feet or cords for each commercial species. This is usually done by establishing a base line and measuring the trees in parallel stripes at definite intervals apart and perpendicular to the base line. The stripes on which the trees are measured are run methodically on the tract, so that the final estimate of the stands is a fair average. The students, however, obtain practice in various other methods of estimating as employed in the different parts of the country.

Planning the Future.

All this data is placed upon the map of the tract so that one may see clearly the topography and drainage the location of the logging roads and camps, the nature of the forest types and stands and the amount of material that may be cut in the form of saw logs, pulpwood or cordwood. These are about all the facts with regard to the condition of an area that a lumberman needs for the purpose of logging, but the forester must enter into the condition of the future productiveness of the area, for it is his business to maintain the continuity of the crop. In order to find out the condition of the tract from this standpoint, he must do two things: he must determine the amount of material not yet of merchantable size and having done this he must determine how fast it is growing, or in other words, how much wood in board feet in addition to estimating the amount of material now merchantable on the practice area. The forestry students by means of the data obtained from regeneration and growth study surveys make estimates of the probable yield at stated intervals in the future. This involves not only a stocktaking of the young growth, but also the determination of the probable death rate as the stands pass from youth to maturity and this in turn involves, among other things, the making of forest disease surveys.

In order to keep an area continuously productive, provision must be made for the reproduction of the merchantable species at frequent intervals. The natural mortality is very large in a forest and, therefore, there must be an abundance of young trees coming on if the continuity of production is to be preserved. The natural regeneration of the forest is precarious and uncertain and the necessary conditions are not well understood. Yet the study of such conditions forms an interesting and very important part in the formation of plans for an unending supply of pine saw logs or spruce pulpwood as the case may be.

Studies of Fire Protection.

There is little need of making plans for the future supply of timber on an area if, as is unfortunately the case in some of our best timbered regions, the area has practically no chance of escaping destructive fires. An essential part of the forestry students' work in the practice camp is to work out the details of an adequate system of fire protection. This includes the locating and building of trails and telephone lines.

The work outlined in the preceding paragraphs covers the main things accomplished by forestry students in a practice camp. In the end they have the knowledge and the data necessary for the making of working plans for the tract, plans that extend a long way into the future and if carried out by the owners of the land would result in a supply of saw logs or pulpwood so long as the sun shines and the rain falls, for wood is only solidified sunshine and water with a few mineral salts from the soil thrown in for seasoning. The forester uses his intelligence to direct these processes of nature. Under a let-alone, do-nothing policy there is no direction and there will be no future supply —at least sufficient to meet the present demands on the present commercially valuable species.

The Character Equation.

In concluding the outline of under-graduate courses in forestry, the writer wishes to say that in his belief no forestry school can make a trained forester. That comes only with experience accompanied with discriminating judgment. The forestry school does, however, attempt to train the mind of the student so he can use it to his advantage and that of his employer in whatever circumstances he may be placed. To develop in the student an active resourceful mind and the capacity for sustained intelligent thought and persistent hard work is the goal toward which the forestry schools constantly strive. A forester can be made only in the forest. It is the function of the teacher to point the way, to lay the foundations. What way he takes, what he builds on those foundations depends very largely upon the man himself.

The American Writing Paper Company has recently announced the appointment of Mr. M. Hazen Chase as Assistant to Mr. R. R. Campbell, Vice President, in charge of manufacturing. For the past five years, Mr. Chase has been office manager and assistant to the superintendent of the Copsecook Mill of the S. D. Warren Company located at Gardner, Maine.

CANADIAN WINNERS.

The Pusey and Jones Co., manufacturers of Paper Machines at Wilmington Del., offered six prizes amounting in all to $500 for articles or essays dealing with the question of whether it was more profitable to operate a two-roll machine—158 in. wire—at 1000 ft. per minute, or a three-roll—234 in wire—at 600 ft. per minute.

It is gratifying to note that of the six prizes, three were awarded to Canadians; Albert J. Davies of the Research Department and Peter Smith, boss machine tender, both with the Spanish River Pulp and Paper Mills won the second and sixth prizes while B. C. Guild of Thorold, Ontario, won the fourth. Canadians may well be proud of this result.

The subject of these essays was the principal topic of discussion at the last annual meeting of the Technical Section of the Canadian Pulp and Paper Association. It is interesting to note that these essayists favor the wide machines, perhaps because none of them, apparently, has had any experience with speed.

W. F. MACLEAN ATTACKS PAPER MAKERS.

What might almost be termed a characteristic misrepresentation of the relations between Canadian newsprint manufacturers and their domestic (though sometimes wild) customers occurred at a hearing before the Tariff Commission in Toronto, last week. The Commission has the verbatim account; the following is necessarily a newspaper report of Mr. Maclean's remarks. It reads:

An unexpected attack on the news-paper print manufacturers was made by W. F. Maclean, M.P., for many years publisher of the Toronto World, who claimed there had been an absolute breach of faith between them and the Government. He had waited for some time to give his facts, he said, and he would give them in the Dominion House of Commons.

He alleged a scandalous condition in connection with newsprint manufacturers who were even soliciting trade now in Sweden and Finland. The newsprint manufacturers would have to treat Canadian publishers decently. Above all, the practice of watering their stock must be prohibited or regulated. "Regulation of price is a corollary of the tariff law in this country," declared Mr. Maclean.

Instead, he had been treated abominably, he said. A company whose customer he had been for years, and to whom he had paid out over a million dollars, and owed not a cent, had told him it did not want his business. His son had been ill for months as a result of following shipments of paper in automobiles, and of paying extra money to unload it in time to continue publication. "The preference was going to out-and-out free traders," said Mr. Maclean. "Here are newspaper manufacturers enjoying the protection of the Canadian tariff and saying: 'Go away from us, we don't want your business, we're going to supply the American publishers.' Yet these manufacturers are making their product from public lands, from the water-power that belongs to the Canadian people and are protected by the tariff. We are getting our paper at four or five prices in this country, and all agreements made with the Government have been broken. If the paper manufacturers are to have the protection of the duty which bans outside paper, then it follows that in times of stress, they must have their prices regulated and supply the home market first of all.

"I say it is infamous, also," said Mr. Maclean, "that they have no par value stock, and that the tariff should be used to pay interest on their watered issues. These men who have refused to give me paper have watered their stock four or five times, and they are asking the inventors of Canada to take these shares, cut up five times, while saying there is no par value, yet they say they've got to pay five per cent., on it. I, as a protectionist, say that the time has come when they must be regulated." The manufacturers had just announced "they would make the price six cents for the beginning of the new year. It ought to be five cents, even four cents or three cents," declared Mr. Maclean.

Papermakers Reply.

So entirely misrepresentative is the above, that the secretary of the Canadian Pulp and Paper Association at once sent the following telegram:

December 2, 1920.

Sir Henry Drayton,
Chairman, Government Committee on Tariff,
City Hall,
Toronto, Ont.

If the statements attributed to W. F. Maclean, M.P. before your committee, in respect to the newsprint manufacturers, were as reported in the public press they are wholly erroneous and could only have been based on ignorance of the facts or inspired by malice. The newsprint manufacturers have not broken faith with the Government, they are not soliciting and never have solicited trade in Sweden, Finland or any other country to the detriment of their home market, nor done the other things alleged by Mr. Maclean. Mr. Maclean's inference that it is impossible for him to get a supply of paper is unwarranted and not in accordance with the facts. His further statement that "regulation of price is a corollary of the tariff law in this country" carries its own refutation, but the paper manufacturers might have less objection to having their prices regulated if price regulation were applied indiscriminately to every commodity affected by the tariff. If you will instruct the secretary of your committee to supply this association with an official copy of Mr. Maclean's statement we shall be glad formally to refute it and to supply your committee with proof of its falsity. In any event we trust the committee will give this denial publicity equal to that given Mr. Maclean's biased and untrue remarks.

CANADIAN PULP & PAPER ASSOCIATION.
A. L. DAWE,
Secretary.

REALLY CRIMINAL PULP MAKERS.

The Toronto World quote an unnamed U.F.O. mem-

The Toronto World quotes an unnamed U.F.O. member may start a big pulp and paper mill in Northern Ontario, with the double purpose of experimenting in economic working of the Government timber limits and of concentrating in one model town all the jail inmates of the province, particularly offenders against the Ontario Temperance Act, and employing them in cutting and hauling the pulpwood and in work in the pulp and paper plants. These men, according to the World's authority, would be paid good wages for their work, be housed and fed as model prisoners, and treated as workmen, not as prisoners.

WANT DUTY ON PUBLICATIONS.

The case of the Canadian magazine and periodical publishers in relation to the Government's fiscal policy, was presented by a delegation from the Toronto magazine publishers at a session of the Dominion Tariff Commission in Toronto last week.

It was pointed out that the value of importations of various magazine publications on which no duty was paid increased from $881,621 in 1912 to $2,010,310 in 1919. Duty on imported book paper is twenty-five per cent. If the same rate of duty was imposed on the printed product of foreign magazines and periodicals brought into Canada, the revenue to the Department of Customs would be increased very considerably. If the twenty-five per cent duty were applied on the value of raw paper in these foreign publications coming into Canada, this, in itself, would tend to relieve the competitive disadvantage under which Canadian publishers are laboring.

The Commission was told that there was no other class of manufacturers in Canada laboring under the same handicap as the Canadian Publishers of magazines and periodicals. "In a competitive paper market," it was stated, "we would have to pay Canadian paper makers the United States price, plus the duty, so that we pay the duty whether we buy domestic paper or bring it in from the United States. We also pay duty —or a price equal to the United States price plus duty —on engravings, ink, art work and other material entering into the manufacture of magazines and periodicals. The United States publications which have circulations in the United States ranging from 500,000 to 2,000,000 copies per issue, can quite easily run off another five or ten thousand copies for the Canadian market with very little extra expense, except for the cost of material and labor, their overhead having been already absorbed by circulation at home. This extra run for the Canadian market is dumped into Canada by freight or express absolutely free of duty. The above conditions make it advantageous for the Canadian publishers to establish a plant in Buffalo or Detroit and employ United States labor to print their magazines, use material such as paper, ink and engravings made in the United States, and ship their publications into Canada to be mailed here through the post office, thus robbing Canadian labor of its rights and the Government of the duty on unprinted paper, or in other words we could bring in carloads more of printed magazines, duty free, and on the same train a carload of blank paper would be dutiable. We ask that you give consideration to some measure of protection for this industry which will allow it to develop and employ Canadian labor in producing these magazines and periodicals and to materials which enter into their production."

In speaking of Canadian magazines as a necessary national institution the delegation pointed out that the heavy influx of United States magazines is doing much to denationalize, if not really Americanize the Canadian people. It was stated that during the past few years the Government carried on several advertising campaigns for various purposes and the publications in the Canadian Association gave every possible assistance in these campaigns through their editorial columns. No aid is given the Canadian Government by United States magazines and periodicals in these matters, yet these publishers receive preferred treatment from our Government.

Suggestions offerred were as follows:

1. A specific duty of at least 6c. per pound on all American magazines and periodicals coming into Canada by mail, freight or express without allowance for unsold copies returned to the United States. This would give some measure of relief and bring a large amount of revenue to the Department of Customs and at the same time eliminate some of the undesirable publications which are at present glutting the news stands.

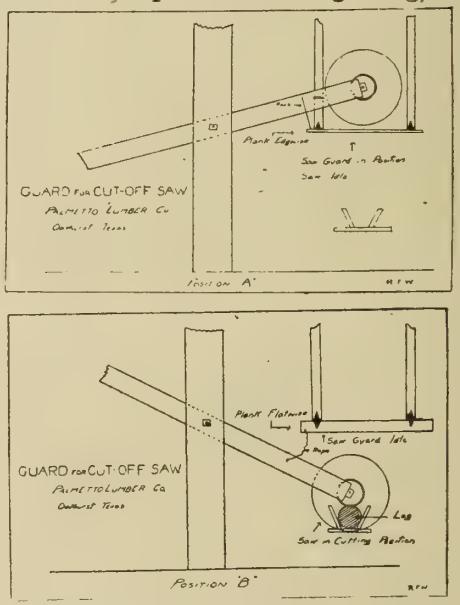
2.—Or we might suggest that an ad valorem duty of twenty-five per cent. (which is equivalent to the present duty on paper) be imposed on all foreign publications entering the Dominion whether sent by mail, freight or express. The revenue accruing to the Finance Department as the result of such duty would be extremely large. The duty would amount to from 3c. to 10c. on each copy of American magazines, which would in all probability amount to a total of half a million dollars per year, even if half of the magazines which are now coming from the United States are eliminated.

A NEW SAW GUARD.

The drawings show an overhead log cut-off saw. These drawings were contributed by Mr. W. E. Black, superintendent of the Palmetto Lumber Co., Oakhurst, Texas. Mr. Black is entitled to much credit for the interest that he has shown in regard to safety work.

"A" shows saw up out of the way, with chains attached to safety board, which offers a space of 8 or 10 inches, 2 inches thick, immediately under the saw, thereby preventing any person from coming in contact with saw.

"B' shows saw in position cutting a log, and guard



(chains having relaxed when saw started down) hanging down edgeways out of the way of the saw.

Note.—Some time ago a workman at the Palmetto Lumber Company walked up the log haul. Not thinking, this workman walked into this log cut-off saw, cutting the skin off his forehead, and by a miracle missed his skull. Immediately after this accident the guard shown in the drawing was made and placed on the saw. I know many sawmills that have no protection on this saw. Don't be sorry. Act NOW. Place a guard on your log cut-off saw. SAFETY FIRST.—Common Sense.

HYDRO ELECTRIC INSTALS STEAM ROSSING PLANT.

The Hydro Electric Power Commission of Ontario who operate a pulp mill at Campbellford, Ontario, are putting in a rossing plant at Bancroft, Ontario, from which place most of their wood is procured. Previous to this they simply had the logs cut into 2 ft. wood at Bancroft and loaded on cars for shipment to Campbellford, where it was barked on disc barkers, but now they intend to cut up the logs and bark them right at Bancroft. For this purpose they have recently placed orders with the William Hamilton Company of Peterboro for a complete barking outfit, including three strand log haul-up, eight-saw pulpwood slasher cutting the wood into 2 ft. lengths, and also an 8′ x 30′ barking drum on rollers, together with the necessary conveyors and transmission machinery. The power will be supplied by two 66″ x 16′ boilers, and 20″ x 24″ engine. This equipment will greatly increase the supply of barked wood for their pulp mill, and it is expected that they will be able to ship from six to eight cars of barked wood every day. The foundations for the machinery have already been laid, and it is expected that they will be ready to commence operations around the 1st of May.

PAPER PROSPECTS IN BRITAIN.

The Pulp and Paper Magazine is indebted to H. M. Trade Commissioner in Montreal for the following quotation from the November Bulletin of the Department of Overseas Trade.

There has been no recent improvement in the position of the industry so far as actual business is concerned. It is true that the settlement of the labor questions, has, to that extent, improved the situation and removed one of the factors adverse to satisfactory development. Nevertheless, this is the only direction in which conditions have undergone any change for the better. Trade itself continues extremely dull, despite the fact that this is normally the commencement of the most active period of the year. Orders come in very slowly, and, as was the case last month, only those mills engaged in the production of specialties or high-grade goods can view their order books with equanimity.

Certainly the general industrial position is believed to be, to a very considerable degree, accountable for the stagnation existing, but, in addition, the financial situation plays no insignificant part in restricting trade.

Raw materal prices continue high and in no case is there indication of easier rates, while in two instances, best grades of paper shavings and waste paper, prices have recently increased.

On the other hand, newsprint has, during the past few weeks, shown a distinctly easier tendency, and home manufactured paper is now selling at as low as 5d. per lb., while foreign print is quoted 5 3-4d. per lb. This is, however, believed to be the result of the release of stocks held by a number of small paper merchants who entered business during the war stringency, and are now compelled to sell at cut rates in order to realise upon their stocks. The opinion is expressed that this is only a temporary factor, and that, apart from its effects, there is nothing to indicate a continuance of these easier conditions.

Despite the fact that the unexpected duration of the slackness has tended somewhat to shake the confidence with which the trade looked to an early revival of business, it is still generally believed that the settlement of the coal strike, following upon the agreement on its own labor matters, will mark the commencement of a return to more normal conditions of trade.

In the meantime, greater attention is being given to export matters, and an improvement in this direction is confidently expected.

ABITIBI HAS A LIVE SCIENCE CLUB.

The Science Club composed of technical men and others of a scientific turn of mind at Iroquois Falls not only holds lively sessions for the discussion of a set program but recently held its annual dinner which was pronounced the best dinner ever served at the Falls. Mr. L. E. Kendall, the retiring president explained the many advantages of having such an organisation. Mr. A. G. Schanche, the new president of the club presided. The principal speaker, Mr. F. H. Anson, president of the company, told of some of his experiences with the successful development of technical control in the flour and sugar as well as in the pulp and paper industries. Mr. R. A. McInnis, manager of the mill, was the other speaker and from the sample extract in the Broke Hustler we can imagine the hilarity with which his stories were greeted.

No doubt the success of this club and the interest taken in it has considerable to do with the successful introduction of scientific management and technical control for the whole mill which has been so thoroughly approved by workmen and management alike.

PULP MILL STOCKS INCREASED IN OCTOBER.

Comparing the stocks on hand at the U. S. pulp mills at the end of the month with their average daily production based on the reports covering the years 1917, 1918, and 1919, the figures of the Federal Trade Commission show that:

Ground wood pulp mill stocks equal slightly less than 21' days average output.

News grade sulphite mill stocks equal slightly more than 7 days' average output.

Bleached sulphite mill stocks equal slightly less than 3 days' average output.

Easy bleaching sulphite mill stocks equal slightly more than 3 days' average output.

Mitscherlich sulphite mill stocks equal slightly less than 5 days' average output.

Sulphate mill stocks equal slightly more than 10 days' average output.

Soda pulp mill stocks equal slightly less than 5 days' average output.

Mill stocks of "other than wood pulp" equal about 6 days' average output.

Total mill stocks of all grades equal slightly less than 12 days' average output.

Total stocks of all grades of pulp in the mills on October 31, amounted to 128,462 tons. Mill stocks of bleached sulphite and easy bleaching sulphite decreased during the month. All other grades increased.

Canadian Kron Scale Company have opened offices and factory at 23 St. Alexander Street, Montreal, where they are making "Kron" Scales and "Stue Bing" lift truck both of which are well known in the Paper and Pulp Industry. Mr. G. H. Smith remains as General Manager.

THE ART OF BOX-MAKING

A Practical Training Course in Boxing and Crating is being given at Forest Products Laboratory, Madison, Wisconsin.

There is a daily loss to shippers and manufacturers conservatively estimated at $500,000 due to poor packing and expensive and improperly designed containers for all classes of domestic and foreign shipments. Class 1 railroads alone expended for lost and damaged freight during the year 1919, $103,078,862, and the western inspection bureau in 12 cities during July 1919 refused or repaired 43,738 packages. These are but two isolated examples.

An efficient container must deliver its contents in a satisfactory condition at a minimum cost.

How the demand for accurate information is being met

Commercial research and mechanical tests at the Forest Products Laboratory on better containers began in 1915 in cooperation with the National Association of Box Manufacturers, and the National Canners and National Wholesale Grocers Associations. In this work methods and testing equipment which have become standard for the box industry were developed.

The demand upon the laboratory for information suggested a series of cooperative training classes for men from various industries. These classes began during the war and have been attended by representatives of such concerns as: Western Electric Company, Montgomery Ward & Company, Armour, Swift, Morris and Sprague-Warner packing companies, Quaker Oats, General Motors, forwarding companies, and funiture and box manufacturers.

The course lasts 5½ working days. Reference material and condensed notes are given out and it is necessary for those attending to devote a portion of each evening to study.

Only a limited number are accepted in a class. This makes possible the exchange of ideas and experiences with men from different organizations and the research men of the laboratory. A series of lectures on kiln drying, glues, fibre board, and box woods is given. One subject is studied each day.

BORDEN GOES FROM U. T. A. TO A. W. P.

Joseph A. Borden, formerly General Secretary of the United Typothetae of America, has recently been appointed director of Service of the American Writing Paper Company of Holyoke, Massachusetts, manufacturers of Eagle-A papers.

Mr. Borden's work is, as his title indicates, to be that of a service director. He will personify the cooperative spirit that the American Writing Paper Company is showing in its advertising program and in its relation with the printing industry. He will be at the service of printers throughout the country who have been invited by the Paper Company to turn to him for help, advice or suggestions, with the realization that they are consulting an expert who has an intimate knowledge of their problems and the problems of the industry as a whole. All of the service work of the Company will be done under Mr. Borden's direction and plans for the development of new service projects will be announced in due course.

The Japanese Tissue Mills, Holyoke, Mass., announce a change in the firm's corporate name to the American Tissue Mills.

LAURENTIDE TO HAUL WOOD ON ICE.

Due to the freezing of the river north of Grand Piles, the 1,000 cords of hardwood that were cut near the Manigance Rapids during the late summer are still in the woods. An experiment is to be made shortly with a few loads of the wood which will be brought to the mill by the tractors which are at the Proulx nursery of the Forestry Department. If the cost of bringing in the hardwood over the ice by means of the tractors is not too expensive, it is likely that much of the wood will be brought in during the winter. The hardwood, it will be recalled, is to be used for the manufacture of groundwood pulp, experiments having shown that certain varieties of hardwood may be used advantageously.

CAUGHT IN SHAFT, HAS NARROW ESCAPE.

Caught in a revolving shaft in the beater room while locating positions for wiring motors, William Redman, assistant electrical foreman at Laurentide, narrowly escaped death last week. His clothes were torn from his body by the shaft before he fell about twelve feet to the floor of the beater room. His injuries while serious are not believed to be fatal.

WILL MAKE THEM IN CANADA.

The Garden City Paper Mills Co. Limited, of St. Catherines and Merriton, Ontario, will commence about the middle of December to manufacture Northern folded paper towels. The Northern Paper Mills Co. of Green Bay, Wis., have completed arrangements with Garden City Paper Mills Co. to manufacture this line in Canada, which will shortly be followed up with additional lines.

The quality of Northern towels and their cabinet distribution system is well known to the Canadian trade, and it will be a source of pleasure to the Canadian wholesale paper merchant to know that he will now be able to buy this line made in Canada, from a mill whose products are now well known to the Trade.

SEAWEED PULP SUCCESSFUL.

That the manufacture of paper pulp from seaweed is proving a profitable undertaking seems evidenced by the fact, reported by Consul General George H. Scidmore, that the only company manufacturing this pulp is building another factory. This concern was organized in December, 1919, and is producing by a secret process, about 50 tons of pulp daily, which is largely used in the composition of cigarette paper. The new plant when completed will have a daily capacity of 150 tons of pulp. The present price is about five cents a pound.—Scientific American.

At Espanola, the Spanish River Pulp and Paper Mills has erected 51 new houses since spring. At Sturgeon Falls, 10 houses of the Aladdin type went up in 8 weeks.

The Invincible Paper and Pulp Corporation, 135 Broadway, New York, have been appointed exclusive selling agents for the Maine Pulp and Paper Corporation, Skowhegan, Me.

The Coty Bag Machine Company, of Watertown, N.Y., is transferring its factory to Toledo, Ohio, where a plant more adapted for the production of bag machines has been acquired. The offices of the company in Watertown will be retained.

PULP AND PAPER NEWS

Canadian Engravers, Limited, has been organized and has been granted an Ontario charter to carry on business as lithographers, printers, designers, etc., with head office at Toronto. The company has an authorized capital of $40,000 and the provisional directors are E. G. Joy, I. Rouse and L. Norris.

Last week completed the forty-sixth year of publication for the Amherstburg Echo. Mr. John Auld has been editor from the start and five other employes have an aggregate of 149 years' service to their credit.

The Beaver Board factory, at Thorold, closed down last week on orders from Buffalo. No explanation was given but as the plant has been running almost up to capacity right up to the time of hanging out the bulletin informing the employees of the cessation of operations, it is believed to be a move towards the lowering of wages. The shut-down is likely to be of a temporary character. The organization is known as the Beaver Wood Fibre Co., Limited, and the main office is in Buffalo. About 800 men are employed and the company manufactures wood pulp and fibre for wall board.

Mr. A. L. Dawe, secretary of the Canadian Pulp and Paper Association, has sent a message to the Dominion Tariff Commission in session in Toronto, branding as false the statements made by Mr. W. F. Maclean, M.P., before the Commission. The whole story is told elsewhere in this issue.

A spokesman of the commercial printers of Toronto filed a brief with the Tariff Commission in Toronto last week, setting forth the views of the industry. It gave general approval to the principle of protection but thought an increase in certain directions would be an admirable step. Mayors and industrial commissioners are willing to confer all possible privileges upon American branch factories in order to lure them into Canada but the printers think that steps should be taken to prevent them getting their catalogues and price-lists printed so freely and so cheaply by the parent establishments across the border. It was suggested by the chairman of the Commission that the printers should revise their memorial, adding further data, and present it at the final meeting in Ottawa.

The sympathy of the pulp and paper trade will be extended to Lieut.-Col. Thomas Gibson and J. G. Gibson, vice-president and secretary respectively of the Spanish River and Paper Mills Limited, Toronto, in the double bereavement involving the loss of their mother and father within the past month. Mrs. Gibson passed away just about a month ago and the father, Joseph Gibson died this week in his 79th year. The late Joseph Gibson was known throughout Canada as a temperance advocate and orator, and in 1878 he contested South Oxford in the Conservative interests against the late Col. Skinner. He was a Fenian Raid veteran and was prominent in the public affairs of Oxford County and his home town of Ingersoll where he died. He was a prominent Mason and a leading official of the Methodist Church in Ontario. The late Mr. Gibson came to Canada from England when a boy and had lived in Ingersoll almost continuously since.

The Toronto Metal and Waste Company, Limited, 213 King Street, Toronto, metal and waste rag dealers, are in liquidation with assets of $20,000 and liabilities of from $20,000 to $25,000. It is expected that a compromise will be effected of fifty cents on the dollar. Twenty per cent of the compromise settlement will be paid in cash and the balance of thirty per cent will be paid by six, twelve and eighteen months notes. The principals of the firm are Jacob Moldover, Oscar Moldover and Isaac Olanov. The disposition of the business has not been decided on as yet.

Mr. T. L. Crossley, Consulting Chemical Engineer, and Editor of the Canadian Chemical Journal, was the speaker at the regular luncheon of the Electric Club of Toronto at the Mossop Hotel, Toronto, on Friday of last week. Mr. Crossley gave an exceedingly interesting and illuminating talk describing the process of paper making and a series of lime light views added materially to the value and impressiveness of his remarks.

Among the callers at the Toronto office of the George H. Mead Company during the past few days were Mr. A. J. Gaudette, of the order department of the Spanish River mills; Mr. F. Moynes, of the Dayton office of the company, and Dr. E. O. Merchant, the company's economist and statistician.

Mr. J. O. Herity, of the firm of Morton & Herity, proprietors of the Daily Ontario, Belleville, and for the past ten years editor of that paper, is leaving journalism, having been appointed manager and secretary of the Belleville Chamber of Commerce.

Mr. M. J. Hutchison, late of Edmonton, has arrived in Toronto and has entered upon his new duties as manager of the Canadian National Newspaper Association.

The newsprint situation took the lead among questions discussed at a convention of publishers of smaller dailies of Western Ontario in St. Catharines, on Nov. 30. The gathering was addressed by Mr. Will V. Tufford, of Clinton, Iowa, secretary of the Inland Daily Press Association of the western states.

Mr. R. C. Sage, manager of the Woodstock, Ont., Gas Company, has resigned his position to become connected with a publishing house in Toronto.

BRITISH COLUMBIA MILLS WELL ENGAGED.

With the exception of the Beaver Cove Lumber & Pulp Co. plant, all the mills in British Columbia are operating to capacity and the Rainy River plant is coming right along.

There are one or two new plants being planned but nothing definite can be said at present regarding those new propositions. It is rumored that a Japanese firm is planning to build a plant on Queen Charlotte Islands, but there is no certainty in this connection as the nearest information is that a certain Japanese owns some timber limits in that locality and has been talking a pulp plant.—E.P.

Technical Section

REVIEW OF RECENT LITERATURE.

B-3. Practical utility of planes in forestry. J. B. Harkin, Commissioner of Dominion Parks. Can. For. J. Dec. 1919, p. 511. Would an equal investment in forest wardens achieve better results in fire prevention.—C. L. J

B-4. Logging engineering course has helped industry. Western Lumberman, January, 1920, p. 37. Discussion of the results accomplished through the establishment of a course in logging engineering at the University of Washington. Need for the establishment of such a course in connection with the proposed forestry department in the University of British Columbia.—C. L.

B-4. Sugar from Douglas fir. Francis Dicke. Pacific Coast Lbrman. Feby, 1920, p. 27. A Sweet substance gathers on the needles.—C. L.

B-5. Wood preservation means much to industry. W. Kynoch. Acting Supt. Forest Products Laboratories of Canada. Wes. Lbrman, March, 1920, p. 31. Reduces cost of upkeep where timber is used in exposed service. Combating the principal agencies which bring about deterioration; prevention of fungous growth; research work; creosote treatment of railway ties.—C. L.

B-9. Australian state forests. Pacific Coast Lbrman. April, 1920, p. 51.—C. L.

B-9. The state as boss of its forest properties. Robson Black. Can. For. J. Nov. 1919, p. 453. A permanent forest asset easily within the power of the Canadian people—the lumberman's view.—C. L.

B-0. The forester—A Sketch. W. F. V. Atkinson. Can. For. J. October, 1919, p. 405. Discusses forestry and the work of a forester.—C. L.

B-6. Controlling torrents in France. H. R. MacMillan, Can. For. J. March, 1920, p. 121. When the French program is completed, total cost will not exceed one year's damage.—C. L.

B-9. Great profits from forests in the French Jura. Col. T. S. Woolsey, Jr. Can. For. J., March, 1920, p. 116. 70 M feet per acre produced under careful system of forest management.—C. L.

B-9. Newfoundland needs a forestry policy. Can. For. J. October, 1919, p. 412.—C. L.

B-9. Ontario must face these facts now. Robson Black. Can. For. J. Dec. 1919, p. 483. Discusses the forestry situation in Ontario and shows the need for a constructive policy.—C. L.

B-9. Southern Foresters hold conference. American Lumberman, Feby. 7, 1920, p. 60. A report of the Southern Forestry Congress, held at New Orleans, Louisiana. Resolutions deploring the continuance of practices of forest demolition, and urging the enactment of legislation by the southern States that will require and make possible the adoption of measures by owners that will prevent such devastation and afford opportunity for a natural replacement of forest growth on land not suited for settlement.—C. L.

B-9. Empire State Foresters confer. Amer. Lbrman. Feby. 7, 1920, p. 62. A review of the Proceedings of the New York State Forestry Assn, held at Buffalo, N. Y., January 28. Text of resolutions advocating an advanced policy of forestry; better forest protection; survey of forest resources; publicity work in forestry; forest research; improved forest taxation laws; reforestation of state land and of private land through state aid; adequate appropriations to make the foregoing effective.—C. L.

B-9. The progress of forestry in Canada. Clyde Leavitt. Can. For. J., March, 1920. p. 130. Text of report of the Committee on Forests, Commission of Conservation, annual meeting, 1920. For continuation see succeeding numbers of Canadian Forestry Journal.—C. L.

K-6. Straw; Utilisation of waste liquors obtained in the digestion of.—S. Herzberg. G. P. 321,453, 28.3.19 Addn. to 319,068 (preceding). The liquor or at least the portion to be used as anodic bath, is treated in the cold with mineral acid or bisulphate and heated to 70 deg. C.; it is then filtered from precipitated organic substances and electrolysed. The precipitated lignic acid can be utilised, and if common salt solution is used as anodic electrolyte the chlorine produced may be employed in the dissolution of chopped straw previously treated with milk of lime.—J. S.

K-10. Sizing, waterproofing, dressing, etc. of paper, fabrics and the like W. Schmidt and E. Heuser. German Patent 321,232. Mar. 15, 1918. Addition to 296,124. The paper pulp or fabric is treated with a solution of tar soap prepared by saponification of wood,—lignite—or coal-tar, previously extracted with water. Injurious acid substances may be removed from the tar by distillation, and a soap prepared by incomplete saponification of the tar may be used.—C. J. W.

K-10. Paper, boards, and paper textiles; sizing and waterproofing. P. E. Altman, Dresden-Tolkewitz. Ger. Pat. 304,305, 2, 8, 17. The material is impregnated with a mixture of saponified beeswax, water-soluble oils, and talc, and the sizing agent is fixed by means of alum solution.—J. S.

K-10. Emulsions for sizing paper; Manufacture of.—G. Muth, Muremberg, Ger. Pat. 316,345, 27.6.18. Coumarone resin, or a similar coal-tar resin, is emulsified with an aqueous solution of a vegetable or animal glue or a similar colloid, and a solution of an aluminum salt is added; casein may be employed as the colloid if it is first converted to the water-soluble form.—J. S.

K-18. Cardboard, grease and waterproof. L. Buchbinder, G. P. 316,527, 19.3.19. Addition to 306,028. Cardboard which has been coated with a glue precipitate containing a filling material, in accordance with the chief patent (J., 1918, 575A) and dried, is further coated with a mixture consisting of a saturated solution of tannin and resin in spirit and a varnish containing a drier, to which mixture zinc white and formaldehyde have been added.—J. S.

L-5. Waste liquors. F. Kuttner, E. Profeld and E. Sidler, G. P. 322,461, 8.7.19. Waste liquors from the mercerisation process and viscose manufacture are concentrated and simultaneously oxidised in open vessels, whereby the hemicellulose is converted into insoluble oxycellulose. The oxidation may be carried out by injecting air into the liquors or by the addition of alkali nitrate.—J. S.

RELATIVE IMPORTANCE OF SLIP AND FRICTION IN BELTS.

With the ever-increasing use of mechanical appliances of all kinds now playing a big part in practically all industrial plants, transmission of power by means of belting is one of the most important factors, one which cannot be overlooked.

Since the original installation of belts to transmit power the one conclusion that has been formed in the minds of every one concerned with machinery appliances is that belts have frequently been a source of production and power losses. Two of the principal factors which figure proportionately in such losses are slip, and friction due to tight belts.

It has been proved that although belt slippage may not waste much power, it does reduce the production; and each per cent of slip is equivalent to the loss of production for 3 days each 300-day year. Since the loss of power reduces the production for the power used, each per cent of slip means the loss of 1 per cent of power.

A belt will slip just as readily on a pulley 4 ft. in diameter as it will on a 2-ft. pulley, provided the conditions of the pulley faces, the arc of contact, the tension and the number of feet the belt travels per minute are the same in both cases.

Resistance to slippage depends upon the coefficient of friction, area of surface contact and the condition of the two surfaces. For leather belting running on ordinary iron or wood pulleys the coefficient is 0.3 to 0.4 average for dry surfaces and about 0.15 to 0.2 for wet surfaces. For efficient operation the co-efficient must be as high as possible.

Frequently powerful screwed clamps are used to put on belts, but this practice makes the belt extremely tight, all of which is very injurious to the leather or whatever the texture the belt may be. In all cases where belts are run horizontally they should have no more strain imposed upon them than is necessary to transmit the power required.

Several mill engineers of large experience have stated that three-quarters of the trouble experienced with hot boxes, broken pulleys and other causes for shut-downs can be traced to tight belts. Useless pressure put on pulleys and shafting in this manner in time will cause them to break, and in many cases the machinery will suffer as a result of the frequent heating of the bearings, which will inevitably make them useless for the time they are undergoing repairs.

Not infrequently when a belt begins to slip, the time honored remedy is to "tighten it." While this procedure will reduce the slip, it will not materially reduce the loss of power. The result is, the production loss is changed to a power loss from increased bearing friction. When belting (any) two or more pulleys it will be found that if a belt is not tight and does not slip there is scarcely a limit to the power it will transmit before it wears out.

One of the most important qualities in a belt is a high continuous co-efficient of friction. If such a thing were possible whereby the original co-efficient of friction and initial tenson could be maintained, there would be very little trouble encountered in designing a belt for each drive that would be trouble-proof.

The somewhat natural tendency of friction, pressure and of belt creep affects the frictional co-efficient after which the tension is reduced due to the natural stress of the load, which stretches the belt. These factors will vary in accordance with the composition of the belt.

There are several other causes for destruction of frictional co-efficient: moisture, grease, dust and dirt. To overcome these destructive elements, belt manufacturers have used various substances in the making of their belts. A few other troublesome factors in belt upkeep are: rosin, molasses, printers' ink and oils of all kinds.

Of course, all belt makers have seen the need for preserving their belts, and this usually carried out according to requirements, such as temperature and general working conditions to which the belt is to be subjected.

Cement mills and crushing plants are about the largest users of belt dressings, some of which are recommended by the belt manufacturers, while in most cases (from a mistaken idea of economy), a home-made compound is used. The general formula of the latter is rosin, tallow, neatsfoot oil and heavy crusher oil. By noting several of the ingredients composing this compound, such as rosin and mineral oil, it stands to reason that by their use belts of most any texture will be short-lived, as the effect of both are destructive to leather belts.

By a careful, methodical study and test of transmission, slip and tension losses have been reduced to 75 per cent, while belt costs have been cut 60 per cent. The most useless thing to manufacturers and to all concerned is the power wasted in transmission. The efficiency of transmission depends largely upon the intelligence and thoroughness with which it is managed.—The Amphibian.

MILLIDGE PROMOTED.

Mr. B. deB. Millidge, who is now Chief of the Technical Service Department of the Brompton Pulp and Paper Company at East Angus has been elected to Junior Membership in the Technical Section. Mr. Millidge, prior to this was a student member, and as such submitted a winning essay in the competition last year. He is a Canadian from St. John, N. B. whose advancement, like that of other student members is gratifying to those who are giving these young men the opportunity to become useful members of the industry.

Mr. C. M. Croft, who is now attending McGill University, has been elected a student member of the Technical Section.

A SURE THING, IF YOU KEEP ON DIGGING.

The workman was digging. The wayfarer of the inquisitive turn of mind stopped for a moment to look on.

"My man," said the wayfarer at length, "what are you digging for?"

The workman looked up. "Money," he replied.

"Money!" ejaculated the amazed wayfarer. "And when do you expect to strike it?"

"On Saturday," replied the workman, as he resumed operations.

—*Tit-Bits.*

"Just bear in mind, my boy."

"What, dad?"

"You don't find any epitaph in any cemetery reading 'Here lies a cracker-jack pool player.'"

UNITED STATES NOTES

A cable dispatch received at Washington last week from American trade representative Draesel, at Berlin, states that permission has been granted by the Economic Minister to the Verband Deutsche Druekmonder Fabriken, to export paper without license until March 31, 1921, provided Germany's internal needs are covered. The Verband announce that they are in a position to sell 1,000 tons monthly during January, February and March, and possibly 500 tons in December.

E. R. Lacy, vice-president and general manager of product to paper mills, the Grass Fiber and Paper announces that work on the concern's pulp mill at Leesburg, Florida, is nearing completion. This company will utilize saw grass for the manufacture of paper pulp. Much of this material is available in Florida and, according to the men interested in the Leesburg project, it has been found suitable for pulp making. While engaging at the outset only in the manufacture of pulp, shipping this for conversion into the finished product to paper mills, the Grass River Fiber and Paper Company intends ultimately to operate paper mills of its own for the utilization of the native grass. The plant now being built will have a daily capacity of twenty-five tons of paper pulp. According to Mr. Lacy, the supply of pulp material in Florida is sufficient for the entire country.

University and forestry school representatives from all over the United States will meet at Yale University, New Haven, Conn., December 17 and 18, to discuss education in forestry. Special committees will report on undergraduate courses in forestry, specialization by forestry students, extension courses, and forestry subjects as cultural studies in public and private schools and in colleges.

Of seventeen trades listed in the report on industrial disputes submitted by Edward D. Jackson, Chief Mediator of the New York State Industrial Commission, only the paper and pulp and two allied industries are reported as having had no strikes or disputes whatever in the Empire State during the three months ended September 30, 1920. Several of the trades that were affected during this period showed anywhere from nine to sixteen separate disputes with the loss in some cases of as many as 150,000 to 200,000 working days. The paper and pulp industry, however, was singularly free of disputes. This was the case also in the water, light and power industry, and in the chemical oil and paint trades.

The Great Northern Paper Company's price for newsprint in rolls, carload lots, on contract during 1921 will be 5 cents a pound. The Great Northern Company does not follow the practice of other concerns in the paper business in revising prices quarterly, but makes a flat price subject to adjustment according to increase in manufacturing costs, for the year in advance. This company is the second largest producer in the country with an output of approximately 250,000 tons of newsprint annually.

A new company is being organized in Michigan to take over a special paper line now being manufactured by a Wisconsin concern. This new venture is to be headed by Carril A. Hubbard, for several years sales manager of the Bryant Paper Company, who has announced his intention to resign from the latter concern about January 1. The mill to be taken over runs one machine exclusively on onion skin paper, and it is the plan of Mr. Hubbard and his associates to promote the sale of this commodity.

Recent reports from Maine indicate that decline has begun in pulp wood prices and cheaper print paper may be looked for as the result. Rough wood in Maine has dropped from $18.50 and $21, at which contracts were closed last October, to $12 and $13 to-day, and peeled wood has dropped from $28.50 and $30 to $20 and $21 a cord. It is predicted that these quotations will go still lower. The decline in wood values has been followed by reductions in wages.

The Seaman Paper Company, 200 Fifth Avenue, New York, has added to its executive force Judge Charles F. Moore, who was associated until recently with the Parsons Trading Company. Judge Moore will act as special representative to aid in promotion work. The Seaman Company has had need of just such a man as Judge Moore who is thoroughly up on the industry in all its branches.

W. A. Kelly, who has long been prominently identified with the paper making industry in the Great Lakes region, has left the administrative forces of the Marathon Paper Mills Company, at Rothschild, Wis., to become general superintendent of the Northern Paper mills at Green Bay, Wis. Mr. Kelly started his paper making career when 11 years old and he has been associated with mills in various parts of the country since he began, years ago, with the Falls Manufacturing Company, at Oconto Falls, Wis.

Reports on factory workers' wages in New York State in October put the paper, paper goods and printing trades in the groups showing lessened earnings. The paper trade is placed in the tabulation among those industries in which there was a conspicuous reduction during the month in the average weekly wage of its workers. This loss in earnings is ascribed in the report to the fact that some plants showed the end of the high level of production which prevailed in the industries during recent months but which has now been followed by lessened activity on account of dull business.

Following a recent conference and inspection tour of cutover pine lands in La Salle Parish, Louisiana, William H. Sullivan, general manager of the Great Southern Lumber Company, speaking for the heads of this concern, expressed the confident belief that Bogalusa, headquarters of the big lumber plant, can be made into the biggest paper manufacturing city in the world. Mr. Sullivan announced that the Great Southern plans to spend $8,000,000 within the next five years in adding four units to its paper mills, consuming pulp manufactured from the tops of pine trees.

Whitney & Company, paper box manufacturers at Leominster, Mass., have put into effect a wage reduction of from 10 to 15 per cent. Fred Whitney, president of the company, says that the decrease was made necessary by a falling off in business.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Dec. 4.—Canadian paper trade and pulp circles view the fixing of newsprint prices with satisfaction, although as far as the jobbers are concerned they will still have to pay from 10c to 13c for their news supplies. The six and a half cent rate and, in some cases the seven cent rates to publishers means a good deal to pulpwood producers who declare that with newsprint prices well sustained the mills can afford to pay a fair rate for the raw material and as a result prices for pulpwood can be maintained. It is pointed out that while the Canadian Export Company, which markets the production of several of the Quebec pulp and paper companies, have announced a six and a half cent rate for newsprint for the first quarter of the new year, a number of the companies in Quebec have been selling at six cents a pound and some of the Ontario mills have been disposing of their product at five cents Following upon the announcement of the Canadian Export Company's prices came word that the George H. Meade Company, of Dayton, Ohio, which handles the export business of the Spanish River and Abitibi companies had arranged a rate of 7c per pound or $140 a ton for the first six months of 1921, but this has not been officially announced. It had been thought in the trade that 6¾c was about the highest price likely and when the International Paper Company, a few days ago, announced the continuation of the six and a half cent rate for the first quarter of the new year, this was generally accepted as establishing a precedent which would be followed by most of the Canadian export interests. The Canadian Export Paper Company, Limited, buys the exportable surplus of most of the big eastern producers such as Laurentide, Price Bros, Belgo-Canadian and Brompton and their price has followed the American precedent. This is a slight increase for the eastern mills as it is understood that the highest they have been getting this year is six cents on contract paper. On the other hand the big producers of newsprint in the north-western territory Spanish River and Abitibi, made contracts in 1919 which restrained them from exceeding a price of five cents per pound. The new rate for the first half of 1921 is therefore a jump of two cents, or $40 a ton. With the prices fixed for the early part of the new year the general opinion is that the newsprint producers face conditions that may prove equally prosperous with those of the past year.

PULPWOOD.—A Toronto representative of a lumber and pulpwood concern who visited a number of the paper mills during the past week found that while none of them were short, shipments of incoming pulpwood were very light. Prices remain unchanged and no change is looked for in peeled wood, although it is anticipated that rough wood will exhibit an upward tendency in the next few months when the new season for wood opens. At the present time there is no surplus of peeled wood in the country.

TISSUES AND TOILETS.—With buying practically suspended in toilets, tissues and light weight papers, prices remain firm in sympathy with pulp prices. Manufacturers complain of the high prices for their raw stock and declare that foreign paper manufacturers are taking advantage of the high prices for pulp and are sending paper into this country. One tissue and toilet paper manufacturer declared that talk of these foreign importations was no bogey and that paper from Germany, Japan, the United States and the Scandinavian countries were actually being landed in this country to compete against the output of the Canadian mills which have to pay altogether too high prices for their raw stock. He contended that by keeping the price of bleached pulp up to around $190 a ton the pulp men were playing into the hands of foreign competition which was proving more serious than a good many people had any idea of.

BOOK PAPERS.—General conditions are unchanged. The demand continues to fall off and the mills are pretty well caught up. Stocks, in the meantime, are accumulating in the jobbers' warehouses, although there has been very little price-cutting to the consumer and printer. Jobber have asked the mills for cancellations, but in very rare occasions only, and although most warehouses contain pretty fair stocks of book papers now, jobbers are not worrying, being confident that buying will set in again about the first of the year and that prices will not seriously recede before then.

BONDS AND WRITINGS.—The mills are making much freer deliveries now and fairly well assorted stocks are seen in the warehouse in contrast to empty shelves a few weeks ago. There is a fair demand for bonds, writings and ledgers which the jobber is in a better position now to supply than he has been for months, most of the back orders having been filled by the mills. Prices remain firm.

KRAFT.—The general trade depression is reflected in lessened demand and sales of kraft paper, most of the dealers marking time to see what is going to happen to the market. Stocks are low, however, and the general opinion seems to be that following the present stock-taking period buying will commence again pretty much on the old basis. This, however, is not looked for until the beginning of the new year and in the meantime there is a general disposition to hold off buying in anticipation of lower prices.

POSTER PAPER.—Colored poster paper has hitherto been rather hard to get from the mills and the monthly stock sheets issued by the mills, showing stock on hand have been bare of colored poster for some months. A stock sheet just to hand for one of the mills shows that this line can now be obtained in reasonable quantities and indicates that the mills are reaching a position where they can now stock up on such lines as mentioned.

WRAPPING PAPERS.—Jobbing houses report that shipments of wrapping papers are coming through in adequate quantities and that there is no difficulty now in getting supplies. In sympathy with other lines of paper the demand has fallen off somewhat but a fairly good volume of business is still being done.

TWINE.—A reduction in the price of cotton twine was announced at the end of the week, marking the third drop since last September. The latest is a drop of five cents, the present quotation being about 46c a pound.

NEW YORK MARKETS.

New York, December 4.—(Special Correspondence).—Quietness still obtains in the paper trade in New York, and, judging from all reports, in other consuming and distributing centres of the country. Buyers are operating strictly on a hand-to-mouth basis, coming into the market only when pressed by necessity for supplies and even then confining orders to paper immediately required. Mills in various parts of the States are curtailing production. Some mills have closed down entirely for a time, and a majority of plants have reduced their operating schedule to from two to five days per week, depending on the position they are in as regards orders booked. Manufacturers are taking the view that it is better to decrease production than to lower prices to non-profitable levels in the hope of securing sufficient business to keep running full. As present conditions size up, the probabilities are that further sharp cuts in prices would hardly induce consumers to enlarge their buying. The tendency today is to refrain from purchasing any and every commodity unless immediate need for the article is felt, and lower prices are not creative of broader demand. The trouble with the buying public at present is that they have temporarily lost faith in the stability of prices, and until this faith is regained the average consumer is not going to be led to buy articles not instantly and urgently needed. Paper manufacturers realize this, having situations in many other commodities to guide them, and there is little doubt that they are combating existing conditions in the proper way by curtailing output for a time.

There is no pronounced pressure to sell paper of most kinds on the part of mills. There are exceptions to this, of course, and some lots of paper are being marketed at appreciable recessions in price, but on the whole manufacturers are waiting for customers to come to them to get supplies, and are generally pursuing waiting tactics in the firm belief that business will improve soon after the turn of the year and that demand for paper of all varieties will revive to something like normal volume.

From all indications, the consumption of newsprint continues of heavy tonnage. With newspapers carrying page upon page of pre-holiday advertising, their size seems to be increasing every day. A local afternoon newspaper yesterday broke all advertising records for New York dailies when it carried 324 columns of display advertising in a 50-page issue. This paper boasts a circulation of about 750,000 copies per day. The market for newsprint has steadied perceptibly. Publishers are commencing to look after their next year's supplies and are dickering with manufacturers over contracts. This has a strengthening influence on spot prices, which rule firmer than for some time at a basis of 7 to 7.50 cents per pound, with most producers inclined to demand the latter figure.

So far as concerns spot prices, quotations on book papers are in a rather easy position. Most book mills have sufficient orders on file to keep them running very nearly full, this class of paper plants being probably in a more favorable situation than all others, but spot shipments of book papers are being offered at a considerable reduction from the prices prevailing not long ago. Machine finished book paper is available from mills at 13 cents per pound and it is said that purchases could be made in some quarters down to 12 cents. Contract prices are marked by a steady tone at around 9.50 to 10.50 cents a pound for machine finished book.

Kraft wrappings are in moderate demand and quotations are generally unaltered at levels representing a slight decline from the top points reached several months ago. No. 1 domestic kraft is quoted in the open market at about 12 cents a pound at mills, while No. 1 jute is priced at 14 to 15 cents a pound. Tissues are holding their own in price and are moving in fair quantity. No. 1 white tissue is quoted at $1.75 to $2, No. 2 white at $1.60 to $1.75 and No. 1 manila tissue at around $1.65.

Fine papers are in quiet demand and it is mills producing this class of paper that have curtailed operations to such extremes as to reduce their running time to two and three days a week. Consumers of bond and ledger papers are holding aloof as buyers to a greater degree than all others, and yet manufacturers of fine papers can least afford to lower prices because their production costs have possibly decreased the least. Mills as a rule are manufacturing only enough paper to fill contract commitments and to keep stocks intact to enable them to complete other such orders as are recived.

Boards are moving slowly and are decidedly weak in price. Manufacturers are accepting orders at almost any old price so long as there is a small profit for them in operating, and there have been rumors of sales of plain chip board at $45 per ton at mills and even lower. Quotations on chip range from $55 to $60 and on filled news board at from $65 to $70, but supplies can be obtained for a good deal less.

GROUND WOOD.—There is scarcely any demand whatever for mechanical wood pulp. Consumers for the most part are finding contract supplies ample to cover present requirements and are keeping out of the market as buyers excepting for occasional purchases of small tonnages. In the absence of transactions it is difficult to ascertain what prices really are. Quotations of sellers range around $100 per ton on domestic spruce ground wood for prompt shipment and around $85 for imported pulp on the dock, but judging from all the stories heard in the trade, ground wood can be obtained for substantially less than these figures. There is no pronounced selling pressure in vogue, but at the same time there are producers and dealers who have pulp they are anxious to move and who are evidently accepting low prices in order to convert their stocks into cash.

CHEMICAL PULP.—Chemical wood pulps are in slow demand. In fact, most dealers and importers claim to be unable to find buyers, so indisposed are papermakers to absorb supplies while finding that contract shipments are sufficient to cover present needs. Prices are easy in tone and it is problematical at just how low pulp can be bought. Manufacturers are generally refusing to enter into forward commitments at any reduction in price but surplus lots are being disposed of for prompt delivery at sharp cuts in price whenever buyers can be located. It is



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stated that domestic bleached sulphite can be purchased down to 9.50 cents a pound at mills, domestic easy bleaching sulphite at 7.50 cents, news grade sulphite at 6.50 cents and domestic kraft at 5.50 cents, which figures represent quite a reduction from the quotations prevailing a short while back. Foreign pulps are coming in rather freely and in comparatively large amounts. Quotations on imported bleached sulphite range from 11 to 12 cents per pound, on easy bleaching at 8.50 to 9 cents, on unbleached sulphite at 8 to 8.50 cents and on Scandinavian kraft at 5.75 to 6 cents.

Receipts of foreign pulp at the port of New York during the current week included 4,966 bales from Christiania, 1,437 bales from Hamburg, 1,800 bales from Copenhagen, 2,610 bales from Trondhjem, and 1,460 bales from Kobe.

RAGS.—Papermaking rags are little wanted by mills and the downward trend in prices is still unchecked. Those few buyers operating are in a happy position of being enabled to secure supplies at very nearly any price they offer, the present market being strictly a buyers' market. As a matter of fact, so little actual business is transpiring that there is no established price basis, and about the only quotations available are those named by dealers at asking figures. No. 1 repacked old whites are obtainable by mills at 10 cents, and probably for less, while repacked old thirds and blues are offered at 3.50 cents per pound at shipping points, street soiled whites at 2.75 cents, No. 2 repacked whites at 4.50 cents and roofing rags at 1.10 cents for No. 1 packing. New cuttings are also down further in value, reports coming to hand of offers by dealers of No. 1 white shirt cuttings at 20 cents a pound at shipping points, washables at 10 cents, unbleached muslin clips at 17 cents, white lawns at 19 cents and new blue overall cuttings at 10.50 cents.

PAPER STOCK.—The paper stock market is in a dull condition, there being a very slight demand from any consuming source, and prices continue to move downward. Values of low grades have sunk to levels where there is little room for additional decline but better quality papers are being bought by mills for less money. Shavings are quotably lower at 7.50 to 8 cents for No. 1 hard white and 6.75 to 7 cents for No. 1 soft white shavings at points of shipment. Folded newspapers are available to mills at 80 cents per hundred pounds f.o.b. New York and No. 1 mixed papers at 45 to 50 cents a hundred. Kraft paper is down to 3.50 cents, white news cuttings to 3.75 cents and heavy book stock to 1.75 cents.

OLD ROPE AND BAGS.—There is little activity in old rope or bagging and quotations remain at about former levels, old manila rope of No. 1 grade being held at 5 cents a pound at shipping points and No. 1 scrap bagging at 1.75 cents.

DO YOU KNOW YOUR FOREMAN? WHY NOT?

Do you feel free to go up to your Foreman and talk with him man to man? If you do, both your foreman and yourself are on proper basis of employment.

If you don't feel free so to talk and act, what is the matter? Are you doing your work in a proper manner? If so, you have nothing to fear. Are you his friend when talking to others, or do you find fault? If the latter, that is probably the reason you do not feel free to talk with him, because you fear the other fellow has told him what you said. Do you work when he is around, doing your best only while he is watching? If so, probably you think he has found that out and you don't care to give him a chance to call you down.

If you are his friend; if you are on the square; if you are working your best whether he is around or not—don't worry or be timid, just go up to your foreman, your superintendent, or your manager, and talk with him like you would any other friend. He will think more of you—he will learn to know you better—you will get ahead faster and all will be better between employer and employee. Remember, men are men, whether born rich or poor, whether by circumstances he is foreman, superintendent or workman in the ranks, closer co-operation comes from closer friendship. Know your Foreman — and, Foremen, know your men. — Making Paper.

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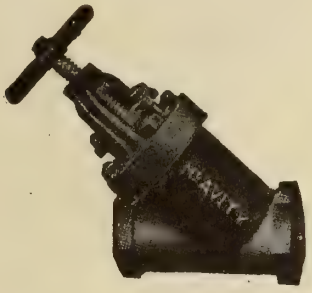
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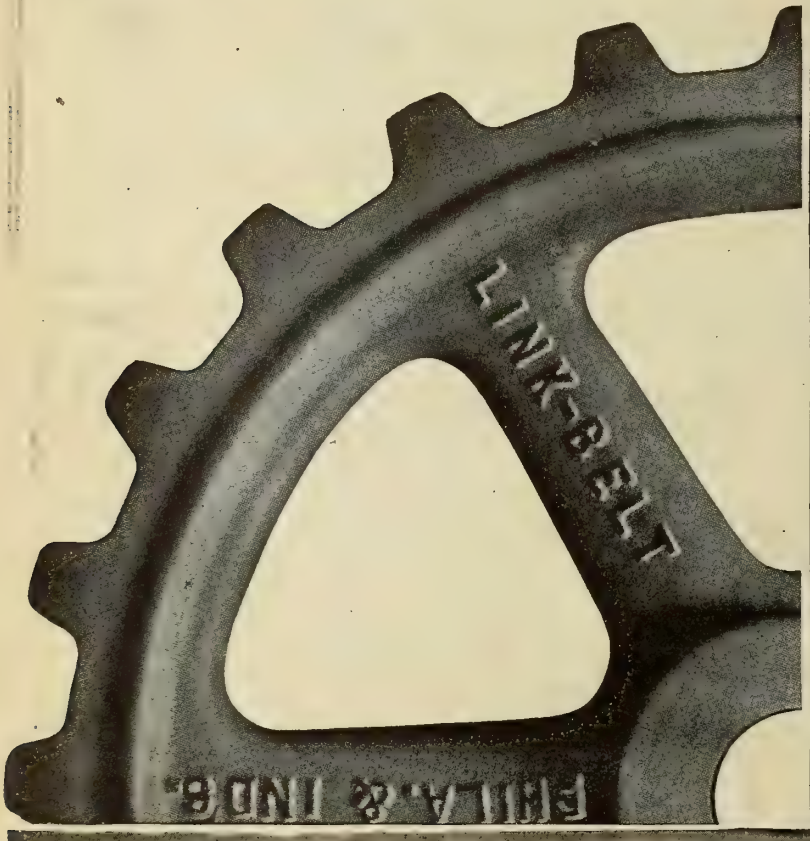
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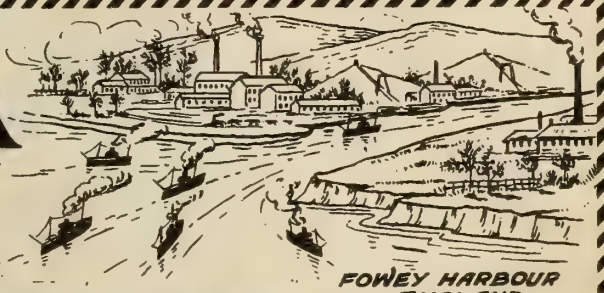
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OF CANADA

A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

VOL. XVIII. **GARDENVALE, P. Que., December 16, 1920.** **No. 51**

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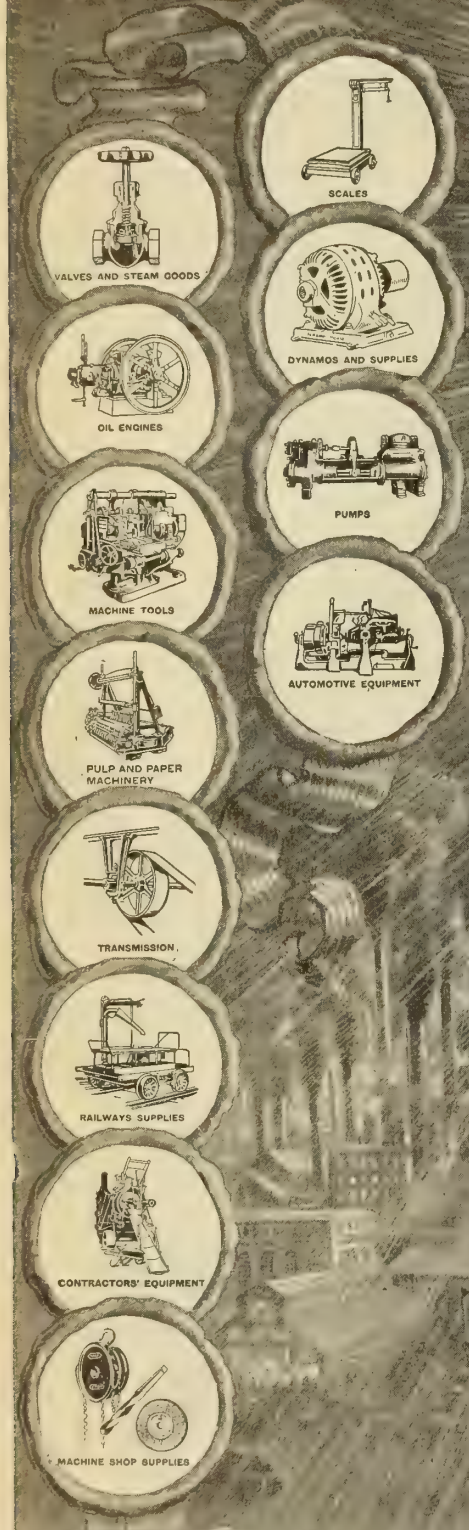
J. NEWELL STEPHENSON, M.S., Editor.

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EDITORIAL

CANADA INTERPRETS A CONTINENT.

It is curious to note that the country which objected to the direct representation on the League of Nations Council of the various countries making up the British Empire, stands to benefit most by their presence. Had it not been for the provision in the organization of the League of Nations for representatives from Canada, the whole continent of North America would have been without a spokesman. The importance of the presence at Geneva of two Canadians of ability in statesmanship and argumentation and with vision, has been evident on several occasions where it was obvious that the delegates of European countries failed almost absolutely to appreciate the conditions and characteristics of this continent and its two principal nations. It is unfortunate indeed that the great republic should not be permitted to participate in the sessions of the first meeting of the council. The presence of the Canadian delegates, however, seems to hold promise that their interpretation of the attitude of the people on this continent—there is little difference between Canadians and Americans,—will result in the elimination from the covenant of the stumbling block which forms the principal source of dissension and keeps the United States out of the League. If the early and enthusiastic entrance of the United States to the League were the only result of the efforts of the Canadians at Geneva, their mission could be called exceedingly successful. Their service, however, goes farther than that. They are sufficiently acquainted with the economic, political, social and industrial conditions on this side to straighten out some obvious misconceptions on the part of European diplomats and they further have a vision, probably not entirely independent of the tradition of permanent peace between us and our neighbors, which not only enables but inspires then to discount and discourage openly and forcefully, any action of the council which would tend to revive or nourish those jealousies which have been such prolific sources of strife elsewhere and so conspicuously absent north of the Rio Grande. Let us hope then, that the Canadian delegates will continue in their great efforts courageously and wisely to bring the vision of our great peaceful continent to the jealous and war fearing countries across the sea.

It is just as necessary to be honest, to be decent, to abstain from covetousness and from violence as it was in the days of Moses.

WHAT ABOUT WAGES?

Wages are being reduced in some lines and are well maintained in others. In some industries, plants are working full time, in others part time, and occasionally mills are shut down altogether, also where unskilled labor is employed there are some propositions where help is needed but many more where work has been suspended and workmen are idle. It has been intimated in certain quarters that the shutting down of plants and suspension of work in other lines is a deliberate move on the part of employers to bring about a situation where wages could be reduced. The truth or falsity of such an opinion would be difficult to prove. It is difficult for us to see how the employer can keep his force at work and pay them wages if he is unable to sell his goods. On the other hand his employees could not purchase if they are not employed and paid.

The aggregate purchases for a period of time can be averaged to a normal rate of commercial business on the basis of a month or a week. If the consumers would buy at the normal rate then industries would operate at uniform production, employment would be steady and wages would be constantly available. If, however, the consumer, and the great majority of consumers are wage earners, refuse to make purchases, the retailer, the wholesaler and the manufacturer are unable to dispose of their goods and replenish their stock; in other words the industries which make the commodities of commerce would have nothing to do, or so little to do that they would be unable to keep their operating force normally employed. We have struck a period where the consumer has refused to buy. The retailer in his endeavor to clear his shelves has cut prices. He can afford to do this only to a limited extent else he will be unable to buy more goods. The cost of his stock has been high, partly because of the initial high cost of raw materials, the high wages, paid to the labor employed in their manufacture, and partly to the large profits accruing to the manufacturer and intermediate dealer because for the past few years the demand for most commodities has been in excess of the supply. Having witnessed reduction in some prices, the consumer comes to the conclusion that all prices will drop and that those which have fallen will go further. Some of them are already below what good business practice would dictate and can be afforded only because unusually high wages in the past few years have enabled dealers to dispose of stocks at unusual profits. On the other hand there are commodities which have

been bought at high price and which were originally high in cost of production. In some lines the cost of manufacturing has by no means been reduced in proportion to the prices at which retailers are selling the goods. Some basic commodities are now sufficiently low in price to have a material effect on the cost of living. The cost of manufacturing can only be reduced by lowering the percentage of profit, the expenses for labor, or the cost of raw material, all or in part. The first item is governed partly by the law of supply and demand and partly by the greed or generosity of the manufacturer or dealer. Both of the other items are essentially matters of labor. The more each worker produces, the cheaper it can be sold, thus he benefits.

If the manufacturer cannot reduce his cost of production, the wholesaler and retailer cannot afford to buy his goods and sell them to a public which refuses to buy at a price which would otherwise have to be charged to give him any profit at all. If a man cannot sell his goods he cannot employ labor. The situation then hangs on three points, the willingness of employers to sacrifice some profit, willingness of labor to accept reduction in wages commensurate with reduction in living costs in order that manufactured products may be sold at correspondingly reduced prices, and the willingness of the consumer to resume the purchase of needed commodities in normal volume at these reduced prices.

In the present industrial situation it seems inevitable that some unemployment must take place. The employee suffers most but the employer also bears a share of the misfortune. We should personally prefer, where action is necessary, to see partial operation of a plant rather than complete shut down, believing that Dusty Rhodes was quite right when he argued on finding it necessary to work three days a week, that "half a loaf is better than none."

A GOOD LESSON.

Our friend Robson Black, Secretary of the Canadian Forestry Association, tells an excellent fire prevention story. A gentleman called at the office of a friend, took the chair that was offered him, lit a cigar and threw the match into the waste basket. It happened to be a metal basket and contained considerable waste paper. Conversation began and so did something else. In a short time smoke was coming from the basket and the visitor became uneasy but his host paid no attention. When flames began to come from the basket, however, the visitor rose excitedly and asked the other man why he did not call somebody to put out the fire. He was politely told by his host that he had no intention of calling anybody but that a man who was careless enough to throw away a match in that fashion should put the fire out himself. The visitor then climbed into the waste basket, stamped out the fire and later bought a new pair of trousers.

It would be a fine thing if more people who are careless about fire were obliged to suffer the consequences themselves. This is just as true of those who permit accumulations of rubbish, either in the woods, the home or the plants, as it is those who furnish the spark.

COBWEBS.

Order those Safety Calenders NOW. Get one for each employee and each office and department. See if you can bury A. P. with orders. Address Pulp and Paper Makers Safety Association, 129 Spadina Ave., Toronto. The more you get the cheaper they are.

The report of the Federal Trade Commission on wall paper for October gives an average contract price of 10⅞ cents. The American concerns handled 8,512 tons during the month.

The Brompton Pulp and Lumber Co., which has closed its saw mill for the winter, should not be confused with the Brompton Pulp and Paper Co., which is not only very busy but will soon have its new pulp mill working.

"The Crest" is the name of the interesting monthly publication of the Howard Smith Paper Mills, Ltd., Montreal. The name, with the well-known "Beaver S." trade mark, with the scroll, "The summit of paper quality," state the position in which the company would put its product in the minds of the public. The copies we have received are full of valuable information on paper and other subjects. Needless to say it is a fine job of printing.

From Vancouver to Wisconsin is a long way to haul pulpwood, but is really only about twice as far as wood is already shipped from points in Ontario and Quebec to mills in New York and Pennsylvania. There are timber areas in Western Canada where the haul would not be more than 50 per cent. greater.

The National Association of Purchasing Agents is so opposed to tipping that it has sent resolutions to Congress asking that "'commercial bribery" be made a Federal penal offense.

The average attendance at the meeting of the Woodlands Section in Toronto last week, was over 100. All the big eastern mills were represented and there were a number of Americans and forestry students. Good work!

Children must have Christmas trees, it seems. We shall soon expect to see them practically all produced in nurseries, just as furs will come from fur farms.

(Isn't that amusingly ambiguous?).

The Measurement of Pulpwood and the Determination of Yields Therefrom

A Report made to the Committee on Uniform Cost Keeping of the News Print Service Bureau on November 8, 1920 by Dr. Otto Kress, of the Forest Products Laboratory, Madison, Wisconsin and Geo. D. Bearce, Engineer for the Bureau.

At a previous meeting, attention was drawn to the wide divergence of methods used in obtaining information regarding the quantity of pulpwood used and pulp produced. Some companies measure the wood in racks and calculate the yield on the basis of an arbitrary number of pounds of pulp produced per cord. Other companies do not actually measure the wood used in any manner but figure the quantity consumed from the tonnage of paper made. This method necessitates a percentage factor to provide for shrinkage. Other methods are used also but all include a large percentage of estimates because they must deal with hitherto undetermined factors, two of which are the density of the wood and the solid cubical content of the cord. Therefore, the number of cords reported used does not represent the actual quantity of wood consumed and there is always the uncertainty as to whether the book inventories of pulpwood will check out at the time of cleaning up the block pile. Serious shortages and over runs in the book figures are found at the time of the clean up, which are caused by miscalculations in the volume of wood used in the first place as to the volume of wood used in a given time, the uncertainty continues into the pulp mill in the determination of pulp production figures.

It is common knowledge that the cause for all this uncertainty and estimation is because wood has been used on a volumetric basis with the cord as the unit of measurement. The solution of the problem is to determine not the cubic or cord measurement of the wood but the actual wood content. If this can be determined, there is then established a definite relation between the wood used and the pulp produced therefrom.

An investigation has therefore been carried on by the Bureau for the last six months in cooperation with the Forest Products Laboratory, having the following main objects in view:—

1. To establish the relation between the volume and the weight of a unit quantity of wood and the weight of the pulp produced therefrom.
2. To determine accurate and practical methods of sampling wood for moisture.
3. To determine adequate methods of obtaining the measurement of slush pulp either by weight or by volume.
4. To study and recommend practical means of weighing wood delivered in large quantities to the mill under varying conditions.

The importance of obtaining accurate information upon the actual quantity of wood used in the pulp mill is more fully appreciated when it is considered that the present cost of rossed pulp wood delivered to the mill varies between one and two cents per pound of wood figured on a bone dry basis. This means that now the cost of the one chief constituent of paper, approximates the price at which newsprint itself was sold only a few years ago. The pulp and paper industry so far has paid far more attention to minor economies, such as sulphur consumption, the cost of colors, size and alum, etc., than to wood, the raw material, which is constantly increasing in cost. Extensive tests were made to obtain data under actual mill operating conditions upon the yield of groundwood and sulphite pulp that can be obtained from a given volume or weight of wood used and special attention was given to the amount of decay of the wood. The variation in moisture content of pulpwool under varying conditions of storage was also thoroughly studied.

The results of the work have been submitted to, and approved by an advisory committee consisting of:—

J. S. Bates, Technical Superintendent, Price Bros., Ltd.

E. A. Charlton, Superintendent Paper Mill, Brompton Pulp and Paper Co., Ltd.

C. F. Rhodes, Manager of Bureau of Tests, International Paper Co.

J. P. Riley, Manager of Woodlands Dept., International Paper Co.

L. H. Shipman, Assistant to the Manager, Spanish River Pulp & Paper Mills, Ltd.

The present method of measuring pulpwood based on a cord piled 4′ x 4′ x 8′ with a theoretical volume of 128 cubic feet is universally recognized as being extremely unsatisfactory. The volume in solid cubic content of a cord of wood piles 4′ x 4′ x 8′ varies from 65 cubic feet to 95 cubic feet though under ordinary conditions the volume of the cord usually varies from 80 to 90 cubic feet. This is due to the variation in the diameter and length of the sticks of wood and the proportion of knots and crooks.

Recently one of the larger newsprint mills determined by actual trial that a cord piled 4′ x 4′ x 8′ which had been previously assumed to contain 95 solid cu. ft. of wood actually contained a fraction under 90 cu. ft. representing an error of 5.6%. Sound spruce averages 26 lbs. per solid cu. ft. of bone dry wood so there was a discrepancy of 130 lbs. of actual wood substance per cord. On a daily consumption of 100 cords this represents 13,000 lbs. of wood equivalent to 6,500 lbs. of sulphite pulp or 11,700 lbs. of groundwood pulp. Assuming $150.00 per ton for sulphite and $120.00 per ton for groundwood as being the present market price, this difference in calculation represents $480.00 per day for sulphite or $700.00 per day for groundwood.

The investigation dealt extensively with the question of decay in wood. Recent studies by the Forest Products Laboratory, at Madison, Wisconsin of the decay of wood show that there is an appalling loss to the industry from this cause. Such losses should be correctly determined and this cannot be done by the cord or volume measurement of pulpwood, which, while undergoing decay suffers no change in volume, but does decrease decidedly in weight. Scalers attempt to estimate rot in wood but this is arbitrary and often incorrect.

Examination of a number of shipments of infected spruce wood shipped to the laboratory for pulping purposes showed a maximum variation in comparison with sound wood of 5 pounds per cu. ft. of bone dry

wood. Assuming the cord to consist of 90 solid cu. ft. this loss is equivalent to 450 lbs. of wood per cord. Assuming sound spruce wood to weigh 26 pounds per cubic foot or 2,340 pounds per cord, the loss of 450 pounds per cord represents a 19% loss on actual wood substance. It is unnecessary to show further the enormous loss this means to a mill using several hundred cords of wood daily.

In order to measure wood in terms of its bone dry weight it is absolutely necessary to devise an adequate and practical method for determining the moisture. For this purpose 550 separate moisture determinations were made by the disc and boring methods.

The disc method consists in cutting a cross sectional disc from a certain point in the log, weighing it wet, drying, and then weighing again, the difference in the two weights representing the moisture. This method is acknowledged to be theoretically correct but it is slow and costly. The more practical method was found to be, to bore a ¾″ or larger hole from the circumference to the center or pith of the log. The shavings obtained by the borings were tested in the same way as the discs to determine the moisture. The boring method gives a bone dry weight averaging about 2% more than the disc method. This slight descrepancy can be allowed for in the computation of correct results. The time consumed in testing 4′ wood by the boring method averaged about 30 minutes per car of 12 cords or about 2-½ minutes per cord for the actual time of sampling.

During the investigation, representatives of the Bureau have discussed with various members and with the staff of the Forest Products Laboratory the soundness of principle involved in measuring wood by weight rather than by volume. We have found many members in complete accord with this method. It was deemed necessary, however, to make extensive pulping tests to substantiate and if necessary to further demonstrate its practicability. The tests were conducted at the following mills:—

Nekoosa-Edwards Paper Co.—for 10 weeks on Sulphite.

International Paper Co., Hudson River Mill—for 1 week on Sulphite.

International Paper Co., Milton Mill—15 days on Groundwood.

It is not necessary at this time to discuss all the details involved in making these tests. They will be found in the complete report. The tests involved the weighing of wood on track or platform scales, sampling for moisture, very carefully determining the quantity of pulp and screenings produced either in slush form or in laps, and the measurement of white water losses, etc. In order to obtain figures on slush production, the regulation of consistency of stock was given careful attention.

Owing to the length of the test at the Nekoosa-Edwards Plant we were able to obtain figures showing variations in production both per cord and per pound of wood used. The average yield of sulphite pulp per pound of bone dry wood after making an allowance for loss in barking of 13%, was 43.4%. This figure is comparable to the results obtained in experimental tests by the Forest Product Laboratory.

The test on sulphite pulp at the Palmer Falls Plant of the International Paper Company confirmed the results obtained at the Nekoosa-Edwards Plant, and the average yield for the entire test was 44.2% per pound of bone dry peeled wood used.

At the Milton Mill of the International Paper Co. the yield of groundwood for the four runs show an average of 93.57% per lb. of bone dry wood. The maximum difference between the highest and lowest yields of the four runs was 3.45% per lb. of wood.

In the use of wood on the weight basis, equipment is of vital importance. This is necessary in order that the methods used may be economical, practical and as nearly automatic as possible. Various scales and other measuring devices are now on the market, some of which are in use in the paper industry. It is probable that apparatus used in other industries can be adapted for use in pulp and paper mills and all of this equipment will be described in detail in the full report of the investigation. At this time, it will suffice to mention one type of scale, among many, which has been used for several years with reliable results in the weighing of chips on a continuously moving belt conveyor and simultaneously recording their weights.

The cord method does not accurately determine the variation in solid cubic content and the loss due to decay cannot be accurately estimated by scaling. It has been demonstrated that wood can be accurately and quickly sampled for moisture content. This provides a definite basis of measurement and reduces to almost a negligible figure the inaccuracies unavoidable under the cord system. A weight basis is comparable to the present mill method of weighing coal, limestone, sulphur, alum and other raw materials which are of less cost and importance than the raw wood. Some of the advantages of using a weight basis for wood are:—

1. A definite determination of the actual quantity of solid wood used in the mill, thereby entirely overcoming the difficulty at present experienced in the measurement of wood on the indefinite cord basis, thus eliminating overruns or shortages in wood inventories.
2. The weight basis eliminates the present uncertainty in attempting to scale out the proper percentage of rot in a specified quantity of wood, as wood does not change in volume during decay but suffers a direct loss in weight in proportion to the amount of rot present.
3. The use of wood on a weight basis makes it possible to determine definitely the quantity of pulp which can be produced from a given amount of wood, thereby eliminating the uncertainty of the cord or volumetric basis.
4. The use of wood on a weight basis would be of very material assistance in putting the Pulp and Paper Industry on a scientific basis comparable to other similar industries and would immediately result in closer technical and mill control.
5. Correct quantities can be obtained for cost accounting purposes by the establishment of a logical relation between the weight of wood which is the raw material and the weight of pulp and paper which represents the finished commodity.
6. It would be very advantageous to a company that buys wood in car load lots to purchase on the weight basis as it would be protected against buying rotten wood.

It should however be emphasized that this is entirely distinct from the advantages of weighing wood after its delivery to the mill.

How A Paper Mill Uses Periodicals

Miss Aileen B. Collins, Librarian of the Spanish River Pulp and Paper Mills, at Sault Ste. Marie, has prepared the following description on the methods employed for circulating, abstracting and filing periodical literature.

The importance of a system through which information regarding all phases of paper industry can be brought to the attention of executives is emphasized by the repeated demands for summaries of various articles which appear in the current periodicals which are circulated throughout mill and offices.

These magazines remain but one day in each department and very often the executive has only sufficient time to read the article by title. Generally, too, there is not sufficient space in which to file these periodicals for easy reference.

It was this need which led to the establishment of a system of abstracting, now in use, whereby articles published in any magazine can be abstracted and the abstract sent to the enquirer within 24 hours.

Circulation of Periodicals.

Immediately on receipt magazines are started in circulation. Originally they were sent to every department, and as they were read, any article containing information of use or interest to any department was initialed, the periodicals continuing in circulation. This worked out fairly well but it was found that more speed could be gained if the magazines were circulated according to departmental requirements. For example the Engineering magazines are of particular interest in the Engineering departments but of little or no interest in the Sales or Purchasing Departments. This idea was tried out and such results were obtained that it was adopted.

In order to keep these abstracts in good order, the revised classification system of the Canadian Pulp & Paper Association was adopted and each abstract classified in accordance with the sixteen classes or main divisions in this system.

The interest in this system is apparent by the number of abstracts requested by the different department heads and the type of abstract going to the different departments. Those going to the Management are of a general character, to the Quality and Products Department abstracts relative to the technical and efficiency problems of the industry, those going to the Engineering Departments deal with engineering problems and methods; to the Forestry Department, ways and means of fighting forest fire and conserving the forest. By the use of abstracts the Sales Department is kept in touch with market prices and quotations and in like manner each department has in its file a series of abstracts of direct importance and interest. A copy of all abstracts is filed in the office of the abstractor for general reference purposes.

There is the leaf index in which complete articles are torn from the magazine, indexed and filed according to classification. Complete information regarding many vital problems is thus at hand for ready reference.

In the same way abstracts published in the magazines are cut out, saved, and pasted on a card 4″ x 5″, also any other information that may be procured. In this way there is built up a very expandable file with direct information as to the source of the original article or information on any subject that may be brought up for discussion.

These magazines after having finished their circulation route are returned to the abstracting office and filed according to their date and title. Any one wishing to borrow one, to read some article at leisure, may do so by applying to the Librarian and having a memo of the name and date of the magazine and probable date of return to file.

An alternative method would be to prepare abstracts prior to circulation of the periodical. This method has been under consideration but does not appear to be as efficient or to fit the need of the organization as well as the plan in use.

CLASSIFICATION OF ABSTRACTS AND LITERATURE FOR INDEXING AND FILING.*

* As requests for this information are frequently received by the editor, this seemed a good opportunity to make it available. Suggestions for improving the classification will be welcome.

The following classification is according to the method approved by the Technical Section of the Canadian Pulp and Paper Association. Where an article applies to more than one subject, it should be cross-indexed by title.

A.—PROPERTIES, CHEMISTRY AND TESTING OF RAW MATERIALS, AND FINISHED PRODUCT.

A—1 WOOD.
A—2 RAGS.
A—3 STRAW AND SIMILAR RAW MATERIALS.
A—4 CHEMICAL WOOD PULP.
A—5 MECHANICAL WOOD PULP.
A—6 FUEL.
A—7 LIMESTONE, LIME, SULPHUR AND PYRITES.
A—8 SULPHATE AND SODA.
A—9 BLEACH AND SALT.
A—10 WATER.
A—11 CLAY, OTHER FILLERS AND COATING MATERIALS.
A—12 SIZE, ALUM, GLUE, ROSIN, STARCH AND CASEIN.
A—13 DYES AND COLOR.
A—14 PAPER AND MANUFACTURES THEREOF.
A—15 CELLULOSE AND PRODUCTS THEREOF.
A—16 BUILDING MATERIAL AND METALS.
A—17 OILS AND LUBRICANTS.
A—18 CHEMICALS.
A—0 MISCELLANEOUS.

B—FORESTRY.

B—1 BOTANY.
B—2 SYLVICULTURE (REFORESTATION.)
B—3 PROTECTION (CONSERVATION.)
B—4 UTILIZATION
B—5 TECHNOLOGY (LUMBERING, LOGGING, ETC.)
B—6 ENGINEERING (SURVEYING, ETC.)
B—7 MANAGEMENT.
B—8 GRAZING.
B—9 ECONOMICS AND STATISTICS (POLICY, RESOURCES, LAWS, ETC.)
B—0 MISCELLANEOUS.

C—WOOD PREPARING AND EQUIPMENT.

C—1 MANUFACTURING CONTROL AND TESTS.
C—2 BY-PRODUCTS.
C—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
C—4 WOOD MEASUREMENT.
C—5 TRANSPORTATION AND STORING.
C—6 SLASHING AND SAW MILLS.
C—7 BARKING AND CLEANING.
C—8 CHIP PREPARING.
C—0 MISCELLANEOUS.

D—GROUND WOOD MANUFACTURING AND EQUIPMENT.
(Note.—For pulp treatment and drying see Class G.)
D—1 MANUFACTURING CONTROL AND TESTS.
D—2 BY-PRODUCTS.
D—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
D—4 GRINDING, GRINDERS AND STONES.
D—5 WOOD TREATMENT FOR GRINDING.
D—0 MISCELLANEOUS.

E. SULPHITE MANUFACTURE AND EQUIPMENT.
(Note.—For pulp treatment and drying see Class G.)
E—1 MANUFACTURING CONTROL AND TESTS.
E—2 BY-PRODUCTS.
E—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
E—4 ACID MAKING AND RECOVERY.
E—5 COOKING.
E—0 MISCELLANEOUS.

F—SODA AND SULPHATE MANUFACTURE AND EQUIPMENT.
(Note.—For pulp treatment and drying see Class G.)
F—1 MANUFACTURING CONTROL AND TESTS.
F—2 BY-PRODUCTS.
F—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
F—4 LIQUOR MAKING AND RECOVERY.
F—5 COOKING.
F—0 MISCELLANEOUS.

G—PULP TREATMENT AND DRYING—OPERATION AND EQUIPMENT.
(Note.—For manufacture of pulp and equipment for same see Classes D, E. F.)
G—1 MANUFACTURING CONTROL AND TESTS.
G—2 BY-PRODUCTS.
G—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
G—4 PULP HANDLING AND CONVEYING.
G—5 WASHING AND CONCENTRATING.
G—6 SCREENING AND RIFFLING (SEE ALSO K 11).
G—7 REFINING.
G—8 WET MACHINES.
G—9 DRYING MACHINES.
G—10 PRESSING AND BALING.
G—11 SAVE-ALLS (SEE ALSO K 13).
G—12 SHIPPING, STORING AND WEIGHING.
G—13 PULP, QUALITY AND GRADING.
G—0 MISCELLANEOUS.

H—BLEACHING, BLEACH MANUFACTURING AND EQUIPMENT.
H—1 MANUFACTURING CONTROL AND TESTS.
H—2 BY-PRODUCTS.
H—3 CONSUMPTION OF RAW MATERIALS, UNIT POWER AND YIELD.
H—4 BLEACH MANUFACTURING.
H—5 BLEACHING.
H—0 MISCELLANEOUS.

K—PAPER MANUFACTURING AND EQUIPMENT.
(Note.—See also Class G.)
K—1 MANUFACTURING CONTROL AND TESTS.
K—2 BY-PRODUCTS.
K—3 CONSUMPTION OR RAW MATERIAL, UNIT POWER AND YIELD.
K—3 BOILING AND WASHING.
K—5 PULPERS, SHREDDERS AND CHESTS.
K—6 SPECIAL TREATMENT OF FIBROUS MATERIALS.
K—7 BEATING AND REFINING.
K—8 COLORING.
K—9 LOADING.
K—10 SIZING.
K—11 SCREENING, (SEE ALSO G. 6).
K—12 PAPER MACHINES.
K—13 SAVE-ALLS (SEE ALSO G 11)
K—14 FINISHING AND INCIDENTAL OPERATIONS.
K—15 NEWSPAPER AND HANGING.
K—16 KRAFT AND WRAPPING PAPERS.
K—17 WRITING, BOND AND BOOK PAPERS.
K—18 BOARDS.
K—19 COATED AND PROCESSED PAPERS.
K—20 GREASE PROOF AND PARCHMENT PAPERS.
K—21 BUILDING AND ROOFING PAPERS.
K—22 TISSUES.
K—23 SPECIAL PAPERS AND TREATMENT THEREOF. (SEE ALSO CLASS L.)
K—24 PACKING WAREHOUSING AND SHIPPING.
K, O MISCELLANEOUS.

L—ARTICLES PRODUCED FROM PULP AND PAPER.
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L—2 BY-PRODUCTS.
L—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
L—4 CONTAINERS FROM PAPER AND PULP.
L—5 ARTIFICIAL SILK AND OTHER CELLULOSE PRODUCTS.
L—6 PAPIER MACHE AND MOLDED PRODUCTS.
L—7 PAPER YARNS AND PRODUCTS THEREOF.
L—O MISCELLANEOUS.

M.—GENERAL EQUIPMENT.
M—1 MANUFACTURING CONTROL AND TESTS.
M—2 BY-PRODUCTS.
M—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
M—4 MECHANICAL TRANSMISSION.
M—5 REPAIR SHOP AND ACCESSORIES.
M—6 ELECTRIC TRANSMISSION, MOTORS AND ACCESSORIES.
M—7 HEATING VENTILATION AND LIGHTING.
M—8 PUMPS.
M—9 TRANSPORTATION IN MILL AND YARD.
M—10 FIRE PROTECTION.
M—O MISCELLANEOUS.

N.—POWER GENERATING AND EQUIPMENT.
N—1 MANUFACTURING CONTROL AND TESTS.
N—2 BY-PRODUCTS.
N—3 CONSUMPTION OF RAW MATERIAL, UNIT POWER AND YIELD.
N—4 BOILER HOUSE.
N—5 COAL AND ASH HANDLING.
N—6 STEAM POWER PLANTS.
N—7 HYDRO POWER PLANT.
N—8 INTERNAL COMBUSTION ENGINE PLANTS.
N—9 ELECTRIC POWER EQUIPMENT.
N—0 MISCELLANEOUS.

O—WATER SUPPLY AND EQUIPMENT.
O—1 WATER WORKS.
O—2 FILTER PLANTS
O—3 PURIFICATION AND SOFTENING PLANTS.
O—0 MISCELLANEOUS.

P.—SAFETY ENGINEERING AND EDUCATION.
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R—3 OFFICE SYSTEM.
R—4 BUSINESS RELATIONS.
R—5 STATISTICS AND MARKET REPORTS.
R—6 MANUFACTURING SYSTEM.
R—7 LABOR.
R—8 TRANSPORTATION AND FREIGHT RATES.
R—9 TARIFFS AND TAXES.
R—10 FINANCING AND INVESTMENTS
R—11 INSURANCE.
R—12 MANUFACTURING COSTS.
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R—0 MISCELLANEOUS.

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UNIVERSITY OF BRITISH COLUMBIA INAUGURATES A DEPARTMENT OF FORESTRY.

H. R. Christie, F.E., now assistant chief forester in the provincial department of land has been appointed associate professor of forestry in the University of Columbia. Professor Christie will have associated with him members of the staff in engineering, botany, biology, chemistry and other related subjects.

Professor Christie graduated in forestry in Toronto University eight years ago. He had a two-year course at Ontario Agricultural College, taking his diploma in 1908, followed by a four year university course. During 1911 he was in the C. P. R. forest service and the next year the commission of conservation. In 1913 he entered the B. C. Forest Service remaining 3 years when he joined the expeditionary force and proceeded overseas. On 1916-1917 and the first part of 1918 he was lieutenant with the 8th Field Company C. E., in France. In 1918 he was called to Seaford to become instructor in the Canadian School of Military Engineering. From September 1918 to June 1919 he was with the 16th Field battery C. E. F., Siberia with rank of Captain. Returning last year to the forest service in British Columbia he became assistant chief forester on the promotion of Mr. Caverhill to the chief forester's position. Professor Christie is a native of Amherst, Nova Scotia.

The new department now put into operation by the board of governors of the University of B. C., should result in much good. This should tend to keep young men in the province that have planned to go to other universities to take this course. The writer knows of one young chap that spent this Summer in one of the large Pulp and Paper plants getting practical knowledge and this Winter went to Seattle to take a forestry course in the University of Washington because he could not get what he wanted here. The new course is well worth while for the young man that is interested in the subject. It will be the young man who takes such a course who will reap the benefit of the future development of the forestry resources of the province.

The Business of Forestry in Sweden

An Address by Mr. H. Graeslund before the Woodlands Section of the Canadian Pulp and Paper Association, in Toronto, Dec. 8 and 9, 1920.

To begin with I wish to tell you, gentlemen, that I have accepted the very kind invitation to read a paper at this meeting with very great pleasure. I have been received with such splendid hospitality and kindness from everybody I have met with in this country that gradually there has grown a very great desire in my mind to get a chance of showing my gratitude. And so when I got this invitation my first spontaneous thought was that here perhaps I would get a chance to be of some little use for my friends in the pulp and paper business of Canada. I know very well that this thought is rather conceited, but I trust you will excuse me as my motive is a rich and warm feeling of friendship for Canada and the Canadians.

My intention is to give you a very short description of Swedish reforestation, its development and present situation. But before trying to do so I should like to tell you my very simple opinion on Canadian reforestation problems.

There is one question which I have never failed to ask every one of my Canadian friends:

Has Canada got sufficient resources of forests to supply lumber consuming industries with raw material, without providing for regrowth of her forests?

The invariable answer has been: "No."

Why, if that be true, it is quite evident that only good reforestation methods will enable the further development and maintenance through a considerable time of this splendid industry. Furthermore I have been told that many of your best situated forests may be exhausted in something like 40 years.

Eventually the reforestation problems must be looked upon from the point of view that Canada's forests are one of her richest and finest natural resources, upon which her national wealth is largely dependent, as well as the future of a proud industry in which hundreds of million of dollars are invested.

Put briefly: reforestation seems to be one of the greatest economic questions at present in Canada, and it is a public affair as well as a private interest of very great importance.

In Sweden we had to face the same situation quite a long time ago. Our lumber industry is older than yours, and as much as 40 or 50 years ago we slowly began to realize what the bitter end would be if we did not tackle the reforestation problem somehow or other. But it is really during the last 25 years that modern methods to an important and remarkable extent have been developed. I would not tell you the truth if I said that everything in Sweden at present is ideal as regards forestry. But simply because we have been experimenting and working for some time our methods may be of some interest and use for you. Of course conditions are very different in the two countries, but the principles, the aim and the main lines are no doubt very much the same.

Of the 41 million hectars (1 hectar = 247 acres) constituting that total area of Sweden, if the innumerable inland waters be neglected, it is estimated that 21.6 or about 52 per cent is covered by forests. This makes 392 hectars per 100 inhabitants, the average figure for Western Europe being only 37. Of the Swedish forests about 37.5 per cent belong to the State, 1.9 per cent to towns and parishes, and 60.6 per cent to private individuals.

By far the greater part of the forest resources are to be found in the northern half of Sweden, where the climatic and other conditions are very similar to those in Canada. The transport of the logs from the forests to the mills is provided for in an excellent way through innumerable rivers going from west to east. Sweden's prominent position in the world's timber trade to a very large degree depends upon these 19,000 miles of excellent floating ways which at a very low cost carry the timber down to the mills. Most of the mills are concentrated at the mouths of the rivers, on or very close to the coast of the Baltic. These mills get their raw materials direct from the river and ship their products from quays a few yards from their doors.

The rivers are estimated to be able to supply water power amounting to 6½ to 10 million horse power avaiable during six months of the year.

By this brief statistical information you may have got some idea of the general conditions, and it may be time to turn to the subject.

Reforestation is a difficult problem. What you do to your forest to-day won't show its results until 50 or 100 years hence. Reforestation means one generation's work for coming generations. It does not appeal to our business sense at once and it takes quite a long time to realize that it is a first rate investment for the lumbering industry. Therefore, it is necessary that the State herself takes the lead, dictates the outlines for the nation's forestry policy. Co-operation between the State and private interests to the benefit of both is the first necessary supposition.

At home the Government has found three ways to do her part of the work: i.e. Legislation, education and the management of her own forests.

LEGISLATION.—The legislation concerning private forests has, in the past, gone through highly remarkable phases of development. From complete freedom about three hundred years ago, they were by degrees made an object of increasingly severe legislation, and finally even lumber felling for household purposes was placed under the control of the State. Then followed a revision which at last once more led to nearly complete freedom. During the last five decades a reaction has set in, imposing several restrictions upon private forest owners with regard to the management of their forests.

Modern legislation has taken into consideration how different conditions exist in different parts of the country and tried to apply laws according to these conditions.

In Lappland, the northern districts of Sweden, it was ordained in 1873 that farm owners should not enjoy other rights to the woods on their farms than those of taking without previous official survey such timber as they might require for household needs and for fuel, and of appropriating, subsequent to official surveying and marking for the purpose of selling such timber in addition as can be annually felled without danger to the future preservation of the forests.

In this way the farm forests which form a very considerable section of the forests of the north have been

subject to regulations ensuring system to the lumbering there. The immense importance of this will be seen more clearly when it is remembered that these forests are situated in the immediate neighborhood of the Scandinavian Alps which renders their preservation invaluable as protection against over-severity of climate.

It may be pointed out in connection with this that exhaustion seriously affects the soil and the climate in a bad way. I won't go into any particulars whatever as I am sure you know this thing better than I do, but I will take the opportunity of pointing out which tremendous responsibility there is connected with the management of the forests of a nation. Millions of men and women are dying this year in the far East. Why? Because their forefathers did not possess the necessary feeling of citizenship and responsibility for their sons and their country to preserve their forests. And especially nations which have developed agriculture extensively must be careful with their forests as their exhaustion seriously affect the soil and the climate.

A purely dimension law has been enacted for the coast districts of Lappland. This enactment forbids the shipping and the sawing at export saw mills and the employment for the purpose of manufacturing wood-pulp, of pine and spruce timber which at a height of 4.75 meters from the base, does not measure at least 21 cm. in diameter, the bark not included. The penalty for the infringement of this regulation is the confiscation of the timber. Such a law directed as it is against a special form of mismanagement of forests, can easily become a hindrance for the proper care of the timber, which in many places requires the removal of second-rate wood in order that space may be secured for the growth of healthy young trees. The law does not overlook this fact, however, as it instructs the owner of timber in a way that requires the felling of second-rate wood, so as to promote the growth of the healthy timber, if he wishes to ship or saw such second-rate wood, to apply to the proper state-forester, who will then make such a survey of the forest as circumstances may require. This forester selects and stamps the second-rate timber that is allowed to be cut. The State pays the cost for this survey on condition that the owner has arranged the forest in sections for the purpose of being cut in proper rotation and in accordance with a plan approved by the Government Forest Service.

In 1903 a law was passed respecting the so-called "protective forests" the existence of which are a protection against drifting sand, or the lowering of the tree-limit on the high mountains. The law enjoins that timber felling for other than domestic purposes may take place only after a survey and marking of the trees to be cut by the Government Forest Service at the cost of the State.

The other private forests in Sweden are subject to the regulations of the law of 1903, respecting the care of private forests. According to this law, in forests belonging to private persons, lumbering must not be carried on in such a way, nor, subsequent to lumbering operations, may the ground be so treated, as to clearly endanger the regrowth of the timber. If there has been such mismanagement of the forest, the guilty person is obliged to take the steps necessary to secure the regrowth. If the lumbering rights have been made over by the owner of the forest to another person, the owner is responsible for the necessary restorative measures being taken. The burden of seeing that the law in question is properly carried out rests on the Forest Conservation Board, which must exist in every county council district. Besides being entrusted with this task the said Boards have also to promote the proper economy of the private forests by spreading a knowledge of forestry, by making grants in aid of the work of culture, by supplying seeds and plants, etc.

EDUCATION.—Every part of modern economics requires thorough education. A modern mill requires well trained engineers, modern forestry needs highly educated forestry men. An as regards preservation and regrowth of the forests, the expenses for this purpose are identically the same as the money the mill manager has to pay for repairs and maintenance of machines and mills.

All schools and colleges in Sweden, with very few exceptions, are state institutions. The same with regard to instruction in Forestry. The higher forestry education is provided for at the College of Forestry in Stockholm. The number of students admitted to this college is limited to the probable number of opportunities for their employment so that there is a considerable competition for the opportunity of entering and a high standard of men and work is maintained. There are a higher and a lower course, the first supposed to educate State foresters, the second especially intended for the training of private forest officials. The instruction is both theoretical and practical, including the following subjects: Forest Management, Forest Mathematics, Forest Technology, Forest Botany, Forest Zoology, The Science of Soils, Forest Policy, General Legislation, Book-keeping, Technical Chemistry and Agricultural Economy. The practical work is done during summer time out in forests specially devoted to the purpose in different parts of the country. Journeys are made under the direction of the teachers to study the methods of different companies.

The lower State Schools of Forestry are directed mainly to giving the pupils practical skill in the more important branches of forestry, but also embrace theoretical studies in the fundamental principles of Forest Economy.

As mentioned in the beginning the State owns more than a third of our forests. These state forests are managed by the Government Forest Service and not leased to private companies. The end aimed at by the Government's forest policy is to render the economy of the State Forests as permanent as possible. The two factors, personal, technical knowledge and permanent economy have made the Swedish State forests valuable and well preserved resources. The Forest Service consists of 10 Chief Foresters each one in charge of a "district," 90 foresters managing the same number of "revirs" and 417 rangers who are superintendents of so-called "guarding sections."

As regards forestry of the private companies my friend Ehn* is going to give a description of some of its most important points, and so I had better be as brief as possible. The main principle nowadays may be said to be an attempt to arrange the cutting in such a way that in times of good prices in the market the forests are slightly over-cut, in times of low prices the contrary, and the average of timber taken out from the forests corresponding to the regrowth. This policy necessitates very good estimates of the annual growth. of usually very vast districts, which is certainly a dif-

*Mr. Ehn's paper will be published in an early issue of the Pulp and Paper Magazine.

ficult task. A lot has been done in that respect lately. I may mention for example that the chief forester of Kramfors Co. is just inventing a special system for keeping record of the growth compared with the production. It is a kind of forest book-keeping by which an account is kept, supposed to be accurate within a very few per cent. On the debit side is the estimated growth which is calculated from careful measurements and on the credit side the actual amount of wood taken out. As you may say that such a method is only applicable on small areas, I may tell you that the forests of Kramfors are spread over a tremendous area and consist of about 190 million acres, supplying lumber for two large pulp mills and 4 saw mills.

Re-growth by means of *"Forest Plantation"* occur most generally in the southern and central parts of the country. During the last decade the Government has done a great deal to promote forest plantation which method, in consequence, has gained the confidence of the forest proprietors to a greater degree than formerly. This method, too, makes it possible to determine the future composition of the forest as regards the proportion in which the various kinds of trees are to be represented there. Forest plantations are raised either from seed or from seedlings. It has been found that if the soil is more suitable for one kind of tree, whereas you want two sorts to grow simultaneously (which often at home gives the best result) the best plan is to give the less favored tree a start of some years growth. This is often done so that the tree which shall be given the start is planted whereas the other is reproduced by means of seed.

In northern Sweden where distances and areas are very large, the companies have tried to carry out their cutting methods in such a way that the natural regrowth of the forest is facilitated. It would take me too long to describe this now, but if anybody is interested in these methods I should be very pleased to tell him all I know about them in private.

Most of the companies have their forests divided into districts managed by graduates from the College of Forestry. These districts are divided into guarding sections supervised by rangers trained in the above mentioned schools. These rangers live on their sections in comfortable houses built by the Company, and constantly surveys his forests. He carries out all orders from his chief forester and has the responsibility for the practical handling of everything respecting his section, marking the trees, organisation of the cutting and transport, nurseries, etc.

Before I finish I should like to say a few words on the connections between Canadian and Swedish lumbering men. The two nations are the most important lumber producers in the world's market. But natural conditions have given them altogether different markets. Sweden and Canada are not competitors, and have no need to compete with each other. But we have need of each other as good friends. Forestry is a difficult economic science, and I feel sure that it would be a very great benefit for both nations, and through them for the whole world, if Canadian and Swedish foresters would come together to co-operate and discuss their science in friendship and good fellowship. Our feeling for Canada is warm and sympathetic, and I wish, gentlemen that many of you would come and visit our country. You will be sure to be received as good friends.

About Our Advertisers

Bouffard—Bergevin.

Bouffard-Bergevin is a new firm organized to handle pulp and paper mill supplies exclusively. Their line includes, paper machine clothing, pulp stones, chemicals, etc., in which they represent some of the well known firms in the United States and Europe.



H. A. BOUFFARD.

Although they do not sell oils they have a technical service department pertaining to efficient lubrication acting independent from any oil companies, but handle proper lubricating oil apparatus for different conditions.



A. T. BERGEVIN.

Mr. H. A. Bouffard is a former mill man having been connected with paper mills in the United States and Canada before going overseas. Recently he has been in the technical service department of the Brompton Pulp & Paper Co., Ltd. Mr. A. J. Bergevin is a former banker and is also a returned man.

Canadian Fairbanks Morse are distributors of that interesting and remarkable tool, the "Radrobe" drilling attachment that bores square holes.

All plants of the Whalen Pulp and Paper Mills Ltd., are in full operation except the lumber mills. President McGarry is expected in Vancouver about the middle of December.

THE WONDER TOWN OF THE NORTH LAND.

The Porcupine Advance has the following to say of Iroquois Falls:—

From time to time complaints are heard regarding Iroquois Falls being kept as a "Company owned town." At first thought it seems rather odd that the chief complaints come from outsiders, rather than from those who live at Iroquois Falls and thus might be expected to suffer from any evils necessary in 'Company-owned' towns. A visit to Iroquois Falls is likely to suggest that "there's a reason," and a comparison of Iroquois Falls with other free and untramelled towns of the Province seems to be all in favor of Iroquois Falls. There may be disadvantage to a "Company-owned" town, but in the case of Iroquois Falls as the matter works out in practice, the benefits far outweigh any drawbacks. If the people of Iroquois Falls do not feel that they are happily situated in their beautiful town with its wide and well-kept streets, its miles of sidewalks, its 250, or more, comfortable homes, (every one with furnace, water, light, bath-room, sewerage, etc.,) its wonderful lawns, its public parks, its public and private profusion of flower gardens and beauty spots,—then the people of Iroquois Falls are difficult indeed to please. Under no known system of promiscuous private ownership could such a town as Iroquois Falls be built up in so short a time. Only a few years ago Iroquois Falls was not ineptly described as a "muddy clearance in the bush." To-day it is one of the Beauty Towns of the North, one of the most pleasing residential places in the Province. If you think "company" towns are wrong in theory, just visit Iroquois Falls to-day and you will be tempted to believe that theory and practice do not always make a perfectly matched team.

Unrestricted townsites in the North Land are well-known for their fire-traps, unsanitary conditions, overcrowding and all other municipal evils. Iroquois Falls has none of these undesirable features. The visitor receives his first impression of the town when he steps off the train at the depot. Just before him the large "Civic Centre,"—a park of wonderful lawns and magnificent flower beds. The rest of the town supports this pleasing first impression. Each house has its own lawn, well-kept, and beautiful with flowers. There does not seem to be a neglected home in the town. Evidently the citizens take the same pride in keeping the town a beauty spot as the Abitibi Company took in making such a town possible. And by the way, Iroquois Falls is not a "company" town in the ordinary way. It has its own municipal government, and the most democratic committees and counsellors. Indeed, outsiders might suspect that the only interference by the Abitibi Company takes the form of putting up the money after the people decide they want some new improvement.

Among its public features Iroquois Falls now boasts beautiful parks, fine roads, miles of sidewalks, one of the largest hotels in the North Country, one of the biggest and most modernly equipped public school buildings, good tennis courts, a large athletic ground, and a magnificent golf course in process of construction. The new public school is a modern structure of the most approved type, finished in stucco, with the interior finished throughout in hardwood. High ceilings, shaded electric lights, and practically perfect lighting, heating and ventilation systems make it the most desirable type of school building. It will accommodate 400 pupils. The new hotel is also modern and perfectly equipped in every respect. It would indeed appear to be too large and ambitious for a town no bigger than Iroquois Falls. But it is already taxed to capacity. Instead of being too large, further extensions may shortly be required. The hotel now has over 200 rooms, and about 25,000 meals are served in it every month.

These is much construction work now in progress at Iroquois Falls, and even greater things are planned for the town. There are extensions now under way to the pulp and paper mill, certainly now the most perfectly equipped, if not the largest, of its kind on the continent. One paper-making machine recently imported from England and now waiting the completion of the addition to house it, is the largest machine for paper making in the world.

A number of new houses are in course of construction for Abitibi Company employees, and practically all of the older houses are being stucco-coated to assure their warmth and comfort in the winter. There is an unusual individuality about the homes. No two of them are alike in appearance or design, though all are alike in being well-finished inside and out, every one with fine cellar, furnace, electric light, water, bath-room, sewerage, etc. There is only one house to every two lots and this means good lawns and gardens for every home. Some of the flower and vegetable gardens are "worth writing home about." A fine big new rink is also to be rushed to completion for this winter's hockey and skating, with additional provision for curling.

The people of Iroquois Falls take a great pride in their town and they have every reason for doing so. It is one of the Wonder Towns of the Great North.

LIFE INSURANCE FOR BELGO EMPLOYEES.

The Belgo Canadian Pulp and Paper shows its appreciation for the good, loyal and faithful services of its employees, and offers them free insurance with Metropolitan Life Insurance Co., as an acknowledgement of its responsibilities towards their dependents.

The amount of life insurance varies from $500. to $3,000., according to the following table:—

For men having been with the company on Nov. 17th for:—

6 months, less than 1 year continuous service	$500.
1 year, less than 2 years continuous service	$750.
2 years, less than 3 years continuous service	$1,000.
3 years, less than 4 years continuous service	$1,250.
4 years, less than 5 years continuous service	$1,500.
5 years, less than 6 years continuous service	$1,750.
6 years, less than 7 years continuous service	$2,000.
7 years, less than 8 years continuous service	$2,250.
8 years, less than 9 years continuous service	$2,500
9 years, less than 10 years continuous service	$2,750.
10 years and over	$3,000.

The insurance benefits do not in any way interfere with the Quebec Accident Compensation Act, and are over and in excess of any sums that are due to the dependents under the provisions of this Act.

Should an employee leave the company, he has the privilege to continue the insurance at his own cost without any medical examination, but subject to rates and conditions of the Metropolitan Life Insurance Co.

A feature of the agreement reached between the Belgo and the Insurance Company is the free nursing service which will be supplied. In many an instance serious diseases have been avoided or checked through the immediate intervention of a nurse or a doctor.

Canadians will be Interested in the Following Story from London which appeared in the New York Evening Mail of November 4th.

Englishman's View of Newsprint Market.

Newspaper publishers in the United States may make up their minds that the end has come to their virtual monopoly of Canada's news print output.

Last year the United States bought over 80 per cent. of the news print Canada produced, while 15 per cent. was consumed in the Dominion by its own newspapers. Part of the remainder came to England. By the end of next year there will be a very different tale to tell, unless world conditions change very greatly.

From Northern Countries.

Before the war England got most of her news print from Finland, Norway and Sweden, and a little from Germany. These countries were largely dependent on England for coal, and it takes a ton of coal to produce a ton of news print. Today the cost of English coal is so high and the general disorganization of industry in the northern countries so great that England cannot get the news print she needs from her old suppliers and the cost has gone beyond a point where any but a few newspapers in London can be regarded as really paying propositions.

Most London publishers today pay about 13 or 14 cents a pound for news print. This does not apply to the Northcliffe papers nor to the Daily Telegraph, owned by Lord Burnham, which have their own paper mills. Consequently the Northcliffe papers and the Telegraph are the only ones which can print a paper above a moderate size.

As a result the others are forced to cut their advertising to a minimum. Even the Northcliffe papers are economizing too because of possible eventualities. I was told authoritatively that the Times recently abandoned the project of producing a special number for which $750,000 worth of advertising had been pledged.

Very naturally in the circumstances London publishers envy the New York publisher who can buy paper at 6 3.4 cents a pound. And they say to themselves: "Why should not we get this comparatively cheaper paper instead of letting the Yankees have it? After all, Canada is our own, and blood is thicker than water. Why won't she sell to us?"

Attempt at Merger.

This point of view was put to me today by a man in close touch with one of the great newspaper organizations here.

"It may be," he said, "there is so much American capital invested in the Canadian paper mills that we cannot induce the present manufacturers to sell to us rather than to the Americans. But we mean to try and we are trying. We could pay a good deal more for news print than Americans are paying and still not reach our present high costs.

It is well known that during the recent Imperial Press Conference at Ottawa at attempt was made to form a merger of five great Canadian paper making concerns to be controlled by British capital.

I was told by a day well informed newspaper man that it is extremely unlikely that Lord Burnham would join the undertaking, in the first place, because he has his own paper mill, and in the second because he and Beaverbrook are not on very good terms.

But whether Burnham joins the merger or not, there is little doubt an attempt will be made to put it through. If it does not go through as now contemplated, there will probably be formed, it was said, a large corporation to take over as much as possible of the accessible soft wood lands of Canada so as to shut out the American mills.

The British point of view, in short, is that British newspapers must be protected as long as they are willing to pay a fair price for the Canadian product, and that America deserves very little consideration because not only has she allowed her own forests to be destroyed, but she is now producing ridiculously large newspapers which waste hundreds of thousands of tons of news print.

Small Editions.

It is worth noting here in that connection that the Times, although well off for news print, since it is a Northcliffe paper, has printed mostly sixteen or eighteen pages a day since September 1. Rarely has it gone to twenty. And it has charged six cents a copy for its issues.

The Telegraph averages about the same and charges four cents. So does the Morning Post, a still smaller paper.

The Daily Mail still remains at two cents, but it publishes only ten or twelve pages a day and seven colums to the page. But it has a circulation of 1,200,000, which would seem to show that the public does not run after heavy papers.

BROMPTON BUYS MORE WOODLANDS.

The Brompton Pulp and Paper Company, Limited, has acquired extensive pulpwood limits in the Lake St. John district, whereby 634 square miles, or 405,760 acres, will be added to the already considerable holdings of the enterprise.

The latest acquisition, it was stated, is a very valuable one and will give the company an important increase in available timber. The securing of the new limits will provide just what has been lacking in the past to place the company in a foremost place in the pulp and paper industry of the Dominion.

Prior to the recent acquisition, Brompton owned or controlled by lease, timber limits of 311,786 acres in the St. Francis River district, so that its holdings have been more than doubled with the addition of the 405,760 acres, and now total 717,528 acres. It was estimated several months ago that with outside purchases, the wood reserves of the company were considered sufficient to ensure a supply for forty years' operation at its present capacity, a period which, it would seem has been extended indefinitely by the Lake St. John addition.

It has been known for some time past that the president of the company, F. N. McCrea, M.P., who is considered one of the best timberland experts in Eastern Canada, has been giving his personal attention to the matter of increasing Brompton's pulpwood holdings and it is presumed that the closing of the recent negotiations was effected only after a personal inspection of the area involved.

Preparations are well under way for the installation of the machines for the new groundwood pulp mill of the Brompton Pulp & Paper Company at East Angus, and it is expected that operations will commence by the first of February.

Regular shipments are being made from the Ocean Falls Plant of the Pacific Mills, Ltd. The steamers of the Pacific Steamship Co., are making regular calls at Ocean Falls and taking a good share of the output of this mill South.

COMMITTEES OF T. A. P. P. I. AT WORK.

Nearly all of the standing committees of the Technical Association of the Pulp and Paper Industry are now fully organized and ready for active work.

Developments in Dyestuffs.

The Dyestuffs Committee, under the direction of Dr. Otto Kress, of the Forest Products Laboratory, Madison, Wis., will have a report of unusual interest to make at the annual meeting following developments in the manufacture of dyestuffs for the paper and textile trades since the World War. The committee as finally constituted now consists of the following specialists in tinted papers and dyes: Dr. Otto Kress, chairman, Forest Products Laboratory, Madison, Wis.; Ross Campbell, American Writing Paper Company, Holyoke, Mass.; Charles G. Bright, Kimberly-Clark Company, Neenah, Wis.; Clarke Marion, Champion Coated Paper Company, Hamilton, Ohio; Kenneth T. King, E. I. du Pont de Nemours & Company, 1114 Tribune Building, Chicago, Ill.; C. C. Heritage, National Aniline & Chemical Company, Buffalo, N. Y.; Carl C. Schneider, Knowlton Brothers, Inc., Watertown, N. Y.

An Investigation of Coating Substances.

A new committee which was formed at the last annual meeting, is the Committee on Coated and Processed Papers, of which Clarke Marion, of the Champion Coated Paper Company, Hamilton, Ohio, is chairman. The committee is preparing specifications of actual tests on the influence of stock on the coating, the coating of paper being influenced to a greater or less extent by the character of the stock used. The body of the stock must be varied in accordance with the results that are looked for. Thus, a dull finished coating requires a different grade of stock from a highly finished sheet. The several ingredients entering into the stock also exert an influence on the finished product. The committee therefore decided to establish a set of specifications or standards for the different ingredients that compose the actual coatings.

Specifications for Casein.

The coating of paper involves the general use of such materials as casein, starch, clay, blanc fixe, satin white, dyes, etc. The committee intends to concentrate its early work on the testing of casein and will endeavor to establish several simple tests and requirements to which a standard casein should conform. Among other aspects of the testing of casein, which the committee will consider are its clay carrying capacity, and the process of manufacture, whether lactic, sulphuric, muriatic or natural soured, the percentage of fat, moisture and foreign substances. The Committee on Coated and Processed Papers is composed of the following members of the Technical Association of the Pulp and Paper Industry: Clarke Marion chairman, Champion Coated Paper Company, Hamilton, Ohio; Norman Clark, Nashua Gummed and Coated Paper Company, Nashua, N.H.; Harold H. Holden, Falulah Paper Company, Fitchburg, Mass.; Edwin Sutermeister, S. D. Warren Company, Cumberland Mills, Me.; Kenneth T. King, R. I. du Pont de Nemours & Company, Inc., 1114 Tribune Building, Chicago, Ill.

The supply of Technical Association Papers Series ii is now exhausted. A new volume is in preparation consisting of the papers and discussions at the Fall meeting of the association held at Saratoga Springs, N.Y., last September.

The following reprints of papers and reports are on sale at the office of the association, 542 Fifth Avenue, New York, at the prices quoted:

Paper Testing Methods. A practical treatise by Fred. C. Clark on the analysis of paper and papermaking fibres as well as the loading materials in ordinary use. Formulas for stains and chemical reagents are given and there is a chapter on the fibres used or proposed for use in papermaking. ($1.00).

The Creative Workman. This is an account, by Robert B. Wolf of pulp and paper mill operations, showing how production was increased and an improved esprit de corps cultivated by the keeping of records of production and efficiency. It is a pamphlet that should be accessible to every mill executive and foreman, to say nothing of the workers themselves. (25 cents).

Hand Made Paper and Its Water Marks. By Dard Hunter. This is a bibliographical list of works dealing with the manufacture of hand made paper and the water marks in hand made papers. Descriptions of the books are given and these are of special value for library purposes. (25 cents).

Forest Products Statistics. An invaluable finding list for the records of government publications, which are sources of statistics on forest products. It includes both original and secondary sources and the names of the various offices in Washington from which tabulations may be obtained. (25 cents).

Government Paper Bibliography. A reference list of government documents on pulp and paper which are published by the Government Printing Office, Washington, D. C. (10 cents).

HEAD OF LINCOLN PAPER MILLS DEAD.

Word reached the offices of the Lincoln Paper Mills, Limited, in Toronto, Monday morning of the death at his home in St. Catherines, Ont., of the president of the company, Mr. W. D. Woodruff. The late Mr. Woodruff was sticken with apoplexy last Thursday and it was known from the first that he could not recover. Death ensued as a direct result of the stroke.

Welland D. Woodruff's death will be a distinct loss to the Canadian paper industry with which he has been identified for many years. He was born at St. Catharines in 1861 and entered the employ of the Lincoln Paper Mills Co., Limited, in December, 1881, with which industry he has been connected ever since, having reached the position of president and managing director. His other business activities included the vice presidency of the Coniagas Reduction Company, Thorold, and a directorship in the Coniagas Mining Company. He took a prominent part in the public life of his native city, St. Catharines, where he had served on the city council and in 1918 he unsuccessfully contested Lincoln county for the Commons. Although a very busy man he took time to indulge a taste for out-door sports of which he was very fond.

W. M. HARRISON OF PACIFIC PULPS LTD., RETURNS FROM TRIP EAST.

Mr. W. M. Harrison, formerly Sales Manager of the Whalen Pulp & Paper Mills Ltd., and now General Manager of Pacific Pulps Ltd., has just returned from a trip to the East. During his trip Mr. Harrison covered all the market centres for pulp and paper and secured first hand impressions of conditions that prevail.

ACTIVITY IN NEW YORK AND TEXAS.

A syndicate composed of leading paper manufacturers in Northern New York has purchased a controlling interest in the Northern New York Utilities, Inc., one of the Empire State's largest power concerns. The transaction involves the control of Utilities powers in Watertown, at Black River, Belfort, Taylorville, Elmer Falls and Effley Falls in Lewis county and South Edward's and Brown's Falls in St. Lawrence county. All these powers are fully developed except that at Brown's Falls, and aggregate approximately 30,000 horsepower. The deal was closed December 6 when Floyd L. Carlisle, president of the St. Regis Paper Company, representing the syndicate, and John B. Taylor, president of the utilities corporation, signed the contract calling for a transfer to the syndicate of approximately 75 per cent of the utility company's stock. The amount of the consideration involved was not announced, but it is believed that the stock was not purchased at anywhere near par value. The concerns party to the purchase own enormous powers on the Black River and on other Northern New York streams. Under existing conditions of competition it was impossible to harness them into their most effective service. A conciliation of these powers with the developed and undeveloped powers of the Northern New York Utilities, Inc., makes it the largest hydro-electric power combination in the eastern section of the United States, according to a statement made by Mr. Taylor and Mr. Carlisle. It makes possible a combined ultimate development of between 150,000 and 200,000 horsepower.

Dallas, Texas, has been chosen as the location for a new plant for the manufacture of writing, blotting, tissue, book and newsprint paper by the Trinity Paper Mills. It is said that this mill, when completed, will be the first of its kind to be operted west of the Mississippin River. The wheels of the new plant, if present plans carry, will be in motion early next spring. The Dallas mill, according to the announced plan, will have a capacity of twenty tons daily, and will use cotton linters in the manufacture of paper. Two other such mills are now in operation in the South, one at Augusta, Ga., and the other at Memphis, Tenn. The Trinity Paper Mills also has a plant under construction at Commerce, Tex. Another Texas venture calls for the construction of four new paper mills in the yellow pine district of the Lone Star State. Dallas is to be used as a distribution center for the product of these mills, which will form part of the present paper-making industry of the Bogalusa Paper Company of Louisiana, manufacturers of paper used in making cartons and boxes. W. S. Ayers of Chicago, who has just completed an investigation of the possibilities of paper making from the yellow pine pulp, states that every variety of paper used commercially, except newsprint, can be profitably manufactured from the quick-growing yellow pine. The new plants, to cost $8,000,000, will utilize these possibilities, making both kraft paper such as is used for wrapping or manufacturing containers and book paper.

If some of you old hard-shells would lend a hand by advocating safety and showing the younger generation the results of carelessness by your past experience, you would be a great help to the cause of humanity. There are a few of you who can show the results of carelessness by those missing parts of your anatomy.

IMPORTANT CHANGE IN WHALEN POLICY.

Almost immediately on becoming president of the Whalen Pulp and Paper Mills, Hon. T. W. McGarry, K.C., with other directors of the company made a thorough investigation of conditions in British Columbia. The result was announced last week in the appointment of the Reliance Mill and Trading Co., of New York, as the managers of manufacturing and sole sales agents for the product of the three mills of the Whalen Company. Mr. Garrigan, who has a reputation as a sulphite maker is also enlisted on the operating staff.

The Reliance Mill and Trading Co., means John Ball its president and U. M. Waite, general manager. Both of these men have had years of practical experience and have demonstrated their ability to perform important tasks.

PAPER MILL AT PRINCE GEORGE, B.C.

A report from Prince George, B.C., states that plans are practically completed for a pulp and paper mill at that point to cost over $6,000,000, by a number of eastern capitalists, who have been looking over the ground, including Angus McLean, of the Bathurst, N.B., Lumber Company; Frank Jones, president of the Canada Cement Company, and M. E. Preish, president of the Haynes Lumber Company, Buffalo, N.Y.

WESTERN CANADA PULP AND PAPER CO.

Owing to present conditions in the kraft pulp and paper market the Western Canada Pulp & Paper Co., Ltd., have closed down their plant for 30 days. During the suspension of operations construction is going on which is necessary for the doubling of the capacity of the plant. Up to the time of closing down only two out of four machines were in operation. When the plant is fully completed the capacity will be 40 tons per day. Besides the pulp which has been turned out some kraft paper has already been manufactured and deliveries made.

The present officials of the Company are: Pres. Everly M. Davis; Vice President, H. J. Daly, Pres. of the Home Bank; General Manager, G. A. Austin; Consulting Engineer, Henning Helin; Chief Engineer and Master Mechanic, W. R. Gray; Pulp Supt., T. Iverson.

Potential orders are now in sight to start on when the plant resumes operations.

PRINTING COSTS HIGHER IN ENGLAND.

Owing to the advance in printers' wages throughout the country, which took place last month, the Cost and Charges Committee of the Federation of Master Printers have examined the costing figures of a large number of printing firms. They find that the cost of general printing apart from materials, has increased by at least 5 per cent., and in the case of periodical, newspaper and similar work 6¼ per cent.

The arbitrator in the recent dispute awarded an increase of 18 per cent. on the pre-war wages in addition to whatever had been granted up to the end of June, to be apportioned among the various classes of workmen. Compositors who are members of the Printing Trades Alliance are entitled to an increase of 7s per week on their wages of £4 15s prior to the arbitration.

We often wonder what kind of a job the devil will have for the careless worker. We also wonder if he has any safety men. Surely not!

REDUCE PRICE OF NEWSPRINT.

As a result of the Conference in New York, on Monday, with consumers of their paper, it is reported that the sales representatives of the Spanish River and Abitibi paper companies had modified the price of 7 cents per pound for newsprint paper, recently announced, to 6½ cents or from $140 to $130 per ton.

The concession, while a moderate one, especially in view of the fact that the American paper users are to pay only 6 cents per pound, while other mills are getting 6½, for paper during the month of December, instead of the current 5 cent one, was well received in paper trade circles, where it was regarded that the 6½ cent rate was sufficiently remunerative.

The action, also, will bring the newsprint price to uniformity, other Canadian producers, as well as the International Paper Corporation of the United States, already having set the $130 rate for the first quarter of 1921.

PULP MILL FOR ARNPRIOR.

It is reported that McLachlin Bros. Ltd., of Arnprior, Ont., plan to build a solid concrete dam across the Madawaska River, 150 feet north of the present mill bridge, and develop at once 2,000 horsepower electric energy, carrying it to the point at the mouth of the river, where a pulp-grinding mill will be built of an initial capacity of 30 tons a day.

INTERNATIONAL IMPROVES NIAGARA MILL.

The International Paper Company is adding to its big plant at Niagara Falls, N.Y., a filtration plant with a capacity of 10,000,000 gallons of water per day. The purpose of installing the filtration plant and pumps is to enable the company to manufacture high grade bond and book paper, a new departure at the company's Falls plant. The estimated cost of installing the filters and pumps is $200,000.

NEW PLANT AT NIAGARA FALLS.

The building for the Paper Converting Corporation, which is located on an eleven acre plot of land near Royal avenue, Niagara Falls, is nearing completion. It consists of a paper mill building 215 x 84 feet and a converting building 100 x 150 feet. Both buildings are two story mushroom type concrete construction. The plant is being white enameled throughout and no expense is being spared in making it a model mill for cleanliness, economy in operation and to have ideal working conditions for employees.

There will be two 132 inch Yankee M. G. machines on an improved type, which are now being installed. The machine room is laid out with the paper machine and beaters on the second, and the drive and chests on the first floor. There is no basement so that everything is kept entirely above ground.

BEAVER COVER PLANT SHUTS DOWN TEMPORARILY, PLAN TO OPEN AGAIN IN SPRING.

The Beaver Cover Lumber & Pulp Co., Ltd. have closed down their pulp plant and shingle mill owing to the unstable market conditions. The plant will not be re-opened until the market picks up again in the Spring. At the present time things are moving along under conditions satisfactory to all concerned and future plans look bright for opening up in the Spring with an expansion to the business as soon as condition are right.

HENNING HELIN CONSULTING PULP EXPERT.

Mr. Henning Helin is now located in the Canada Life Bldg., Vancouver, B.C. He is acting in an advisory capacity to the Western Canada Pulp & Paper Co. Ltd. Just now Mr. Helin is finishing up some investigations for several proposed pulp manufacturing projects. One or two of these are rapidly maturing into concrete propositions.

Graduating from a Technical College in Sweden, Mr. Helin served his time for 10 years at the practical side of the manufacturing of pulp and paper in Sweden, afterwards coming to Canada in 1912. For six years he was technical manager for the Wayagamack Pulp & Paper Co., Ltd. Coming to British Columbia in 1918, Mr. Helin has since been actively been engaged in the development and re-construction of pulp plants in this province.

Mr. Helin is familiar with all sections of the pulp timber areas of British Columbia and his services are being sought by those interested in proposed operations.

WILLIAM POWER DEAD.

The death occurred in Quebec, last Saturday, after a short illness, of William Power, head of the firm of W. and J. Sharples, timber merchants. He was also president of the Riviere Ouelle Pulp and Lumber Company, president of the Lafontaine Lumber Company, former president of the Canadian Forestry Association, former president and director of the Lumbermen's Association of Canada, and a former president of the Quebec Limit Holders' Association.

He is survived by his widow, formerly Miss Winifred Rockett, four sons, W. Gerard Power, of St. Pacome; Joseph Power, Charles G. Power, M.P., and Frank Power, of Quebec; two daughters, Mrs. Noel Barclay, of Montreal, and Mrs. F. A. Mosely, of Montreal, as well as two sisters, the Misses Alice and Annie Power, of Bridgewater Cove, Sillery.

NEW PAPER PLANT AT OGDENSBURG.

The Frontier Paper Company, with principal office at Ogdensburg, has received a state of New York charter with a capital of $300,000. The company proposes to take over a part of the Klondike lumber plant on Riverside drive west of Ogdensburg and will operate a ground pulp and paper mill. The directors include: Former Governor John A. Dix, Harry C. Bray, Islay V. H. Gill and Thompson Douglas, all of Albany, N.Y.

KAPUSKASING NOW HAS ELECTRICITY.

One feature of this community's pioneer days has passed into history. Kapuskasing citizens are now dispensing with candle and coal oil lamps as illuminants and are lighting their houses with electricity. The power plant is now in operation and while it is only temporary, a permanent installation is planned. The power line runs to the Dominion Experimental Farm.

Plans for the mill of the Three Rivers Pulp and Paper Co., are going forward nicely under the direction of M. J. J. O'Sullivan. Material will be placed this winter for an early start in the spring. Six magazine grinders have been ordered from the Waterous Engine Works Co. They will be placed in pairs on three shafts, with a motor connected at the end of each shaft. Each stone will have a capacity of 18-20 tons per day.

PULP AND PAPER NEWS

An unusual legal dispute has arisen at London, Ont., through the issuance of a writ against the Somerville Paper Box Co., Limited, of London, by the American Chiclet Co., of New York for the sum of $50,000. It seems that in 1910 the business and plant of the Somerville Paper Box Co. was bought from the Sen Sen Chiclet Co., which latter firm was later absorbed by the American Chiclet Co. The sales arrangements involved a transaction whereby the Somerville Company assured a mortgage for $50,000 payable in legal money of Canada, or in gold if demanded by the mortgage. The present exchange conditions have prompted the American Chiclet Co., which holds the mortgage, to demand payment in gold. The American company has agreed to accept the amount of the mortgage payable in American funds, which would mean that the London company would have to pay practically $57,000 in Canadian money at the present rate of exchange.

Twenty-five members of the Lithographers Union, employed by the Mortimer Company, Limited, Ottawa, are on strike, claiming that they should receive a twenty per cent increase, similar to that which has been granted recently to lithographers in other Ontario cities.

The Toronto Telegram has been served with notice of complaint under the Libel and Slander Act by counsel acting for E. W. Backus. The notice of action is the outcome of certain articles published in the Telegram in connection with the acquisition by Mr. Backus of certain timber and pulp limits in Northern Ontario.

Mr. G. O. Comfort of the Specialty Paper Manufacturing Co. Ltd., Montreal, was in Toronto calling on the trade during the week.

Nothing has been heard lately as to the Ontario Government's supposed intention to establish a pulp and paper mill at Nipigon. It is stated that so far as a pulp and paper mill is concerned, the Government has not even gone so far as to enquire as to what the cost would be.

The first skirmish in the action brought by the Attorney-General of Ontario against Walter H. Russell of Port Arthur and the Russell Timber Co. for damages for the alleged wrongful removal of pulpwood from Crown lands, which lands, it is stated, were obtained by subterfuge, took place at Osgoode Hall, Toronto, when the Attorney-General moved to strike out the counter-claim of the defendants whereby they ask for a fiat to bring suit for $100,000 for injury to their business and credit by the alleged ulterior use to which the Attorney-General has put his suit. Decision respecting the motion was reserved. In the statement of claim the Attorney-General alleges that the defendant has cut upwards of 60,000 cords of pulpwood. 1,800 logs and 800 booms on lands, patents of which were improperly obtained on the representation that there had been valuable finds of mineral thereon. Others were said to have been obtained under the guise of homesteading. The defendants deny wrongdoing and say they have bought wood from the Cambrian Mining Co., Taylor & Mackie, settlers and others. If these parties got their lands improperly the defendants say that should be prosecuted instead of themselves. The defendants admit having obtained 3,700 cords on Crown lands by mistake and offer to pay for this.

Mr. George Erskine, who opened the Toronto office of the George H. Mead Company last February, and has been in charge as manager since that time, has resigned his position with the company. It is stated that he will go to the Canadian west in the capacity of a mill superintendent. Mr. Erskine is an energetic and expert paper man and has done good service with the Mead interests. His position here has been taken by Mr. L. E. L. Harvey, who has been Mr. Erskine's assistant since the Toronto office was opened, coming here from the Laurentide Company. He is a young man who has already established a good connection in the pulp and paper field and should make good in his position of added responsibility.

T. S. Woollings & Company, Limited, has been granted an Ontario charter to deal in lumber, pulpwood, etc., with a capital of $200,000, and with head office at the town of Englehart. The provisional directors are T. S. Woollings, H. J. McLaughlin, W. B. McLaughlin, L. F. Breeman and A. H. McLaughlin.

The Laurentide Company has a contract with the New York Times for five years for the output of the two new machines that will soon be in operation.

The West Virginia Pulp and Paper Company, of New York, a Delaware corporation, has increased its capital from $20,000,000 to $80,000,000, according to a notice filed with the Secretary of State of Delaware at Dover.

G. H. Schlihten is having plans prepared for the erection of a new factory for the manufacture of paper products in Davis, Yolo Co., Cal.

The Strathmore Paper Co., Russell, Mass., has construction work under way on its new two-story and basement, 38 x 78 feet, estimated to cost about $25,000.

The Fort Wayne Corrugated Paper Co., Fort Wayne, Ind., has awarded a contract to the Indiana Engineering and Construction Co. for the erection of a new boiler plat addition.

ST. REGIS INCORPORATES IN CANADA.

The St. Regis Paper Company of Canada, Ltd., has been incorporated with a capitalization of $1,750,000. The head office of the company is in the Montreal Trust Building, Montreal. The president is Mr. F. L. Carlisle, and the board of directors and management are the same as the well known St. Regis Paper Company whose head office is in Watertown, New York. The company already operates a wood preparing plant at Oscalanea, Que., and has large timber limits on the north shore of the St. Lawrence. It is the intention of the company to continue and extend developments on their Canadian interests and properties.

Technical Section

ANNUAL MEETING OF TECHNICAL SECTION.

At a well attended meeting of the Executive Committee of the Technical Section in Toronto, last week, it was decided to hold the annual meeting on Wednesday and Thursday, Jan. 19 and 20, 1921, at the Ritz Carlton Hotel, Montreal. The meeting of the Canadian Pulp and Paper Association immediately follows and it is expected that meetings of affiliated organizations will be held during the same week.

The finest program ever planned for has been laid out and there will be lively discussions on subjects of great importance to the industry. It is expected that Laurentide will be able by that time to speak from experience regarding the subject of high speed machines which aroused so much interest last January. The list of papers which will follow the business meeting and discussion of committee reports is as follows:

Electric drives for paper machines.

Miscroscopy and its application to the pulp and paper mill.

The problem of ventilation in the machine rooms.

Beating.

An analysis of steam plant auxiliaries.

Open discussion on "The protection of wood piles by spraying" and "Testing sulphate and sulphite pulp for strength.

REVIEW OF RECENT LITERATURE.

A-1 Acetyl content of wood and lignin. C. G. SCHWALBE and E. BECKER. Z. angew. Chem. 33, 225-226 (1920). The statements by Pringsheim and Magnus that the greater quantity of the acetic acid obtained from wood products is derived from the lignin are controverted. Probably only one third of the acetic acid has its source in this substance.—C. J. W.

A-4 H-0 Measuring pulp bleaching qualities by methyl number. A. CHAMBOVET. Papeterie, **42,** 440-3, (May 25, 1920); Paper, **27,** No. 8, 29, 32, (Oct. 27, 1920). Translation by A. Papineau-Couture. See Pulp and Paper, **18,** 1004, A-4, H-O. Sept. 23, 1920.—A. P.-C.

A-14 Graphic analytical method for paper. IGNATIUS L. GARTLAND. Paper, **25,** 515-9, (1919); Papeterie, **42,** 745-6, (Aug. 25, 1920), 790-5, (Sept. 10, 1920). See Pulp and Paper, **18,** 80, A-14, Jan. 22, 1920. —A. P.-C.

A-15 The life of cellulose. La Papeterie, **42,** 395-403, (May, 10, 1920); Paper, **27,** No. 8, 23-5, 32, (Oct. 27, 1920). Translation by A. Papineau-Couture. See Pulp and Paper, **18,** 1005, A-15, (Sept. 23, 1920).—A. P.-C.

B-4. Profitable Utilization of Sawmill Waste. Can. Lbrman. & Woodworker, Jany 1, 1920, p. 47.—C. L.

B-6. How forest surveys are made. Roland D. Craig. Can. For. J. Jany, 1920, p. 3.—C. L.

B-9 Pulpwood supplies in the American North-West. Paper, **27,** No. 6, 11, 28, (Oct. 13, 1920). A brief discussion of the advantages there would be in establishing a 100 t. newsprint mill in the Blackfoot and Flathead National Forests, Montana.—A. P.-C.

E-2 Manufacture of a material resembling dextrin from cellulose waste liquors. M. CLAASS. German Patent 322,688. Feb. 15, 1918. Cellulose waste liquor is improved, both in adhesive properties and in color by treatment below 100° with acids, sulfates and a sulfoxalate.—C. J. W.

E-2 Adhesive for joining articles made of cellulose derivatives to the same or other materials. Farbenfabr. F. BAYER & CO. German Patent 322,648, April 21, 1917. Esters of ethers of phenols or naphthols are employed for the purpose, e. g., beta naphthol amylether may be used as an adhesive for ethylcellulose.—C. J. W.

E-4 Investigation of roasting gases with the Orsat apparatus. R. DIECKMNN. Wochbl. Papierfabr.. **51** no. 26, 1842-1844 (1920). Dieckmann compares the Reich and the Orsat apparatus for the analysis of SO_2 and SO_3.—C.J.W.

F-5; K-17 Book paper from Southern pines and gums. SIDNEY D. WELLS, Engineer in Forest Products, Forest Products Lab., Madison, Wis. Paper Trade J., **71,** No. 22, 34-42, (Nov. 25, 1920). A detailed description of a series of cooking, bleaching and papermaking tests carried out at the Forest Products Lab., in co-operation with the DuPont Chemical Co., on loblolly pine and red gum from the James River Valley. The sulfate process is the most satisfactory for this kind of wood. By cooking with a large excess of chemicals, pulps can be obtained which can be bleached to a satisfactory color with a reasonable amount of bleach and which are suitable for book paper, the yield of bleached pulp being 33 per cent. By operating under carefully regulated conditions and high soda recovery the yield may be increased to 35 per cent., the costs being considerably lowered over those under the conditions described above; but a much more efficient organization is required. By further increasing the efficiency of the organization and regulating operating conditions still more closely, and using a bleaching operation involving 2 steps, a 40 per cent yield can be obtained with a considerable decrease in manufacturing costs. Relative manufacturing costs are given for 3 50-t. mills operating under conditions to obtain 33 per cent, 35 per cent, and 40 per cent yields respectively. Pulping trials for kraft stock on six of the more common southern pines seem to indicate they would prove as readily pulped for bleached stock as loblolly pine and the northern and western pines tested have been generally found to pulp even more readily.—A. P.-C.

K-2, K-21. Recovery of waste roofing felt. L. F. HAWLEY & OTTO KRESS, Forest Products Laboratory, Madison, Wis., U.S.A. Paper, **27,** No. 7, 18-9, 25, (Oct. 20, 1920). A description of experiments carried out at the Forest Products Lab., Madison, Wis., with a view to determining the feasibility of recovering both roofing stock and pitch on a commercial scale by extention with gasoline. The app. used consisted of a vertical cylindrical extractor 3 ft. high and 1.5 ft. in diameter, provided with a closed steam coil and a steam jet. The extractor was connected with a condenser in such a way that the vapors of the solvent, when boiled off, could be led to the condenser,

condensed, and returned again to the extractor, all in a closed system. The felt was extracted with 3 separate portions of solvent (a middle fraction of gazoline, b.p. 90-140°C), which was drained off after each extraction. The solvent remaining after the third extention and draining was recovered by blowing live steam through the extractor to a condenser and collecting the mixed condensate of water and solvent. Although considerable amounts of gasoline-soluble material and large amounts of chloroform-soluble material were left in the fiber, these were of such a nature that they did not interfere with the opening of the chips or with the running of the stock on the paper machine. Apparently, the pitchy, sticky portions of the asphalt are removed by the gasoline treatment and the material left behind is so hard and brittle that part of it washes off from the fiber during the beating and the part that remains is not detrimental to the quality of the pulp. In the analyses of the material left after extraction, the gasoline-soluble extract was slightly soft and sticky but the chloroform-soluble extract was hard and very brittle. The residue that is insoluble in gasoline acts like an ordinary loading material, offering no difficulty during the conversion of pulp into paper on the machine. In a commercial process of this kind neither the recovered pitch nor the stock would have the same composition as unused material; the stock would retain considerable proportions of the difficultly soluble constituents of the pitch, and the recovered pitch would be lacking in these constituents. If both were used again the final product would be very nearly the same as standard. The only difference would be caused by the insoluble constituent washed out on the paper machine and lost in the back water. The results of three series of extractions are given in detail and discussed, and the method of finding out the no. of cells required to carry out the process under given conditions is given. (See J. Ind. & Eng. Chem., **12**, 493-6, (May 1920).—A.P.C.

K-6. Regeneration of waste paper. Papierfab., **18**, 759-62, Oct. 8, 1920); Paper Trade J., **71**, No. 22, 60-2, (Nov. 25, 1920). Translation by CLARENCE J. WEST, Information Department, Arthur D. Little Inc. A brief description of various German patents covering processes for the de-inking and regeneration of waste paper. German patent No. 71,012, 1892, Louis Horst. The waste paper is moistened with petroleum, boiled with NaOH, and washed with soap solution.

German patent No. 76,017, 1893, Louis Horst. The paper is pulped and treated with a mixture of 10 pts. of water glass, 1 pt. of CS_2, and 100 pts. of water. After thorough agitation the pulp is washed clean with water. 3 pts. of paraffin may be substituted for 1 pt. of CS_2.

German patent No. 388,563, 1895, E. Montardier and G. Picard. The pulp is moistened with cold water, treated for 45 min. with cold painter's lye, put through a disintegrating machine, heated in a bath containing 4 per cen t,Na Cl, 0.5 per cent Na_2CO_3 and 0.4 per cent garlic extract. When the mixture has been sufficiently heated 2.5-3 per cent potash is added, the mixture is allowed to stand 24 hours, screened, washed, and dried in a centrifuge. The garlic extract may be replaced by a corresponding quantity of allyl sulfide $(C_3H_5)_2S$, or other cruciferous essence.

German patent No. 127,820, 1900, Betty Knoff. The waste paper is moistened, pulped and treated in a mixing or kneading machine with a neutral soap solution, or soap emulsion. The colored soap water is drained away and the pulp washed clean with water. If the pulp contains groundwood or if the printing ink contains much rosin oil, a lower temperature must be maintained.

German patent No. 215,312, 1908, Henkel & Co., The finely divided paper (moistened with water) is treated with an alkaline solution of an alkali or alkaline earth peroxide in the presence of gelatinous silicic acid.

German patent No. 233,665, 1910, B. W. Petsche. The waste paper is pulped in a hollander and treated with a 1:1000 soda solution in a vessel fitted with a mechanical stirrer. The pulp is then washed clean with water.

German patent No. 263,220, 1920(1), Adrien Louis de Sturler. The material is pulped and heated with solid petroleum or petroleum soap with gentle stirring. Water is added, the mixture allowed to settle, the supernatant layer of printing ink removed, and the pulp washed with slightly acidified water.

German patent No. 265,488, 1911, J. J. Werst, P.H. L., Collée, and J. M. Egmond. The pulped material is treated simultaneously with immiscible solvents each of which possesses a special affinity for one of the 2 materials. The operation when using water and benzine is described. German patent No. 279,101, 1913, covers a special app. for carrying out the process.

German patent No. 287,884, 1915, Rohm & Hass. A water suspension of the waste paper is treated with a pancreatic enzyme, or various similarly acting enzymes (papayotin, the castor oil enzyme, etc), in alkaline, neutral, or slightly acid solution.

German patent No. 312,618, 1912, John M. Burby. Waste paper containing groundwood is pulped in a beater and treated at 40-65°C with a solution (not stronger than 0.2 per cent) of NaOH or its equivalent of another alkali or alkaline salt.—A. P.-C.

(1) This is probably a printer's error for "1910."—(Abstractor.)

K-6. Stationary digesters and the like used in paper-making and the like. S. MILNE. English Patent 150,782. June 4, 1919. A vertical cylindrical digester has a conical lower portion within which are perforated plates for supporting the grass or like material under treatment. A valve at the lowest part of the digester has a hollow spindle connected at the upper end with a perforated pipe passing into the lower part of the digester. During digestion, the liquor drains through the perforated plates, passes out from the space between the plates and the outer walls, and is returned to the top of the apparatus by a steam injector or pump. When the process is complete the valve at the bottom is opened and the contents are washed by water, spent liquor, steam or air, and forced under pressure into the digester through the valve spindle and perforated pipe.—C. J. W.

K-0. Durability, preservation and deterioration of paper. ARIBERT & BOUVIER. French School of Papermaking, Grenoble, France. Papeterie, **42**, 338-52, (April 25, 1920), 386-92, (May 10, 1920); Paper, **27**, No. 4, 13-4, 44, (Sept. 29, 1920), No. 5, 18-9, (Oct. 6, 1920), No 6, 20-1, (Oct. 13, 1920), No 7, 23-5, (Oct. 20, 1920). Translation by A. Papineau-Couture. See Pulp and Paper, **18**, 105, K-0, Oct. 7, 1920.—A. P.-C.

L-7. The growth of the artificial silk industry in Belgium. C. LEMAIRE, Civil Engineer. L'Age de Fer, **36**, 312-3, (May 10, 1920); Paper, **27**, No. 8, 20-1, (Oct. 27, 1920). Translation by A. Papineau-Couture.—A. P.-C.

UNITED STATES NOTES

Wrapping paper remains a problem with retail merchants in New York, who are considerably puzzled over its remaining high in price despite the lowered cost of all other supplies. Paper that used to cost four and five cents a pound advanced to four times those figures and holds its position firmly. Cardboard boxes, cartons and other paper products have been reduced, but these price changes seemingly have in no wise affected the strength of wrapping paper. Certain groups of retail merchants are contemplating an investigation with the object of unravelling the mystery.

Alumni of the Yale School of Forestry will have a reunion, December, 21 and 22 at New Haven, Conn. It will be the largest gathering of professional foresters ever held in the country. An incident will be an inspection of a tree plantation in Derby started by the first class graduated in forestry in 1901. Of 513 graduates 135 have arranged to attend.

Estimates made earlier in the year that American Writing Paper Company stock would earn around $15 a share on the preferred in 1920 appear conservative in the light of actual earnings to date. The prediction is made in some quarters that the company should earn a net of $2,500,000 after all taxes and interest, which would mean close to $20 a share for the preferred, compared with $3.48 a share earned in the 1919 fiscal period. The company's plants are being kept in full operation by the volume of incoming orders.

Continuing the big advertising campaign begun several weeks ago, the Robert Gair Company, Brooklyn, N.Y., manufacturers of folding boxes, cartons, labels, shipping cases, etc., outlines in a full page ad carried in metropolitan dailies the development and history of the folding package container, showing "how the individual package has grown from an experiment to an essential in modern business." Speaking of the expansion of the Robert Gair enterprise from a little loft in downtown Manhattan, the original establishment founded in 1864, the ad states that it's home plant in Brooklyn completely equipped to serve the greatest package merchandises of the country, is now the largest plant of its kind in the world. Here are manufactured not only the finished products, but also the inks, glues, and other accessory materials used in the process. Art, engraving, printing and lithographing departments are housed in the group of modern concrete buildings, as is also a perfectly equipped chemical laboratory and test department. The boxboard paper and other material used in the home factory are supplied from the Gair Company's own mills, among them the recently acquired plants at Haverhill, Mass., and New London, Conn.

A supply of from two to three hundred tons of newsprint paper stored in a warehouse adjoining the "Evening Mail" building in New York City was destroyed in a fire last Friday. Although the flames smouldering among the great rolls of paper were soon under control, the wetting down by the fire hoses made them unfit for use. This ruined stock of print paper represented all of the "Evening Mail's reserve supply.

Tests made with spruce timber from Vancouver Island in the plant of the Great Western Paper Company at Ladysmith, Wis., seem to show that an unusual quantity of high grade pulp can be produced from a cord of this wood. Experiments with two carloads of the western wood received at the plant have been so satisfactory that it was predicted by men engaged in the work that the company will soon be receiving it in trainload lots. As the matter of transportation seems to offer no great difficulty, this new source of spruce may fill the needs of mills in the Great Lakes region which are depending on the all but depleted areas of Minnesota for their supply.

"McClure's Magazine," which has been selling for 25 cents, announces that its price will be reduced to fifteen cents beginning with the January issue. No reduction or change in the size or quality of the publication is contemplated. Publishers of other large magazines declare that they are not prepared at this time to follow the McClure people's policy of price reduction.

Charles Lathrop Pack, president of the American Forestry Association, sees in the legislative proposals drawn up by the Forest Industries Program Committee the achievement of the greatest forward step in forestry, because every interest concerned in a forest policy is agreed upon provisions for national legislation essentially practical and of a character that Congress is most likely to approve, adopt and make into law. This statement by Mr. Pack was made last week coincident with a call by R. S. Kellogg of the Newsprint Service Bureau for a meeting of the committee at Washington.

The forces of Daniel Hicks, Inc., of New York City, one of the pioneers in the paper stock business, recently celebrated the firm's twenty-fifth anniversary. Daniel Hicks, founder of this concern, established the business back in the days when newsprint was manufactured from rags.

Preliminary work on the construction of a huge power dam at Caldron Falls, Wis. and a pulp mill at Lakewood has been started for the recently organized Northern Peshtigo Pulp Company. Roads are now being built to the power site to facilitate transportation of building material. The actual work of erecting the mill and construction the dam will begin next spring. About $500,000 will be expended on the project. The dam, when completed is expected to have a waterfall developing an 80 foot head which would be sufficient to generate power for a 100 ton pulp mill. The company back of these projects was organized several months ago with T. A. Pamperin, P. T. Pamperin and I. B. Padway, all of Ocanto Falls, and J. E. Griffen, Green Bay, as incorporators.

Daniel H. Schwartz has resigned as superintendent of the Chemical Paper Company's unit No. 5 at Holyoke, Mass., to take a position as general superintendant of the Ironside Board Corporation of Norwich, Conn. The Holyoke concern loses Mr. Schwartz after a twenty year term of service.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Dec., 11.—Most departments of the paper trade are going through a quiet period and while this is not reflected so much in the mills it is causing the jobber to do some speculating as to what the outcome is going to be for orders have fallen off in many lines to a degree that is bound to cause some concern. As yet, however, the jobber has not started to retrench to any great extent in his buying, although he is not passing on much of his stuff to the printer and consumer. As a consequence, stocks are becoming increasingly large in the warehouses. No tendency toward cancellations of orders on the mills is discernible, the jobbers taking the position that buying is bound to be renewed about the first of the year when their customers find themselves without stocks. In the meantime prices in all lines of paper remain firm and the trade generally is optimistic. Enough orders are coming through to ensure a satisfactory volume of business until buying is resumed and the mills are experiencing no difficulty in placing their output.

PULP.—Although it is reported in some quarters that there is not much pulp in the market, a paper manufacturer who buys his raw material in the open market, told the Pulp and Paper Magazine that he could get all the pulp he wanted quite readily, particularly if he was prepared to pay a higher price than he considered the market warranted. Ground wood appears to be scarce, but there is a considerable quantity of sulphite on the market. There has been a considerable drop in the sulphite market and some lots of unbleached are reported to have been bought as low as $125 as compared with $175 a few weeks ago. Bleached sulphite is quoted at $175 f.o.b. mill, while there is a big demand for ground wood pulp at from $130 to $140. The output of the latter commodity has been greatly reduced by low water all over the country, most of the mills having been affected.

BOOKPAPERS.—There is little demand for bookpapers nor do dealers anticipate that there will be until the first of the year, although jobbers are not asking for cancellations and are absorbing the mill product readily. Although warehouses are filling up with book and other stock the jobbers will take the mill output, particularly in respect to those orders placed months ago at satisfactory prices prevailing at that time, and some of which orders are still unfilled. Prices remain firm and no serious recession is looked for, although dealers admit that the future is clouded in this respect and that it is hard to pierce the veil. Prices may come tumbling down but if they do it will cause surprise to a good many jobbers and manufacturers who only admit the likelihood of a slight and gradual decline. They claim that what happened in the sugar market cannot occur in paper circles for the reason that the paper interests are made up of business men and not speculators. The paper situation as it is today is not causing either the Canadian jobber or the manufacturer any very great uneasiness, according to the statements of most of those in the business, and this is borne out by the fact that jobbers are absorbing mill shipments of book and most other lines of paper in the firm belief that the present lull in buying is only of a temporary character.

WRAPPING PAPERS.—There is no change in the general situation in respect to wrapping papers. Business has picked up considerably during the past week, probably owing to the near approach of Christmas. There are no large stocks of wrapping on hand at the warehouses and mill shipments are coming through freely. Prices remain firm and demand rather light except for the extra business being done due to the Christmas season.

GLASSINE AND GREASEPROOF.—Dealers report a fair demand for these classes of paper although in common with other lines there has been a distinct falling off of late and the consuming trade is buying nothing beyond its immediate requirements. A resumption of free buying is predicted after the opening of the new year. Unbleached greaseproof is still quoted at 22c and bleached at 25c while glassine is selling at 35c for bleached and 30c for unbleached.

KRAFT.—There is a distinctly quiet trend in the kraft trade and the mills are getting no big orders, although the jobbers and consumers are absorbing all the product the mills are offering. There do not appear to be any heavy stocks on hand and buying is not above immediate requirements. There have been practically no cancellations and those in the trade say that the present lull is only temporary and that early in the new year buying will be back to normal. In the meantime prices for both kraft and manilas are holding firm.

COATED PAPER.—The coated paper mills are in a pretty fair position with some of them having orders on hand to keep the wheels running for two or three months. So that should the present dull period continue throughout the greater part of the fall a fairly satisfactory amount of business will still be guaranteed. Some of the mills report a few cancellations but these are not large in the aggregate and for the most part the coated paper business may be said to be in good shape. One mill man stated that he could use considerably more paper than the manufacturers were sending through and that the demand was still greater than the supply.

TOILETS AND TISSUES.—Small quantity buying and a very light demand still characterize the lightweight paper trade and what sales the mills are making are small. In spite of the slackened demand prices continue to hold firm and no immediate drop is looked for. Mills report that they are experiencing no difficulty in getting raw stock, both bleached and natural sulphite being obtainable in required quantities and at easier prices.

RAGS AND PAPER STOCKS.—New cotton cuttings have commenced a downward slide in sympathy with other grades of paper stock. Practically all grades show a decline from two to three cents below last week's quotations. In old cotton rags the market has been practically lifeless and one of the oldest and most representative members of the trade states that he does

not recollect the paper-making supply market having been in such a dull condition as now exists, in the past twenty years. The consuming mills are buying almost nothing and dealers have stopped buying material altogether. With quotations as low as they were last week it was hardly expected that, with the prevailing cost of labor, prices could slump any lower. However, with some of the mills practically closed down, or working on short time, the lower grades of waste paper have practically no market value and all prices quoted are a case of the dealers asking prices, rather than any indication of the actual market value. Hard and soft shavings have weakened slightly though these are about the only grades that are moving at all and, were it not for the fact that book mills are buying small quantities, paper stock dealers would be practically closed up. With the present prices and the cost of handling material even were the dealers to get their supplies for nothing, there would be no profit in handling mixed papers today, according to the statement of one Toronto dealer. Dealers are not at all optimistic about conditions for the next month or so and a very dull winter season is looked for.

Following are quotations on rag and paper stock:

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$19.00—$20.00
No. 1 unbleached cotton cuttings	$15.00—$16.00
No. 1 fancy shirt cuttings	$10.00—$10.50
No. 1 blue overall cuttings	$ 9.50—$10.00
Bleached shoe clip	$14.00—$15.00
White cotton hosiery cuttings	$16.00—$16.50
Light colored hosiery cuttings	$12.50—$13.00
New light flanellette cuttings	$14.00—$14.50
No. 2 white shirt cuttings	$10.00—$11.00
City thirds and blues (repacked)	$ 2.25—$ 2.50
Flocks and satinettes	$ 1.00—$ 1.20
Tailor rags	$ 0.90—$ 1.00
Gunny bagging	$ 1.25—$ 1.50
Manila rope	$ 5.00—$ 5.25
No. 1 white envelope cuttings	$ 7.50—$ 8.00
No. 1 soft white shavings	$ 7.00—$ 7.50
White blanks	$ 4.00—$ 4.25
Heavy ledger stock	$ 3.50—$ 3.75
No. 1 magazine	$ 2.00—$ 2.15
No. 1 book stock	$ 1.80—$ 1.90
No. 1 manila cuttings	$ 4.00—$ 4.25
No. 1 print manila	$ 1.00—$ 1.25
Folded news	$ 1.00—$ 1.10
Over issue, news	$ 1.25—$ 1.50
Kraft	$ 3.75—$ 4.00
No. 1 clean and mixed papers	$ 0.45—$ 0.60

NEW YORK MARKETS.

New York, December 11—(Special Correspondence)—As the end of the year draws near, demand for paper becomes quieter. This is the usual condition at this season but this year it is more accentuated than ordinarily for the reason that jobbers and consumers are purchasing in closer fashion today than in a long time. With prices, not only on paper but on various commodities, on the downtrend, consumers are exerting every effort to reduce their stocks of goods to as low levels as possible, and this results in printers, publishers, department stores, boxmakers and other consumers of paper and paper board confining their current buying solely to quantities actually and immediately required. Jobbers in turn are more intent on liquidating stocks than in augmenting their holdings, and mills in consequence are receiving few orders involving sizable tonnages of paper of any kind. Manufacturers are mostly pursuing a waiting and watching policy and are letting matters take their course. Despite prevailing market conditions, there is no disputing that the cost of producing paper has decreased but slightly, and mill owners are in numerous cases shutting down their plants and curtailing production rather than continuing to make paper to be forced on an unwelcome market. There is a feeling of confidence among manufacturers that demand for paper is coming back, and strong at that, soon after the turn of the year. It is believed that lower commodity prices can lead only to larger consumption of various articles which are wrapped in paper or boxed in paper boxes, and that cheaper prices will also result in keener business competition, thus making for increased advertising and a resultant heavier consumption of newsprint and book papers. The outlook indeed is bright, and in the meantime paper producers are marking time awaiting developments.

The sales manager of a large Middle West paper mill sizes up conditions as follows: "There is a lull in the paper market now. I refer particularly to wrapping paper, stock suitable for advertising matter and stationery. But the frantic telegrams for supplies in these lines every morning, in the form of night letters, simply prove to me what I believe, namely, that the buyers, and their buyers in turn, are holding off, waiting for lower prices. Naturally you expect me to give a view that will boom the market. It doesn't need my booming at all. I am saying that those who don't buy regularly will be disappointed. Freight rates are a tremendous factor in handling paper today. Coal is $12 to $22, and our contracts haven't run out, although coal prices are lower. We couldn't afford to take chances. Every indication is for a higher market. Twenty-seven hundred pounds of rags go into a ton of paper; remember that. You will not be able to get paper when you want it for some years to come."

The outstanding development in newsprint of the week is the announcement, by the Great Northern Paper Company, that its price for newsprint in rolls of carload lots on contract for the entire year of 1921 will be 5 cents per pound f.o.b. mill. Great interest is attached to this because Great Northern is the second largest single producer of newsprint paper in the United States, having a yearly output of approximately 250,000 tons. The price fixed for next year is an advance over prevailing rates, Great Northern having booked contracts this year at from 4 to 4.50 cents a pound. This company's price has little influence on the market. Great Northern has long sold its entire output to the same clientele of customers, and but seldom has paper to dispose of in the open market. The Great Northern Paper Company has, ever since it was organized, been looked upon as able to manufacture newsprint cheaper than any other mill in the country, owing to the natural advantages it enjoys, and it is hardly likely that any other producer of print paper will book contracts at a price of 5 cents for the coming year. It is to be understood that this is a price basis and subject to variations which may increase it before 1922.

The spot market for newsprint is rather quiet although some business is current, and prices are holding steady at around 7 cents a pound at shipping points, with some mills asking and obtaining 8 cents



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for roll news. In fact, the opinion is expressed that no large tonnage can be bought for spot shipment at less than 8 cents. There are some offerings of foreign newsprint at around 7 cents for delivery early next year, but uncertainties regarding shipment are discouraging many buyers.

Certain manufacturers are reported to have announced additional slight reductions in prices on book papers, whereas continue to quote the same figures as heretofore. An average basis on machine finished book in the open market is about 13 cents a pound, and on supercalendered book approximately a cent more. Tissues and wrappings are quotably unchanged and are moving well on contract but in comparatively small amounts for this season of the year to transient buyers.

Boards are in slightly livelier market position. Several mills wihch were closed down have resumed operations, having accumulated a fair tonnage of orders, and quotations are characterized by a little better tone, with mills naming $50 per ton for plain chip board and $55 for news board.

GROUND WOOD.—Buyers of ground wood are operating in spasmodic fashion and are absorbing, in the aggregate, but a light tonnage of pulp. Sales, in fact, are so few and far between and are of such small volume, that scarcely an established market exists, as a result of which it is difficult to ascertain what definite prices are. Foreign ground wood has sold in New York this week on an ex dock basis at $87.50 and $90 per ton and quotations on domestic prime pulp for prompt delivery are at about $95 to $100 at grinding mills, but whether or not supplies could be purchased at lower prices is problematical though indications are they could in at least some quarters. There seems little doubt that mechanical pulp prices have seen their highest for a long time, and yet there are numerous members of the trade who readily predict that the market will witness an advance when consumers resume buying in something approaching normal tonnage.

CHEMICAL PULP—Trade in chemical wood pulp is narrow and prices as they stand at present are at best nominal. Producers and dealers for the most part are not pressing buyers, yet signs are not wanting that some sellers are anxious to move certain lots of pulp and the probabilities favor buyers being able to secure such supplies at marked concessions. Importers say that the prices quoted by Scandinavian shippers do not permit them to buy on the other side of the Atlantic and sell to paper mils here at a profit in competition with domestic pulps. Norwegian bleached sulphite, it is declared, cannot be landed in this country to sell at under 10.50 cents a pound ex the dock, and it is stated that practically no profit can be realized at this price. Similarly, foreign easy bleaching sulphite costs around 8.75 cents to land here, and Scandinavian kraft pulp at least 5.50 cents.

Domestic pulp prices are at the same nominal levels previously noted, with most of the transactions recorded at concessions.

Importations of wood pulp at the port of New York this week including 3,217 bales from Gothenburg, and 8,000 bales from Sundsvall.

RAGS.—There is very little life to the papermaking rag market. Mills are not buying excepting in a desultory way, most of them having less need for rags than normally while running on short time, and being more intent on reducing stocks than in augmenting holdings because of the approach of the time when they compile inventories. Prices on rags are quite irregular, and buyers in most cases are finding no difficulty in obtaining needed supplies at less than what dealers ask, especially those who are willing to make prompt payment for shipments. This of course indicates that dealers are anxious to liquidate their stocks also and that they are accepting orders at concessions because they can replace, if they so desire, at appreciably lower costs.

Receipts of foreign rags at this port during the current week include 348 bales from Genoa, and 74 bales from London.

PAPER STOCK.—While demand from some box board mills has broadened slightly, activity in old papers continues on an extremely narrow scale, and there is little of interest to report regarding market conditions. Mill orders, with few exceptions, are limited to a few carloads at a time, and there is not enough demand to absorb the present output of stock notwithstanding that virtually every packer in this part of the country has drastically reduced his production. As would be expected under these conditions, buyers are obtaining the small supplies wanted at close to their own figures. No. 1 mixed paper have sold to mills at 40 cents per 100 pounds at shipping points, folded newspapers at 65 cents, heavy book stock at 1.65 cents, white blank news cuttings at 3.25 cents and No. 1 packing of old kraft papers at 3 cents. Shavings are held with relative firmness and yet this class of old paper can be purchased also at recessions, No. 1 hard white shavings being quoted at around 7.50 cents per pound and No. 1 soft white shavings at 6.75 cents.

OLD ROPE AND BAGGING.—Paper manufacturers are mostly neglecting old bagging and prices are decidedly soft at around 1.75 to 2 cents for No. 1 scrap bagging, 75 cents a hundred for roofing bagging, and 2 to 2.25 cents on gunny bagging. Old rope also is in

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slack demand and prices are merely holding their own at a quotable basis of 5 cents or slightly less at shipping point for No. 1 Manila rope.

Receipts of foreign old rope at New York this week include 93 coils from Bristol.

PAPER STOCKS INCREASE IN U. S.

Stocks of all grades except newsprint, and book, increased during October. Stocks of all grades reported by manufacturers at the end of October amounted to 176,951 tons, including the stocks at terminal and delivery points. In addition to these stocks, jobbers and publishers reported newsprint stocks and tonnage in transit aggregating 235,481 tons.

Comparing the stocks on hand at the domestic mills on October 31, with their average daily production based upon the combined production for 1917, 1918, and 1919, the figures of the Federal Trade Commission show that:

Newsprint paper mill stocks equal about 5 days' average output.

Book paper mill stocks equal slightly more than 7 days' average output.

Paper Board mill stocks equal about 7 days' average output.

Wrapping paper mill stocks equal about 9 days' average output.

Bag paper mill stocks equal slightly less than 5 days' average output.

Fine paper mill stocks equal about 26 days' average output.

Tissus paper mill stocks equal slightly less than 15 days' average output.

Hanging paper mill stocks equal slightly less than 7 days' average output.

Felts and building paper mill stocks equal about 14 days' average output.

Miscellaneous paper mill stocks equal slightly more than 19 days' average output.

Total paper mill stocks of all grades equal about 9 days' average output.

Imports and Exports.

The imports and exports of all grades of paper for September, 1920, compared with September 1919, as shown by the records of the Department of Commerce were as follows:

	Sept. 1920 Value	Sept. 1919 Value
Imports:		
Newsprint	$6,703,303	$3,308,723
Book Paper	32,528	1,057
Wrapping	79,181	63,771
Hanging	20,757	9,901
All other grades *	244,262	138,006
Exports:		
Newsprint	454,564	484,436
Book Paper	981,451	799,229
Paper Board	455,241	320,507
Wrapping	564,424	371,043
Bag	209,085	75,359
Fine	588,023	658,011
Tissue	246,112	129,437
Hanging	95,805	68,461
All other grades *	1,049,324	519,614
Total Imports	7,080,031	3,521,458
Total Exports	4,440,029	3,426,097

* Includes some paper already converted into commercial articles.

Loss of Production.

A comparison of machine hours lost time in different grades due to lack of orders with the total time lost throws an interesting light on conditions. The total is about 48 per cent. more in 1920 than in 1919 and 25 per cent. was for lack of orders.

	Lack of orders 1920	Lack of orders 1919	Total 1920	Total 1919
Newsprint:				
Number of machines	3	0	25	32
Total hours idle	448	0	2,186	1,089
Book Paper:				
Number of machines	0	10	59	80
Total hours idle	0	867	6,879	5,181
Paper board:				
Number of machines	66	30	242	180
Total hours idle	14,056	5,639	45,886	25,453
Wrapping:				
Number of machines	7	5	72	73
Total hours idle	953	918	9,851	10,432
Bag:				
Number of machines	0	0	11	14
Total hours idle	0	0	445	1,330
Fine:				
Number of machines	15	34	79	83
Total hours idle	2,933	7,713	11,692	12,538
Tissue:				
Number of machines	25	9	66	59
Total hours idle	3,454	2,671	9,780	7,863
Hanging:				
Number of machines	0	0	13	15
Total hours idle	0	0	1,082	1,193
Felts and Building:				
Number of machines	10	7	35	41
Total hours idle	1,599	258	5,850	1,397
Other Grades:				
Number of machines	6	4	25	32
Total hours idle	1,166	1,060	3,181	2,565
Total No. of machines	132	99	627	609
Total hours idle	24,609	19,126	96,832	69,041

A FOOL'S SAFETY RULES.

1.—Don't have anything to do with Safety First. If you do you cannot ride poly, besides you will have to think.

2.—Don't be afraid to take a chance. Try anything once. If you get killed the wife can wash for a living; besides she can say that you were a brave man.

3.—Don't waste any time with a Safety man or any of his warnings. He's crazy.

4.—When you get something in your eye don't go to a doctor. Get your buddy to use his dirty red handkerchief. Don't let him wash his hands—the more dirt the better. Don't ever think about wearing goggles; they are heavy and you cannot see through them. Just carry them in your pocket to fool the boss. Besides you will look so silly in them.

5.—When you fell a tree never step back. If it does hit you the insurance company will pay the bill, and if you don't get hit, just think of the walking you have saved.

6.—Be as careless as you like. That's your business. Laugh at the safety signs. Don't worry about getting killed, for you have only one time to die, and being careful will not make your life any longer.

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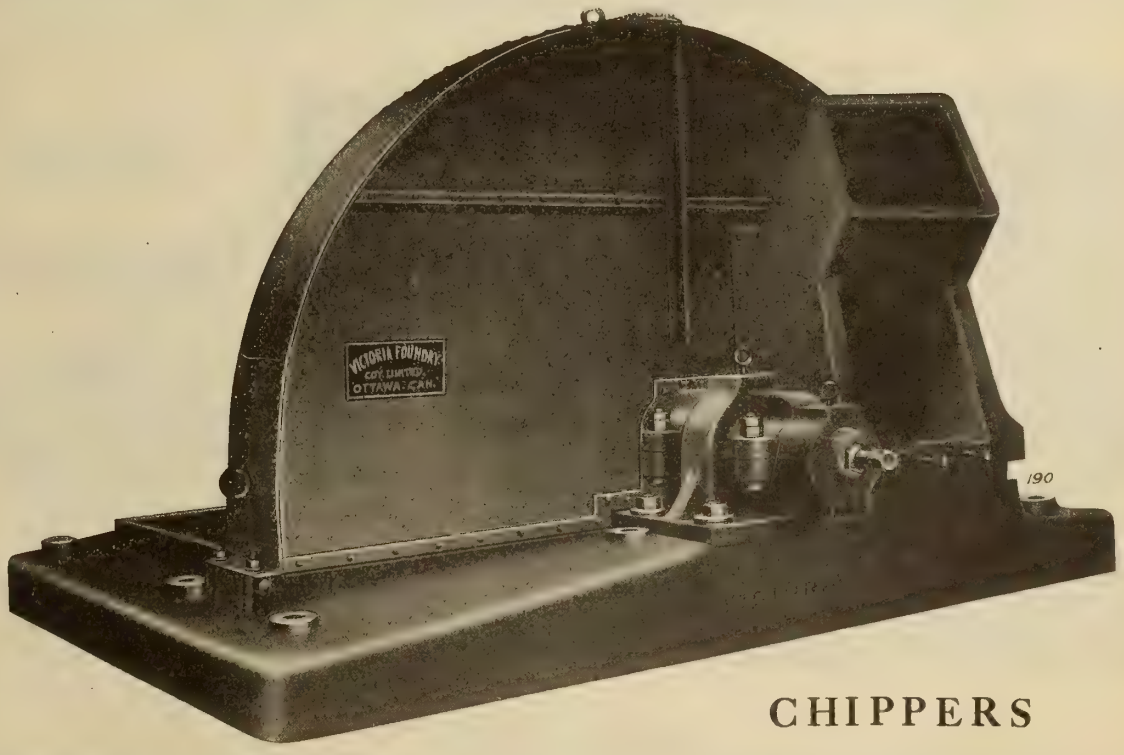
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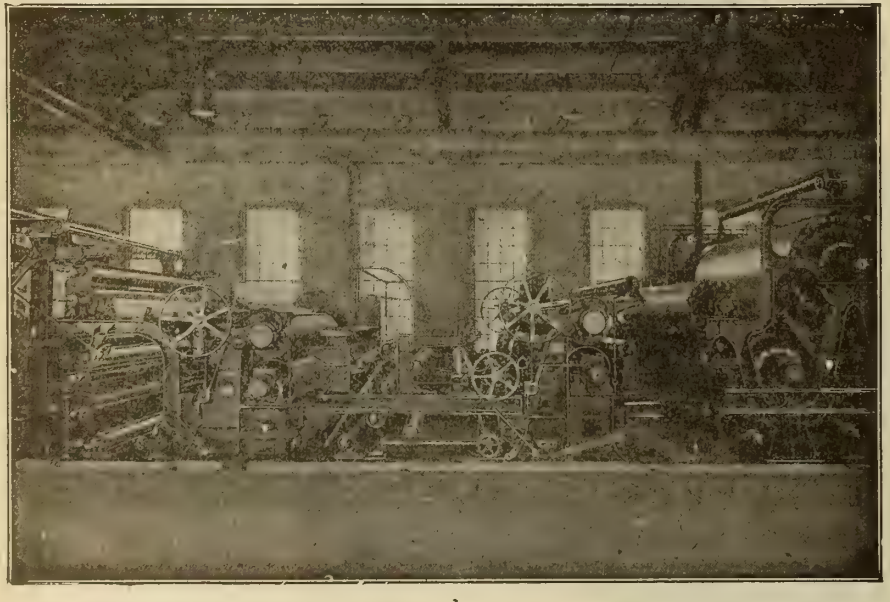
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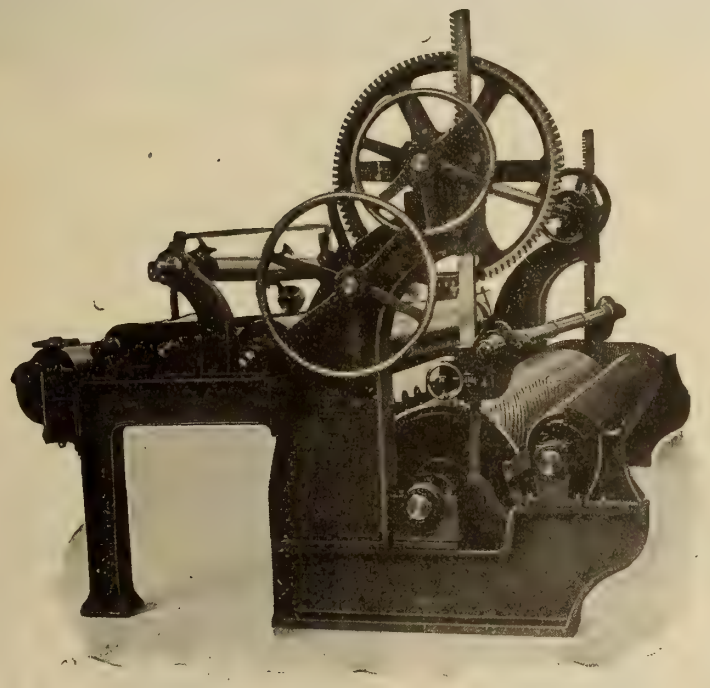
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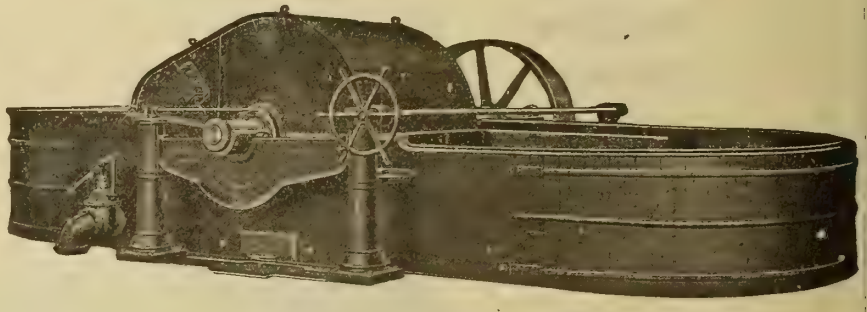
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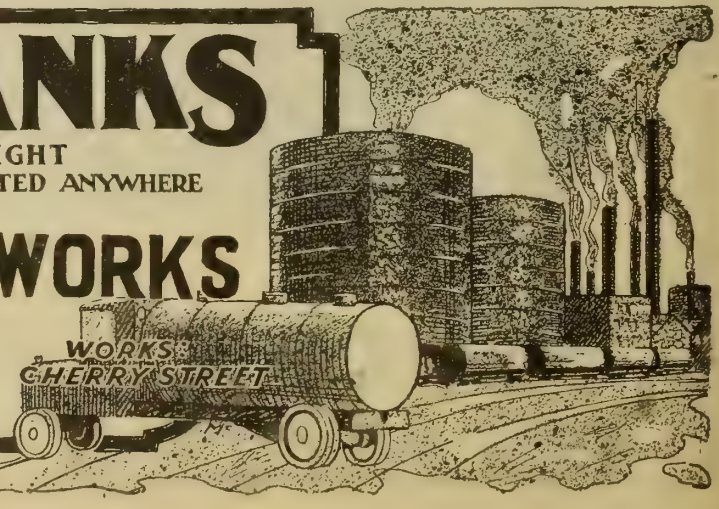
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VOL. XVIII. GARDENVALE, P. Que., December 23rd, 1920. No. 52

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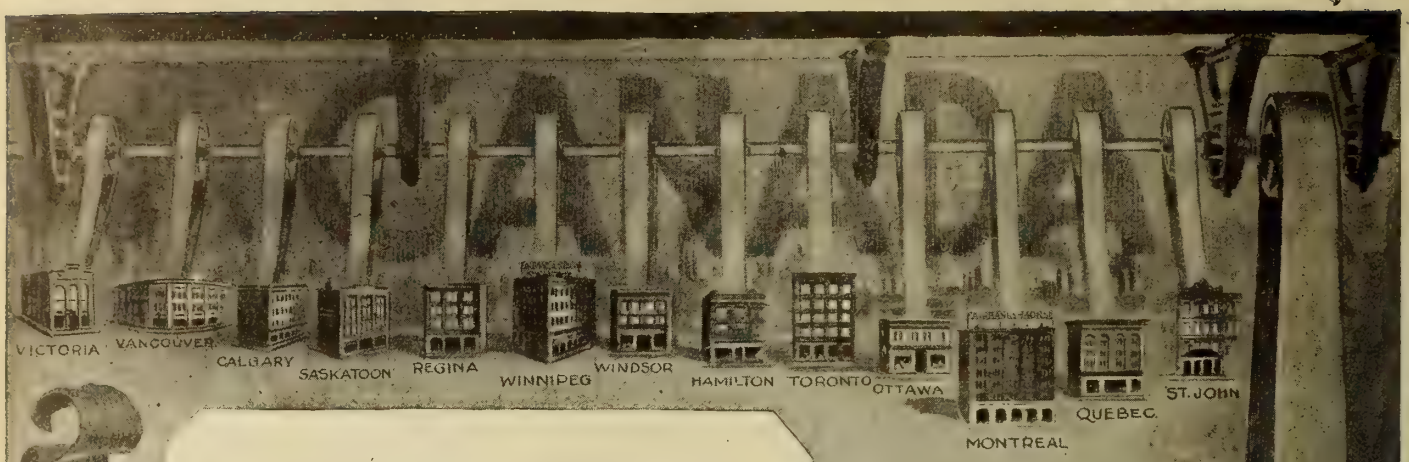
Official Journal of the Technical Section of the Canadian Pulp and Paper Association.

J. NEWELL STEPHENSON, M.S., Editor.

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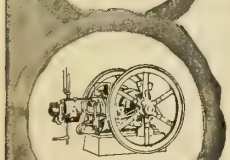
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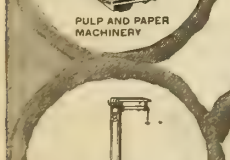


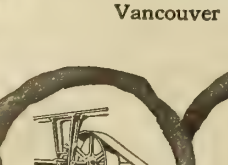


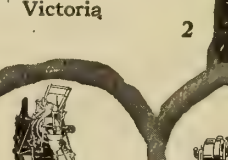














-:- EDITORIAL -:-

GREETINGS.

Greetings to all of our readers,
A toast to your health we would raise,
We wish you a right Merry Christmas
And happiness *all* of your days.

CHRISTMAS IS HERE!

Merry Christmas in our letters, Merry Christmas to our friends, Merry Christmas in the windows, once begun it never ends. The Christmas spirit, all prevading, seeks each heart and tries to rouse sympathy in those who have much, and a spark of joy and gladness in those who have not wealth, nor favor, counted out in things of earth, but whose hearts respond in the gladness to the message of Christ's birth.

For many centuries now, men of many colors and creeds have celebrated the birthday of Jesus. After the manner of the men of the East, we give gifts to one another, usually in value proportional to the ability of the recipient to buy expensive things for himself. Many of us are not truly emulating the Wise Men in this respect, since they gave their gifts to Jesus. The fact that centuries have passed since He lay in the manger does not lessen our opportunity nor our obligation to bring gifts to Him. "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto Me." Giving to those who are dear to us is not without its blessing to us and them, but there are many of "these least" and it is in giving to them that we give most directly to Him. Is it not fitting, then, to discover at this joyous Christmas time, some of those whom fortune has passed by and pass on to them as a birthday gift to the Baby of Bethlehem, some of the bounties that have been heaped at our doors?

Santa Clause was born in Europe but many parts will see no sign of him this year. Those children, more than *three million* of them, are not asking for toys and dolls but for milk and bread. Thousands will die this winter in Europe and China for want of a crust, while we sit down to more than we can eat. Not that we shouldn't enjoy what we have. We should, and be thankful for it. But there are thousands in Canada and the United States who, by a little sacrifice, could give the ten dollars, once or many times, that will keep alive a child who is just as dear to the Father as we and ours. Let us add to one joy then at this happy time by really giving to Him, by giving, not only what we can spare, but what costs us something, to those who are in great need. Cheques, bonds or cash may be sent to the Canadian Red Cross, Belmont Park, Montreal, or "Child Feeding", c/o The Literary Digest, New York, for children in Europe, or to Rev. Robert Laird, Confederation Life Building, Toronto, for the famine fund for China. Only immediate relief will save the millions. It's up to us. Let's do it, and then with full hearts wish each other, as we do our readers, a very Merry Christmas.

FOR THE LOVE OF MIKE!

Who is Mike? Mike is any fellow that works in pulp and paper mills in Ontario. He may be yourself or the fellow who works by your side. It is for the love of Mike that safety work is carried on in our industries. Even the financial aspect of accidents and their results cannot be considered apart from regard for individuals. Human beings have a value which cannot be measured in the same terms as mechanical equipment although for the purpose of estimating, reporting and comparing the severity of accidents it is necessary to attach an assumed value to a man's life in terms of working days and dollars. The earning power of a man's finger or foot is also figured on a similar basis. It would be hard to find a man who would deliberately sell a finger or an eye, or his life, no matter what value, for industrial reasons, might be placed thereon. The Workmen's Compensation Acts of our various provinces attempt to work out the insurance of, and recompense for such losses in as fair a manner as possible. Where, when, and to what extent such compensations shall be applied are questions almost entirely to be answered by Mike and the man who works with him.

The answer to Cain's question "Am I my brother's keeper?" has been given most emphatically in the affirmative by all who have given the slightest consideration to the matter of accident prevention and health promotion. One of the most important and efficient agencies, in fact, practically the only organized agency in Canada distinctly among paper mills for the carrying on of this important industrial and humanitarian service, is the Ontario Pulp and Paper Makers' Safety Association. It is important indeed, that the Canadian Pulp and Paper Association has not established a safety section which might co-ordinate the activities and inspire the efforts of all Canadian pulp and paper mills along this most commendable line of work.

The Ontario Association, of which Mr. A. P. Costigane is the energetic secretary and safety engineer, is continually endeavoring to find new ways of extending the safety spirit and promoting safety work. The latest plan is an annual competition among the mills of Ontario for a safety shield. Details of the competition and the rules of the game are printed on another page of this issue. Mills are divided into two groups in order to make conditions more comparable. Two shields are therefore offered, one for each group. All circumstances make it necessary to have contesting mills on their honor to report *all* accidents, which of course, they will do, and the object of the contest makes it the duty of each mill and man in the industry in Ontario to get into the game.

While this competition appears to be among mills it will be readily seen that it is really the individual workman who is the contestant. Without the constant attention to safety first principles of every man in the mill, there cannot be very great expectation of success. When a baseball or a hockey team represents the mill most employees take an interest and pride in their efforts but the burden rests on a comparatively few men to act for a large number. In the contest for the safety shields, however, the whole mill is on the team and each man counts as one. Furthermore, the man who is injured or who causes an injury, not only fails to play his proper part in the contest for the prize but he makes it difficult in many ways for his mill to play its part in keeping Canada to the fore as a producer of a commodity which the whole world requires. The joy of contest can hardly be parallelled by any other experience and when winning the shield and the banner at the same time brings health, wealth and happiness to the winner, we have the elements of an ideal competition. This contest of the safety association has the additional advantage that no matter who wins the shield, every mill and every individual benefits in the other three respects directly in proportion to the efforts of each man in the organization. It is to be hoped therefor, that every mill in Ontario will set to work with a determination to win the shield. The wise mill will start at once to get its team in training by eliminating all accidents for the rest of the year. The habit of winning will then bring the desired result for 1921 and the shield will hang in a conspicuous place where every employee may view it with pride.

THE ANNUAL MEETING.

Every annual meeting of the Canadian Pulp and Paper Association has been better than the one before. Dont't let this one be an exception. It point of program it would be hard to conceive a more comprehensive collection of timely and interesting topics for discussion.

The Canadian Pulp and Paper Industry is unique in the way it is associated with the various natural resources and lines of economic development in the Dominion. The scope of the Industry embraces the forest, the mills, and the agencies for converting and distributing the product. All are organized in associations that are working in harmony for the best interests of those engaged in the industry. The Canadian Pulp and Paper Association functions largely through its Sections, all of which have been actively engaged in important constructive work during the past year. The reports of the various chairmen will form the basis for even better work next year if all who are interested will attend the Section meetings and help the work along by suggestive criticism, information and advice. It will be quite worth while for managers, superintendents, and others, to attend the other meetings of Convention Week, January 19-21, as far as possible. In addition to the Woodlands and Technical Section meetings, it is expected that the Newsprint Service Bureau will again meet in Montreal during that week.

COBWEBS.

There will be fifty-three issues of the Pulp and Paper Magazine this year, because New Year, 1920, fell on Thursday.

United States funds sold at a premium of 19 per cent. in Montreal this week. At the same time a report came from Washington that wheat, which is Canada's principal commodity is to be taxed 30 cents a bushel. This is approximately the average rate of exchange during the past year, but it works the other way. Unless bills of exchange can be bought at a fair rate, purchases in the United States cannot be made. By shutting the door on Canadian wheat, Congress may be excluding a large proportion of Canada's purchasers and switching them from American to British, French, and other manufacturers. With the Canadian dollar worth about $1.17 in London, but only $.84 or less in New York and Congress making it increasingly difficult for Canadians to pay their bills in the United States, it is probable that more goods will be manufactured here for home consumption and a larger proportion bought in England.

Canadian educators are going at the problem of vocational education in the right way. Plans are being made for vocational training of those who will be the teachers. This is in line with the recommendations of the Committee on Education on which the Canadian Pulp and Paper Association, along with other business, industrial and scientific organizations, has a representation.

King Alexander had no monopoly on the simian; our baby also has a pet monkey—wrench.

The Convention Week of the Industry

A preliminary notice of meetings during the week of the 17th of January has been sent out by the Canadian Pulp and Paper Association with a request to all members of the industry to make a point of attending the different sectional meetings in which they may be interested.

The program commences on Wednesday, January, 19th, with the Annual Meetings of the Woodlands Section in which will be merged the Annual Meetings of the St. Maurice and Quebec Forest Protective Associations. These meetings will be held at the Windsor, and the Annual Meeting of the Technical Section will open at the same time in the Ritz Carlton Hotel.

The program for the Technical Section Meeting is one of exceptional merit, and members of the industry will be glad to learn that Mr. F. G. Warburton, who represents the Harland Engineering Co. will give a paper on the "SPEED INTERLOCK AS APPLIED TO PAPER MILL MACHINERY."

The other papers cover a wide field, and every member of the Technical Section will find something of interest. Two days have been set aside for the Technical Section meeting so that there may be plenty of time for discussion and constructive work.

Mr. Gartland will give us a Paper on "MICROSCOPY AND ITS RELATION TO THE MANUFACTURE OF PULP AND PAPER" and Mr. H. N. Lee, who is well known to most of the members, has been invited to contribute to the discussion.

Some of the members obtained so much information from Mr. H. S. Taylor when he gave his last paper on "Gypsum Roofs" at the Soo, that he has been invited again to present a paper on the "PROBLEM OF VENTILATION IN THE PAPER MACHINE ROOM."

Mr. F. J. Hoxie has been invited to get together all the available information on the spraying of wood piles with a view to assisting an open discussion on the "VALUE OF MIST-SPRAY IN THE PROTECTION OF WOOD FROM FIRE."

Some of the members have asked for a discussion on steam plant auxiliaries and a paper will be given by an authority on an analysis of steam plant auxiliaries. Every mill man has his own pet appliance and it will be of value to the members to have a frank and open discussion on the value of different appliances.

The paper mill has not been overlooked in the choice of Papers and W. B. Campbell has been invited to give a Paper entitled "BEATING, TODAY AND TOMORROW". The subject of beating is practically inexhaustible but Mr. Campbell will try and throw some new light on its development.

On Thursday, the 20th, in the Windsor Hotel, will be held the Annual Meeting of the Canadian Forestry Association, and on Friday, the 21st, the Annual Meeting of the Canadian Pulp and Paper Association will take place at the Ritz Carlton Hotel, followed in the evening by the Annual Dinner which has become of late years the principal social event of the industry.

In notifying the members of the Industry the Secretary of the Association has asked each member to pay special attention this year to the various meetings of Sections.

Each member will be advised shortly as to the date and place of such meetings, which will be arranged ahead of the main Association gathering so as to provide plenty of time.

In the circular which has been sent out this week to the various mills the following reference to Association work is of timely interest.

Mr. Chas. Chesney, President of the Silk Association, says:

"Associations in groups, either large or small, generates a group feeling or class consciousness, and powerful, indeed, must be he who would or can withstand it. Love of family, patriotic pride, adherence to the established principles and practice of our trade, are things quite apart from personal affection, individual loyalty and business honesty. Thus, in creating and defending sound practice, just dealing, business loyalty and the community of spirit and of fellowship, we are fulfilling a high mission."

The aims of the Association are reviewed as follows:

To make the business of making pulp and paper the biggest thing in Canada.
To make better pulp and paper.
The collection of statistics and the exchange of data.
Exact records of imports and exports.
Study of freight rates and defending the industry against unjustified rate increases.
The question of tariffs.
The protection and production of our raw material—the forest.
The improvement of technical methods.
The spread of education among the workers of the industry.

What The Woodsmen Did in Toronto

The Woodlands Section of the Canadian Pulp and Paper Association held an extremely interesting and well attended meeting at the King Edward Hotel, Toronto, on December 8th and 9th which was presided over by Brig.-Gen. J. B. White, of Montreal, Chairman of the section. The papers read and the discussions that took place covered a wide range of topics as they relate to reforestation and conservation while there were many exchanges of ideas among the delegates as to the best methods of preserving the country's great timber wealth.

Among the delegates noted at the gathering were: Brig.-Gen. J. B. White, Edward Beck and A. L. Dawe, Montreal; Clyde Leavitt, Rolland D. Craig, Clark B. Davis, T. W. D. Wright, Ottawa; L. L. Brown, A. P. Costigane and George Carruthers, Toronto; Col. Leckie, Ottawa; A. W. Tromley, Quebec; B. F. Avery, Sault Ste. Marie; O. M. Porter, American Pulp and Paper Association, New York; T. T. Kenny, Buckingham, Que.; P. L. Seabrooke, and S. L. de Costerel, Quebec; R. A. Lyons, W. W. Bowden, J. A. Walker, C. R. Townsend, T. Ehn and Ellwood Wilson, Grand'Mere; Robson Black, Ottawa: Thomas La Pointe, Garthby, Que.; R. W. Richardson, Gould, Que.; A. R. Fenwick, W. R. Haddow, Toronto; Harold Buck, Sault Ste. Marie; E. J. Laschinger, Robert C. Hoxie, Toronto; H. Graeslund, Stockholm, Sweden; T. H. Anson and H. C. Schanche, Iroquois Falls; G. H. Edgeworth, E. F. McCarty, Ottawa; D. C. A. Galarneau, Three Rivers, Que.; F. T. Jenkins, W. D. Crain, D. J. Newro, J. D. B. McFarlane, G. Cousens, C. E.Westland, C. E. Foote, W. T. Faulkiner, H. L. Hughson, C. H. Irwin, J. Irwin, O. C. Thrupp, C. D. Howe, of the University of Toronto; M. N. Miller, O. M. Robinson, Toronto.

Following the address of the chairman, Dr. C. D. Howe of the University of Toronto, read a paper on "Performance of a Few Culled Acres" which had to do with the problem of securing re-growth by natural means. Dr. Howe's conclusions were against the idea of allowing the trees to take care of themselves. His investigation and observation on a given area of land for a given period led him to the conclusion that spruce did not show much of a disposition to reproduce itself under normal conditions.

He stated that the natural re-growth of trees could be aided and stimulated by proper methods with better results than wholesale replanting. He gave no indication that wood would be cheaper in Canada owing to the fact that it was necessary to go further away for supplies, and stated that the tendency was for increased cost as time went on. Consequently forest pulpwood would become more expensive naturally.

Dr. Howe declared that there was ample authority for stating that Canada's commercial available pulpwood supply was not sufficient to last more than fifty years under present circumstances. However, in British Columbia, in parts of Ontario and in Quebec there were still unlimited supplies inaccessible for many years to come.

When the question of using hard woods for pulp was brought up it was stated that the Laurentide Company was already experimenting along this line. If this proved to be satisfactory it would be possible to sweep the forests.

At the session Ellwood Wilson also gave an interesting report on the Imperial Forestry Conference.

Most of Wednesday afternoon's session was devoted to papers by H. Graeslund of Stockholm, who has been sent out by the University of Stockholm to study reforestation in Canada, and a fellow countryman, T. Ehn, both of whom dealt exhaustively with various aspects of forestry conservation in their country, describing the lumber, logging and planting operations existing there as well as the educational system designed to preserve and foster the forests of Sweden.

During the session, Mr. George Carruthers, President of the Interlake Tissue Mills, urged a strong point of contact and cooperation between the old school of re-forestation and the younger men coming from the universities. While on the subject Mr. Carruthers threw out the idea that it might be well for the Government to look into the profligate cutting down of trees for Christmas festivities and whether or not it would be more in accord with forestry conservation to preserve these trees to be eventually built into houses for the children rather than use them as forms of entertainment. In this connection Mr. Carruthers strongly urged the education of the children in the schools to a high appreciation of trees. As a substitute for the regulation Christmas tree, Mr. Carruthers somewhat humorously suggested some sort of tree that could be folded up and used from year to year.

Most of the closing session of the gathering was devoted to a discussion on aerial patrol work in forestry protection when much information was forthcoming from representatives of several of the pulp wood concerns and from Lieut. Col. Leckie of the Canadian Air Board.

Mr. Graeslund's paper was published last week and Mr. Ehn's address will be found on another page of this issue.

DANSEREAU PULP & PAPER CO., SOREL.

The Dansereau Pulp and Paper located at Sorel, P. Que., will start building operations on their mills in the spring. Plans are now being projected and a survey is being taken of the site, which is on the south side of the Richelieu River.

Mr. J. H. Dansereau, of Montreal, is to be the President of the new company, which will have a capitalization of about $5,000,000 privately subscribed.

The company hopes to commence operations in the fall of 1921, and will manufacture Mechanical Pulp for a year. A daily output of at least forty tons is expected, while the mills can handle eighty tons daily, working at full capacity. After a year, sulphite pulp will be manufactured and by the end of 1923 the company will be producing 100 tons of newsprint daily.

CLOSE PULPWOOD CONTRACT.

The "Union Co-operative Agricole," of Harricana, Abitibi, has signed a big contract with the International Company of New York, for pulpwood, at very fair prices.

Safety is sound sense and good business, says the Safety League.

Logging and Driving in Sweden*

By T. EHN, Forester, Laurentide Co., Grand-Mere.

The conditions for logging and driving in Sweden are about the same as in Eastern Canada. Plenty of rivers and lakes, with the hauling-roads very seldom longer than 3-4 miles, and the fact that the rivers mainly run from north-west to south-east makes them excellent for driving. The importance of this direction can easily be considered if a comparison is made with Northern Russia. The rivers there run in the opposite direction, and driving in spring is almost impossible, owing to ice-dams and too high water in the upper parts of the rivers.

Now to come back to my subject. I will start with the planning for one winter's logging, and we will follow the methods of one of the biggest lumber concerns.

Early in summer the chief forester gets an approximate figure of the amount of logs and most desirable dimensions wanted for the saw-mill, and at the same time, from the superintendent of the pulpmills, his estimate of pulpwood requirements for the coming year.

In the cutting plan for his woodlands, he will soon find out how much he "can" cut without endangering the perpetuation of his forests. Now the question is: Is it more profitable this year to cut a little less than he really can and buy a little more from farmers of the Government, or vice versa, considering the existing high prices? Anyhow, when he has made up his mind how much to cut, he tries to concentrate his logging operations in order to cheapen the work as much as possible. The best cutting methods for the different stands in the area to be cut must be found in the above-mentioned plan, and the preparation work on the ground can thus start.

The first thing to do is to locate the hauling-roads. After this comes the stamping of the trees.

Every tree to be cut is marked at breast height, and a piece of the bark, about 1 foot long and 3 inches wide, is cut away and a stamp-mark applied—different for different companies, but always the same as one of their own driving marks.

Figured at $4.00 per day for a man, the costs are:—On the road, $30.00 per mile; Tree stamping, 0.8 cents per tree.

The stamping is done by blocks, each block having the area and number of trees which, depending on the length of the hauling-road, the density of the stand, etc., is considered enough for one winter's work for a crew with one horse. The blocks are marked out by painted lines, and numbered in the corners and where the lines pass a road.

When laying out the blocks, one must try to place them so that jobbers get an equal part of the hauling-road, so that one need not pass over another's block with his skidding roads, which is often a cause for a quarrel between the jobbers and trouble for the Company.

The stamping is usually finished in August.

All logging in Sweden was formerly done by small jobbers, with, usually, one or two horses. The main points of a contract between a jobber and a company are:—

Point 1.—All stamped trees have to be cut; if not, the jobber has to pay the value of the trees left.

Point 2.—If trees not stamped are cut, the jobber has to pay $5.00 in cash on those trees.

Point 3.—For each stump higher than two inches from the highest root, he is fined 50 cents, and the same amount for tops left bigger than the smallest dimension to be cut.

Point 4.—All trees, when cut, have to be measured and marked for cutting into logs by a forest ranger.

Point 5.—The company has the right in all parts to control the jobber's work, his employment of men, etc.

Point 6.—Money can be given to the jobber covering the progress of his work, provided that 25 per cent remains until his work is approved.

Point 7.—The price to be paid for the work is figured by different methods in different parts of the country. Here are some: —1. A price for each log; 2. Different prices for the logs according to their length and diameter at top; 3. So many cents for each cubic foot middle measure, etc. Which of these methods is the best, it is hard to say, but none of them are very good. For my own part, I think a combination of the first and the third should give a satisfactory result.

When the ground is frozen so he can get over swamps and lakes, the jobber starts his work. He builds his camp, for which he gets from $40--200, according to whether he has to build a permanent camp, or only one for the winter. In the latter case he has to build the camp so that the spoils as few logs as possible, and his last loads in the spring will be the logs from his camp.

All cutting starts, according to the contract, at the most distant point from the river. For one horse they mostly use the same number of cutters as trips to be made; for instance, for a 3-7 mile hauling they count 2 cutters, for 2-3 miles 3, etc. Besides these men the man who drives the horse always has a helper; his work is to clean up skidding roads, pile logs together, and help the driver to load.

Every cutter works for himself—fells, limbs and barks alone. For felling he uses a one-handed saw 4--4½ ft. long. Axes are of the same construction and weight as those mostly used in Canada.

As the pulp mills are often built in connection with the sawmills, all sawlogs are barked, and the larger slabs from the sawing can thus be used for pulp making. Besides, barked logs are easier to skid and drive, and owing to their better drying, the risk of their sinking is lessened. For the same purpose all pulpwood is strip-barked with strips about 2 inches wide. The number of strips is one less than the log's diameter in top.

For barking a "bark-spade" is used with a 4-4½ inch edge, and a weight of about 3-4 pounds. The handle is 5 ft. long. With this tool the bark is shovelled off comparatively easily. Eight hours work for an average man is 50--60 logs, of which about 25 per cent are saw-logs of about 17 feet in length and 8 inches in diameter, the rest being pulpwood about 19 feet long and 5 inches at the top.

The skidding and hauling are never done in two different operations. The logs are taken to the hauling

*Address before the Woodlands Section of the Canadian Pulp and Paper Association, Toronto, Dec. 8, 1920.

road and then at once loaded on the sledges. The skidding-sledges are built so that they can easily be lifted and handled by one man. Hauling sledges are mainly of two kinds, one is a long single sledge, the other a combination of two, of which the first one is smaller and carries a much less part of the load than the bigger sledge behind. To lift, or in generally handling the logs, a kind of tongs is used.

These two kinds of sledges are both very good, the single one specially on even and straight roads. On average, a one horse load is in weight about 3 tons, or 100 cubic feet. The hauling roads are kept in excellent condition, 'up' grades are iced, and steep downhills sanded. Often one or more men, according to the size of the operation, are working on the road the whole winter.

The logs were formerly unloaded on the ice, but nowadays not often, because it has been proved that this increases the percentage of sinking. The reason is that when the logs in spring start to thaw out, the cells get enlarged and a vacuum is formed. If in water, the log will thus take up water and get heavier.

This in short is how the logging formerly was, and generally is, done in Sweden. During recent years, however, it has been more and more clear to the men in charge of these operations that machines must be constructed to replace the expensive human power. Several types of motor-saw have been built, but yet, as far as I know, not any of them is really good. Tractors have, on the other hand, proved themselves to be good and cheap lumber horses.

For measuring logs, all companies operating in the same river-valley have formed a scaling association. The organization is, in short, as follows: The river is divided into districts, their number depending upon the average number of logs, and so that each district will have to measure 3-4 million logs. The districts are in charge of a district chief, who directly supervises the measuring, but has to take his orders from the president of the association. A scaling crew consists of two scalers and one note-keeper, of which crew one of the scalers is foreman, but they are equally responsible for their measurements. To make the work possible for the control-scalers, of which there is one for about every 5 gang of scalers, special marks have to be applied on logs which for some reason or another are entirely culled or cut in lengths or diameter. The maximum limit of ..... to be allowed is 3 per cent of the cubic content. Besides this, the scalers are responsible for the stamping, and they are each fined 2 dollars for saw-logs, and 1 dollar for pulp-logs found not properly marked, or not marked at all. As often as possible, but at least once a week, the foreman has to send a report of the work and scale bills to his district office, from which reports go every fortnight to the head office and to the respective companies. Although at the start it met with resistance from jobbers, farmers, and old-fashioned companies, the scaling associations of to-day are very strong organizations and their work is appreciated by all.

Finally, the conditions for driving, as I mentioned when I started, are excellent. Not only the direction of the rivers, but also their deep narrow beds, make them well fitted for this purpose. The swiftness of the water is naturally different in different parts of the same river, but if I tell you that the speed of a log is about 75 miles a month, you will have a good average figure.

About the driving-buildings, you will find pictures of almost all kinds used in this little book, and if anything is not clear, I will be glad to explain it to you. Besides the drivers' buildings, good roads and telephone lines are being built more an more frequently along the rivers, and the money thus invested has proved to give a very good return. The funds for all these improvements are advanced by the Government. The interest is very low, and the time limit usually 20 years. "It is clear that the Government, before advancing money, must approve the estimate of costs and plans). Owing to this cheapness of money, considerable improvements can be made in order to save only one or two men.

The supervision of the driving is left to a driving company. This is a co-operative association which performs this work at cost and takes over all responsibilty and risk from the lumber-owners.

Formerly each river had its own company, but now the aim is to get an entire river valley in "one" association with "one" chief. The main advantages of this system are cheaper administration and better control of the driving. It also prevents unfair distribution of labor and when driving in some particular spot has, stopped, for one reason or other,...it is possible to rush the gangs to wherever they are needed.

The territory controlled by the Driving-Chief is divided into districts. Each district is in charge of a district chief, who has the direct supervision of the work and is responsible for the employment of Foreman and laborers, paying of his men, etc.

The actual work of the drive is done by men in gangs of 10 to 30. Each gang has a foreman who is responsible for the driving in a certain part of the river.

The men are mostly paid by the hour and when the water gets low they often work 14-15 hours a day and sometimes even more.

As much of the work as possible is, however, done on the piece-work basis, especially for rolling logs, transportation over lakes, and driving in small creeks.

When a driving is made on piece-work, each gang contracts to do so much of the work and the company appoints a man who has to supervise the dams and also to see that each gang has sufficient men to carry out their contract.

In regard to the driving-costs the Government of Sweden is now putting into force a new law, according to which the costs are divided into sevent parts, as follows:—

1.—River construction and improvement — dams, piers, booms.

2.—Maintenance and upkeep of No. 1.

3.—Operating expenses, exclusive of salary for Driving Chief.

4.—Sorting costs — including sorting booms and camps, and maintenance of same.

5.—Equipment—tools, boats.

6.—Administration costs.

7.—Special service for one company only.

To insure a fair distribution of the costs, the given parts are divided into two sections: No. 1 and 2 called "River Costs" and 3, 4, 5, 6 and 7 called "Driving Costs." The cost for each district is charged on logs hauled to that district and also on logs floated through from the districts above. Parts 1 and 2 are designed to assist in the better management of forests and the other costs are to allot properly the driving charges for different sized logs.

This is the law but how the costs 1 and 2 will be charged is hard to say. The have to be divided so that they bring about a better management of forests, I have thought, in this way.

Clearing and trimming will be possible only when it is profitable to sell the small dimensions. It is apparent that a system designed to help the forests must be based on a cost charged in proportion to the value. Thus the loss now sustained in driving logs of small dimensions (1 and 2 inches at the top) will be transferred to larger and more valuable timber where it may be borne without given hardship. In that way this system will give value to timber of all dimensions which means an increased growth of the forests and at the same time greater possibilities to keep the woods-laborer the year round.

The Driving-costs, which means item 3 to 7, have to be divided among the different dimensions according to the difficulty in driving.

Several investigations have been made to find out the proportion in driving difficulties between different dimensions and on the result obtained costing tables have been made.

The actual work is done in the same way in Canada and Sweden, and so is the sorting and construction of sorting-booms.

SWEDEN CURTAILS PAPER OUTPUT.

German Competition Again in Evidence and Difficulty in Finding Suitable Markets is Experienced.

Reports from London say that owing to the crisis in the paper industry many manufacturers at Gothenburg and in the west of Sweden generally have been obliged to restrict their output and dismiss a number of their employes. In a recent issue, The Economist of London printed the following:

The importance of these occurrences, however, must not be exaggerated. The general tone of the paper market is firm, though on account of temporary disturbances, such as the financial depression, sales at the moment are not brisk. For the next few years, however, the demand for paper will greatly exceed the supply. The United States alone absorbs its own entire output and that of Canada as well. It is true that German competition is once more becoming very noticeable, especially as regards the luxury branches of the trade, but the Swedish industry is not likely to be affected to any great extent by this, since it relies mainly on other specialties (wood pulp, cardboard, etc.) Another cause of the present apathy is the fact that considerable stocks of paper were accumulated in England during the boom last spring and summer, but these are not sufficient to satisfy the demand for any length of time. An early improvement in this essential branch of industry may therefore be anticipated.

The Swedish consul at Lausanne, M. von Rosen, contributes to "Svensk Export" (September, No. 666) an article dealing with the difficulties of finding suitable markets for Swedish paper in Switzerland and Italy.

The import of Swedish specialties, such as news print, grease-proof paper and sulphite, into these countries has greatly declined during the past year. The reason for this regrettable change is evident. News print, which was formerly imported into Switzerland in large quantities from Sweden, is now obtainable from Germany and Austria at about 1,000 francs per ton, whereas the Swedish export price could scarcely be less than 1,300 kroner per ton f.o.b. Swedish grease-proof paper costs 1,700 to 1,900 kroner per ton f.o.b., while Germany and Austria can offer the same article at 1,850 to 1,950 francs free to the Swiss frontier. The price of Swedish cardboard is 1,600 kroner per ton, as against 1,500 francs free to Basel from Germany and Austria. Copying paper from Sweden costs at least 7 to 8 kroner per roll f.o.b., while the German article is offered at 8 francs free to the frontier. Various sorts of Swedish pasteboard costs from 75 to 90 kroner f.o.b., while the Swiss prices range from 65 francs upward.

The competition from Germany and Austria will, of course, increase in proportion as production in these countries assumes a normal character. In order to improve the Swedish export trade in this direction it is absolutely necessary to quote all offers in Swiss currency with delivery c.i.f. or free to the frontier, and to use the 30-day payment system. Under present conditions these methods certainly entail difficulties, which are not, however, insuperable, and the German exporters have succeeded in overcoming them. The latter, nevertheless, are still hampered by the fuel shortage, strikes, transport difficulties, etc., and Swedish merchants have many advantages in this respect which ought not to be neglected. It must be remembered that Switzerland is one of the new markets left to German paper merchants since the war, and special efforts are being made to retain it and enlarge the scope of the trade.

As regards Italy, much of the foregoing also applies. German and Austrian competition being felt here also. The Italian paper trade, however, is itself considerable, and the low rate of exchange renders import from Sweden very difficult. Printing paper costs in Italy 5.5 lire per kg., while the price of the Swedish article is 9 lire c.i.f., Genoa. Italian tissue paper costs 160 lire per 100 kg., the corresponding Swedish quality being quoted at 390 lire f.o.b. With regard to news print, imitation parchment, etc., conditions are similar. Such a difference in price tells its own tale, and moreover it has also been difficult to obtain the particular Swedish qualities required. The decline in this branch of the export trade must also be attributed in part to the general depression in the Swiss market.

ELEEMOSYNARY MEANS "NOT FOR GAIN."

If a laborer earns $1,000.00 per annum in a city, he spends the same amount in caring for his family. 50,000 laborers at $1,000.000 per annum means $50,000,000.00 circulating in the channels of trade and commerce, and the banker, the butcher, baker, the candle stick maker, the insurance man, the preacher, the teacher, and every man not engaged in labor for wages, are dependent upon this circulation of money in order to ply their respective trades and professions. If by lack of systematic accident prevention, a community causes or contributes to the death of a wage earner, that community does not only lose the amount of his earnings, but the community as a whole goes into its pockets to provide housing, sustenance and education for the family of the man lost by accident. It seems perfectly logical to spend at least part of the moneys now used in keeping up of eleemosynary institutions, on systematic accident prevention in a community, and we should place safety education work upon the same plane as the work of the public health and other educational activities.

After all, you've got to give full, fair value. Or you won't last.—Forbes Magazine.

Lubrication of Ball Bearing

Oils as well as greases may be used as lubricants for ball bearings.

If oil is used, the housing of the bearings should be filled about up to the center of the lowest ball.

If grease is used, the housing should be filled about one-half or three-quarters.

On account of the fact that lubricants, particularly greases, which are sold under trade names, show great variations in composition and quality, we recommend that lubricants for ball bearings be purchased according to specifications and not according to trade names only.

Following are a number of such specifications, which are designated A, B, C, etc.

Specifications of Lubricants.

A—Very Light Ball Bearing Oil

	Maximum
Free Acid	.10%
Free Alkali	.10%
Sulphur	.03%
Ash	trace
Resin	none
Salt	none
Heat Test (15 min. at flash point) darkening, but no sediment	slight

Oil should be pure, mineral and have no tendency to gum or become sticky.

	Minimum
Flash point (Cleveland Open Cup)	300°F.
Fire Test	350°F.

Viscosity (Saybolt) from 50 to 100 secs. at 100°F.

B—Light Ball Bearing Oil
Same as " A " except
Viscosity (Saybolt) from 100 to 200 secs.

C—Medium Ball Bearing Oil
Same as " A " except
Viscocity ..... 200 to 500 secs.

D—Heavy Ball Bearing Oil
Same as " A " except
Viscocity ..... 300 to 500 secs.

E—Extra Heavy Ball Bearing Oil
Same as " A " except
Viscocity ..... 500 secs. or above

F—Same as " B " except that in addition Pour Test ..... 5°F.

G—Grease

	Maximum
Free Acid (calculated as Oleic Acid)	.10%
Free Alkali (calculated as sodium hydroxide)	.10%
Free Lime (calculated as Calc. Oxide)	.10%
Sulphur	.03%
Resin	none
Salt	none
Neutral Saponifiable Oil	1.00%
Abrasive particles (sand, etc.)	none
Melting point about	180°F.

Grease should have no tendency to gum or become sticky. It should not contain graphite or fillers of any kind.

Selection of Lubricants.

Referring to the above specifications we will gladly give our opinion in each specific case, but as a general guide, the following considerations may be useful.

1—For very high speed, say over 3000 r. p. m., use a light oil such as A or B. If the surrounding temperature exceeds 150°F., oil C may be used.

2—For speeds from 600 to 3000 r. p. m., use oil B or C. If the surrounding temperature exceeds 150°F., oil D may be used.

3—For speeds from 100 to 600 r. p. m., use oil C, or grease G, or if the surrounding temperature exceeds 150°F., oil D.

4—For speeds below 100 r. p. m., use oil D, or grease G, or if the surrounding temperature exceeds 150°F., oil E.

5—For temperatures below 32°F., use oil F.

Grease should be used when, on account of local conditions, it is difficult to keep oil in the bearing. It is not generally recommended where the speed exceeds, say 600 r. p. m., or where the surrounding temperature may attain 140°F., or above. Should grease appear desirable for speeds above, say 1500 r. p. m., we suggest that our engineering department be consulted.

The consistency of the grease to be used depends on the conditions of operation. We cannot specify the necessary consistencies in numerical values until a satisfactory testing method has been agreed upon by the trade.

Note—The above speeds, refer to bearings of an average size of 2" bore. If the actual size is greatly different, the speed of the bearing should be divided by two and multiplied by the actual shaft diameter. The speed so obtained should be used as a basis for the selection of lubricant.

Application of Lubricants.

The renewal of the lubricant in a ball bearing depends to a great extent upon the operating conditions of the machinery. In the ordinary type of installation, operating under normal conditions, renewal should be made about three times a year, although close observation for a short time after installation will enable a better estimate to be made of the proper period of time.

When feasible, in cleaning the bearings, the old oil should be removed, the drain plugs then inserted and the housing filled with kerosene. The bearing should then be rotated for several minutes, so that each part of the bearing is brought under the cleansing influence of the kerosene. The drain plugs should then be removed and the housing carefully drained.

The drain plugs should again be inserted and the housing filled with a small supply of proper oil. The bearings should again be rotated for a few moments and then drained in order to be certain that the last traces of kerosene has been removed. After this second operation, the housing should be filled with the correct grade of oil to the proper level, and the bearing is ready for operation.

Care should be exercised to avoid putting too much grease into the housing, as this will result in its being forced out through the packing. In cleaning a bearing lubricated with grease, it is advisable to wash the parts throughly first in kerosene and then with some good light bodied oil. The bearing may then be re-assembled and packed with grease. In case the bearing contains a residue of soap that cannot be removed with kerosene alone, we advise the use of a hot mixture (not over 150°F.) of kerosene and denatured alcohol.—From Bulletin 11 of the Canadian SKF Company, Ltd. Head office: 83 King Street West, Toronto. Eastern Sales Office: 412 West St. James Street, Montreal.

DEARER NEWSPAPERS.

Over 650 increases in price of newspaper and periodical publications have been recorded by the Newspaper World this year.

The Papermaking Qualities of Algerian Mallow

L. VIDAL and E. DOURON.

(Translated from La Papeterie, **41**, 192-5, July 25, 1919, by A. Papineau-Couture.)

Algerian mallow **(Lavatera Cretica L.)** is a bi-annual plant which grows to a height of 1½ and even 2 meters, the stalks being stiff, rough, and about the thickness of a finger; the leaves are round, hairy, and whitish; the flowers are violet and closely resemble those of the common mallow. It is a weed that is found on waste lands and by the roadside in the whole of the region around the Mediterranean. It is found here and there is the South of France, but it is not very abundant there. It is found in much larger quantities in Algeria, Tunis, Morocco, and also in the East, as shown by the name Lavatera Cretica given to it by Linnaeus.

Such is the Algerian grass which Mr. Michony (16 Boulevard Lescure, Oron) has suggested should be used for textiles and for papermaking.

The bark contains a large number of pericicdic and liber fibers arranged in concentric layers. This arrangement is found in all the malvaceae and renders them all theoretically suitable for the desired purpose. From a practical standpoint, the species recommended by Mr. Michony deserves special attention because it is bulky, it grows abundantly in certain regions (including the province of Oran, for instance) and it could be harvested in sufficiently large quantities to warrant its being utilized. He also proposes using a closely related species, **Lavatera Mauritanica, Durieu,** which can be considered as being merely a variety which grows along the Algerian and Moroccan seaboards. For our purpose there is no appreciable difference between the two and three are no objections to their being mixed together.

The useful portions of the plant can be separated right in the field by means of a special retting process which is both simple and practical and requires but little water, a point of very great importance, in a country where water is scarce. There is thus obtained quite easily a raw and impure tow, which amounts to 10 per cent of the dry weight of the plant.

It is in this form that the Algerian settler could furnish it to the textile or paper mills. After a proper carding and weaving it can be made into cordage and burlap, while as a raw material for papermaking it could be used directly.

This raw material was submitted to the Department of Inventions, which entrusted the study of the technical aspect of the question to the French School of Paper making at Grenoble. The following is quoted from the report made to the Government in August 1918.

The tow obtained from the barks of Algerian mallow is essentially a jute substitute: it comes from a plant which is botanically closely related to that which furnishes jute, and it has the same appearance and the same microscopic characteristics as the latter. It is of a very light amber color, lighter than jute; it is shiny, but less so than jute; and, finally, it is also less lignified, and consequently more flexible and less brittle.

Under the microscope it is seen to consist of long, regular, rather slender, and coherent bundles of fibres. These fibres consist of lignocellulose, as shown by the golden yellow coloration which they give with iodine zinc chloride reagent; they also give a red coloration with phloroglucine in hydrochloric acid solution. These properties are characteristic of jute and of all its substitutes.

The cellulose content, as determined Cross and Bevan's chlorination method, was 57 per cent.

To prepare it for papermaking, this material could be cooked, either very slightly so as to retain its strength, or else more thoroughly so as to obtain a bleachable pulp. We accomplished this on a laboratory scale by treating some material in an autoclave with 7 percent of caustic soda (as a 4°Be liquor) under a pressure of 3 kilos (about 40 lbs. per sq. in. Translator) for 4½ hours. After beating and washing in a small experimental beater, we bleached hot with about 18 per cent of bleaching powder. The bleaching was rather difficult and by no means perfect. Hand sheets were prepared from both the bleached pulp and the unbleached pulp. The strength was quite satisfactory, especially that of the paper from the unbleached pulp.

The cellulose which we obtained was entirely resolved into its elementary fibers. With iodine zinc chloride reagent it gave a dirty brownish, violet coloration. It consists of long fibers, averaging 2 mm. in length, which are nearly cylindrical and have thick walls. The average diameter of the fibers in 0.020 mm. The ration of the diameter to the length .020—2=0.01, is exactly the same as that of jute and indicates a high felting-power. The strength, however, is slightly less than that of jute, for the fiber wall is not quite as thick, and the lumen has no constrictions like those which are so characteristic of jute.

The pulp is practically entirely fibrous and nearly pure, the cell fragmnts from the bark having been largely eliminated during cooking and being present in negligible amount.

Of the jute substitutes Deccan or Ambari hemp (**Hibiscus Cannabinus L.**), the fibre of which is often known as brown hemp or Bombay hemp, most closely resembles the material which we studied. As found in commerce, it is a kind of jute which is lighter in color, less lignified, less brittle, softer, and more flexible than ordinary jute.

Our conclusion is that the tow prepared from Algerian mallow, as proposed by Mr. Michony, is a satisfactory raw material. If it can be obtained at a sufficiently low price it constitutes a valuable raw material. If, however, it is too expensive, it should first be utilized for textile purposes, and it may afterwards ultimately find its way into the paper mills in the form of waste or rags.

Mr. J. W. KILGOUR DEAD.

The death of John Wilson Kilgour, of Beauharnois, occurred last Thursday after a short illness. Mr. Kilgour was founder and the president of the Kilgour Bros. furniture factory at Beauharnois, one of the oldest concerns in its line in the country. He was 77 years of age. The late Mr. Kilgour also leaves one brother, Major Joseph Kilgour, president of the Canada Paper Company. Mr. Howard Wilson, of J. C. Wilson Ltd., of Montreal, is a nephew of the late Mr. Kilgour.

If you have half an hour to spare, don't spend it with someone who hasn't.—Forbes Magazine.

PUTTING THE AXE TO ACCIDENTS.

The directors of the Ontario Pulp and Paper Makers' Safety Association at a meeting held recently in Toronto passed resolutions inaugurating a unique competition among the employees of the pulp and paper mills of Ontario. The idea underlying the plan is the stimulation of interest of each individual employee in accident prevention. A competition such as outlined below will appeal strongly to the spring instincts of the individual, and this, combined with the spirit of "esprit de corps", should make the employees of each mill strive earnestly all through the year to top the list and secure the trophy for their mill. The shields and flags will be handsomely designed and well worth every ounce of effort put forth to secure the prize.

Rules Governing Accident Prevention Contest.

1. Any mill located in the province of Ontario is eligible to compete.
2. Mills to be divided into two groups—
   (a) Mills employing 200 people and up
   (b) All other mills.
3. All accidents involving lost time of ½ day or more to be taken into consideration in making up records. Construction or woods operation accidents to be excluded, making the competition a straight contest between operating mills.
4. Copies of Workmen's Compensation Board forms Nos. 5. 7 & 9 covering all accidents to be sent to A. P. Costigane, Sec. Ontario Pulp & Paper Makers' Safety Association, 129 Spadina Ave., Toronto, who will be responsible for compiling records.
5. A monthly statement showing the total number of employees and total number of payroll hours to be sent to A. P. Costigane, Sec. Ontario Pulp & Paper Maker's Safety Association, 120 Spadina Ave., Toronto.
6. Each competing mill will be put on its honor to report **all** accidents. Care should be taken to see that no accident is omitted.
7. Statistics will be computed on man-hour basis.
8. The trophy, which will remain the property of the Ontario Pulp & Paper Makers' Safety Association, to take the form of a shield mounted on a wooden base. The mill having the best accident record for any one year to be judged the winner for that year, and will have the custody of the shield, until won by some other mill. The mill holding the shield to be responsible for the safe keeping and condition of the shield.
9. Each year the name of the winning mill, and the year of winning, will be inscribed on a tablet which will be permanently attached to the wooden base. A new tablet bearing the name of the winner to be attached to the base each year.
10. Each winner of the shield will be presented with a commemoration flag bearing the name of the Association, the name of the winning mill and the year of winning. This flag becomes the property of the winner, and a new flag will be presented each year.
11. A separate shield and flag will be offered to each of the two groups for competition
12. Shield and flag will be offered for competition each year, for as long as deemed advisable by the directors of the Ontario Pulp & Paper Makers' Safety Association.
13. In the event of any dispute as to the winner, the decision of the directors of the Ontario Pulp & Paper Makers' Safety Association to be accepted by all competitors as final.

A SUMMARY OF BELGIAN TRADE.

Pulp and Paper Imports and Exports of Belgium in Metric Tons for the nine first months of 1920 as compared with the corresponding months of the previous year.

Origin Imports Destination. Exports.	Wood Pulp (Free)		Wall Paper (Duty)		News Print (Duty)		Boards (Duty)		Nondemonina-ted paper.(Duty.)	
	1919	1920	1919	1920	1919	1920	1919	1920	1919	1920
Imports.										
Canada		1124								20
Finland		3994						328		
France		15	409	491	184	1	28	120	647	1398
Germany	406	486	45	268	19	190	3	686	422	4090
Gt. Brit:				615	983		542	663	1780	2446
Hamburg		653						48		87
Holland	4010	1042	13	92	4482	3130	2333	1386	2415	2159
Luxembg:									6	78
Norway	13846	39996					88	171	504	557
Sweden	10786	40955					350	277	690	1341
Switzld:			21			137			61	75
U.S. Amer:	200	454	11				36	140	50	341
Russia	970									
Othr: Ctrs:	13	156	60	3	409	239		7	5	73
Total	30233	52875	559	1469	6077	3697	3380	3819	6580	12665
Year Total	54978		1889		8136		4514		10326	
Exports.										
Agentine				72					6	209
Australia										186
Bel: Congo									17	59
Brazil										111
Brit: Ind:									2	343
Canada										84
Chile				49						66
Cuba										21
Denmark									37	39
Dutch Ind:										242
Egypt										155
France	195	11209	59	1067		170	13	204	120	6656
Germany	50	200								126
Gt. Brit:				15		56		262	659	3543
Greece										190
Holland		466	22	130				34	49	1319
Ireland										194
Japan				7						93
Luxbg:			42	4	15	50			48	130
Norway									18	128
S. Africa										49
Spain		50		23					14	51
Straits Sts:										34
Sweden									1	69
Switzd:			26	83					34	250
Tunis										28
Turkey				20				3	2	80
U.S. Amer:				8						109
Uruguay										89
Othr: Ctrs:				176		125		14	1	228
Total	245	11925	149	1650	15	401	13	517	1008	14931
Year Total	1445		529		99		52		3474	

Recapitulation (Quantities in metric tons and value in francs.)

	Wood Pulp Qty.	Wood Pulp Value	Wall Paper Qty.	Wall Paper Value	Newsprint Qty.	Newsprint Value	Boards Qty.	Boards Value	Nondenomin-ated Paper Qty.	Nondenomin-ated Paper Value	Total Qty.	Total Value
				Imports.								
Whole Yr. 1919.	54978	67264	1889	5307	8136	8025	4514	4641	10326	18900	24867	36875
9 first mths 1919	30235	19468	1509	4197	6079	5949	3382	3198	6586	11693	17557	25039
9 first mths 1920	88881	11275	1471	6077	3699	6972	3831	6029	12670	32741	21672	51821
				Exports.								
Whole Yr. 1919.	1445	1413	520	1967	99	150	52	62	3474	10291	4155	12472
9 first mths 1919	245	304	152	439	15	19	13	6	1013	3984	1194	4450
9 first mths 1920	11926	15203	1693	6701	402	1127	519	1086	14943	51664	17558	60579

ARC OF CONTACT.

The number of degrees in the arc of contact on the smaller pulley in the open drive without idlers can be found by multiplying the difference between the diameters of the pulleys in inches by 4.75, dividing the product by the distance between pulley in feet and substracting the result from 180.

Example—Suppose that the pulley diameters are 10 and 36 inches and the distance between centres 12 feet,

$$180 - \frac{26 \times 4.75}{12} = 169.71 \text{ degrees.}$$

PULP AND PAPER NEWS

The latest development in the action brought by the Attorney-General of Ontario against Walter H. Russell and the Russell Timber Co., of Port Arthur, is the filing of two affidavits by Joseph Hoystead Milway, timber cruiser, and Byron Manly Wylie, Acting Crown Timber Agent at Port Arthur, who says that he was informed of the removal of 200 cords which he then placed in control of his agents.

After inspecting the work being done at Spruce Falls, Premier Drury, who has just returned to Toronto, expressed himself as well pleased with work that is being done there. Spruce Falls was formerly known as Kapuskasing. Twelve hundred men are at work there, the pulp mills are being rushed to completion and thousands of cords of pulpwood are being cut in the woods. It is expected that the first unit of the pulp mills will be completed by May of next year. Instead of cutting wood in small patches, the cutting is being done in one block. The brush will be burned and the area reforested.

Work on a fibre board plant, the first unit of which will cost a quarter of a million dollars, will be commenced in Midland, Ont., early in the spring, if the rate-payers of the town decide to give Manley Chew a fixed assessment of $25,000 for ten years. Mason & Co., of Manchester, England, to whom Mr. Chew sold his sawmills and limits a few months ago, are applying for an extension of the fixed assessment of $25,000 on their Midland purchases for eight years. Both applications will be voted on in January.

Premier Drury announced at a labor conference at the Parliament Buildings in Toronto that the Government proposed to proceed at once with the clearing of the pulpwood and trees on the right-of-way of the T. & N. O. Railway to a point 25 miles north of Cochrane. He intimated also that on the present line the bush along the side of the railway would probably be cleared up to prevent fire danger. The Premier said he would get reports within a few days as to the work.

In a counter claim filed at Osgoode Hall, Toronto, the Fort Frances Pulp and Paper Co. are claiming more than $2,000,000 from many western papers. On July 17 last these papers issued a writ against the company and asked for a declaration that certain judgments or orders of the Paper Control Tribunal, dated Aug. 18th 1919 and July 8, 1920 be valid and binding on the Fort Frances Co., and to enforce the same, and for payment of all sums due the newspapers by the company. The statement of claim reviews the history of the Orders-in-Council that fixed the price of newsprint, but the Fort Frances Company replies that the alleged orders of the Minister of Customs and R. A. Pringle, K.C., as commissioner are without force or validity, and that there is no authority or jurisdiction in the Minister or Commissioner to enforce the same, and that the Act of Parliament concerned is ultra vires. The counter-claim for more than $2,000,000 for paper at uncontrolled prices was then made.

Attorney-General Raney has issued a writ against the Shevlin Clarke Lumber Co., Fort Frances, and several other defendants from Minneapolis. The writ asks for a cancellation of the grants of timber berths 45 and 49 Quetico reserve made Aug. 28, 1919 and for cancellation of any licenses; for any money due and owing; for damage for conspiracy, fraud, deceit and conversion: damages for trespass and waste and for an accouncing of all timber cut and moved in operations hitherto carried on in the district of Rainy River and Kenora.

Mr. H. B. Donovan, sales manager of the Canada Paper Company ,has so far recovered from his late illness as to be able to spend a couple of hours daily at his office in Toronto. His many friends were pleased to greet him after a long term of absence at his home at Oakville.

Lieut. Col. T. Gibson, Toronto, Vice-Pres. of the Spanish River Pulp and Paper Mills, Limited, delivered an address before the Canadian Club of Fort William a few days ago on "Pulp and Paper."

A delegation of Northern Ontario farmers waited on the Ontario Government last week and among other things attacked the doing away entirely with the permit system of handling pulp and lumber. They maintained that they were not getting prices for pulpwood which those farmers just across the border were getting. They wanted a Government measurer of pulpwood and asked action by the Government to compel the improvement of vacant lands held by speculators A Governmene enquiry into pulpwood prices was also asked for, the allegation being made that prices were being held down. The Government promised consideration of these and other matters mentioned by the deputation.

A large number of documents have been filed with the court at Osgoode Hall, Toronto, in an action brought by the Attorney-General of Ontario against the Great Lakes Paper Company asking for a declaration that the defendant company under an agreement, must use Hydro-Electric power, and an injunction restraining the company from obtaining its power elsewhere. The agreement was entered into by the Government with J. J. Carrick, who assigned all his rights and obligations to Messrs. Allsed and Seaman, of the Great Lakes Paper Company at Nipigon and Cameron Falls. The agreement concerns the power from Nipigon River. This power was needed for Port Arthur and Fort William industries and the Government agreed to supply Hydro power in its stead. The bone of contention is whether the defendant is obliged to stand by the agreement, or whether the agreement was purely an optional arrangement.

A large number of citizens in St. Catharines and vicinity and many representing the Canadian paper trade attended the funeral of the late W. D. Woodruff in that city last week. The offices of the Lincoln Paper Mills Company, in Toronto, were closed out of respect to the memory of the late president of the company and the staff were present at the funeral. Among those from Toronto, who attended the funeral, were Mr. L. P. Bouvier, of Bouvier & Hutchinson, Mr. Henry Balm, of Kilgour Bros., and Mr. T. H. McDermott, who has charge of the Toronto office.

Technical Section

REVIEW OF RECENT LITERATURE.

L-6. Process for increasing the softness and flexibility of articles made from cellulose ethers. Farbenfabr. F. BAYER & CO. German Patent 322,619. March 29, 1917. Diethyl resorcinoldicarbonate, $C_6H_4(OCO_2C_2H_5)_2$, boiling at 298-302°C., is used. Ethylcellulose can be worked with 50 per cent of its weight of this substance without crystallization occurring.—C. J. W.

L-7. Production of artificial fibers from cellulose solutions. K. SCHREINER. German Patent 322,538. Dec. 25, 1917. The method of producing fine threads by drawing out thick threads spun from wide orifices, is applied to cuprammonium cellulose solutions with the aid of slowly acting gaseous precipitants. After use the gases are passed into a well-cooled tubular vessel in which the moisture is deposited and the greater part of the ammonia is absorbed; after being moistened and reheated the gases are used again to extract ammonia from the threads.—C. J. W.

P-0. The "man on the job" as a "Safety First" factor. MIKE CORCORAN. Paper, **27,** No. 6, 22-3, (Oct. 13, 1920). A description of the manner in which the "man on the job" can further "Safety" work and help cut down accidents.—A. P.-C.

P-0. The Safety Director's part at the Kimberly-Clark Co. Paper, **27,** No. 7, 15-7, 30, (Oct. 20, 1920). A description of the methods adopted by the Safety Director of the Kimberly-Clark Co. is make a real success of "Safety" work—A. P.-C.

P-0. How the "Safety" game is played in the Kimberly mill. Paper, **27,** No. 3, 17, 40, (Sept. 22, 1920). A description of the methods used by the Employment Department of the Kimberly mill to increase safety and reduce accidents.—A. P.-C.

P-0. The foreman's part in "Safety First" work. HENRY W. BONGES. Paper, **27,** No. 5, 14-5, (Oct. 6, 1920). An explanation of the methods used by the foreman of the loading and unloading crew at the Kimberly mill to increase safety and reduce accidents.—A. P.-C.

R-1. The pulp and paper industry in British Columbia. LUKIN JOHNSTON, Paper, **27,** No. 8, 18, (Oct. 27, 1920). A brief description of the resources of B. C., and of the advantages it offers to the establishment of pulp and paper mills.—A. P.-C.

R-12. The production manager's need for cost accounting. L. R. CLAPP, and D. S. DAVIS, THOMPSON & WORLEY. Paper, **27,** No. 6, 13-5, 26, (Oct. 13, 1920). A discussion of the importance of a proper cost system and of the proper method of elaborating it.—A. P.-C.

R-12. The value of cost finding in volume production. G. A. WARE. Paper, **27,** No. 7, 20-2, 32, (Oct. 20, 1920). A discussion of the importance of a cost system even for a plant where the process of production is simple and but few different products are turned out. —A. P.-C.

R-13. Canadian Paper Trade Association Convention, Toronto, Oct. 6-7, 1920. Paper, **27,** No. 6, 9-10, 12, 23, 30. (Oct. 13, 1920). A brief account of the meeting, including text of the speech of retiring-president John Martin.—A. P.-C.

PATENTS.

A-16. Unoxidizable alloy possessing high mechanical resistance. Fr. patent No. 496,930, Société Anonyme de Commenty-Fourchambault et Decazeville, France, Aug. 22, 1920. Chimie et Industrie, **3,** 634, (May 1920). An alloy to replace ferro-nickel where the Ni is subjected to the action of steam (e.g., in turbines) and contg., besides Fe, 25-40 per cent Ni, 10-15 per cent Cr, and eventually 0.5-1 per cent Mn, 0.3-1 per cent C, 0-10 per cent Co, 2-5 per cent W, 1-3 per cent Mo, 0.2-1 per cent V, 0.1-0.2 per cent Ti.—A. P.-C.

A-16. Process for rendering iron and steel rustproof. U.S. patent No. 1,311,319, R. D. COLFUHOUN, ceded to Parker Rust-Proof Co. of America. Chimie et Industrie, **3,** 636, (May 1920). The objects are immersed in a bath contg, a compd. of P the concn. of which is kept const.—A. P.-C.

A-16; M-0. Flux for soldering Aluminium. U. S. patent No. 1,312,154, C. L. Bonstereel, Canada. Chimie et Industrie, **3,** 636, (May 1920). A flux consisting of 265 parts $AlCl_3$, 820 parts $ZnCl_2$, 2 parts borax 25 parts S, 65 parts paraffin, and 25 parts tallow.—A. P.-C.

A-16. Non-corroding alloy. Fr. patent No. 496,928, Société Anonyme de Commentry-Fourchambault et Decazeville, France, Aug. 22, 1919. Chimie et Industrie, **3,** 634, (May 1920). An alloy contg. 20-25 per cent. Ni, 5-10 per cent. Cr, 1-2 per cent. Mn, 0.2-0.5 per cent. C. The Ni imparts the properties of ferro-nickels, Cr prevents irreversible transformations of the alloy either at 200 deg. C. or when maintained for a long time in a damp atmosphere at a high temp. The mixture ensures that the Fe is in the γ state. The high Cr content gives it high acid-resisting power, concd. HNO_3 dissolving only 0.0004 g. per 100 sq. cm. per hr. It is suitable for machines requiring a high mechanical strength.—A. P.-C.

A-16. Unoxidizable and non-corroding metal. Fr. patent No. 496,929. Société Anonyme de Commentry-Fourchambault et Decazeville, France, Aug. 22, 1920. Chimie et Industrie, **3,** 634, (May 1920). An alloy composed of Ni 60-70 per cent., Cr 10-15 per cent, W 2-5 per cent, balance Fe,—and eventually Mn 1-2 per cent. C 0.3-0.6 per cent, Mo 1-3 per cent. This alloy forms a homogeneous solid solution, the properties of which are unaltered by thermal treatment.—A. P.-C.

E-2. Acidification of distillery mashes with waste sulfite liquor. Ger. patent No. 317,998, H. KASERER, Oct. 30, 1917. J. Soc. Chem. Ind., **39,** 421A, (1920). Waste sulfite liquor is employed for acidification and fermentation is conducted as usual.— A. P.-C.

E-2. Acetone from waste sulfite liquor. Fr. patent No. 495,099, West Virginia Pulp & Paper Co., U.S.A., June 17, 1919. Chimie & Industrie, **3,** 654, (May 1920). The waste sulfite liquor is neutralized with CaO, and evapd. to a concn. of 50 per cent. The CaO is eliminated by the addition of Na_2SO_4, and the concd. liquor is treated with 10-20 per cent. of its wt. of NaOH and 40-60 per cent. powdered CaO, which yields a solid mass contg. acetates, the formation of the latter being favored by heating for a while at 200-

250 deg. C. By dry distn. acetone and other volatile products are obtained.—A. P.-C.

E-2. Dry distillation of cencentrated waste pulp liquors. Ger. patent No. 301,684, W. SCHACHT, Aug. 27, 1916. J. Soc. Chem. Ind., **39**, 445A, (1920). Concd. waste pulp liquors are distilled in a current of an inert gas or steam or a mixture of both. The residue in the retort is then made alkaline and further distilled. From 100 pts. of waste liquor pitch (sp. gr. 1.5), 50 l. of an aqueous distillate containing NH_3, alcohols and oils was obtained. On the addition of alkali and further distillation there was obtained 2-4 kg. of oil of sp. gr. 0.930, which yielded about 25 per cent. of a good burning oil, sp. gr. 0.800-0.815, and various pyridine bases.—A. P.-C.

E-2. Method of recovering cymene obtained in sulfite process. U. S. patent No. 1,333,694, L. AKERBLOM, Stockholm, March 16, 1920. J. Soc. Chem. Ind., **39**, 361A, (1920). The gases from the digester are led into a receptacle containing acid for a subsequent digestion; the greater portion of this acid is then tapped off from the lower end of the receptacle and the remainder, together with the cymene floating on top of the liquor, is conducted into a second receptacle. The level of the liquid in the latter is then raised by introducing a liquid heavier than cymene, so that the cymene is forced up into the narrow portion of the receptacle from which it is drawn off.—A. P.-C.

E-5. Method of indirect heating for sulfite cooking. U. S. patent No. 1,337,704, R. H. HULT, April 20, 1920. J. Socê Chem. Ind., **39**, 445A, (1920). The liquid is first heated by means of heating elements, such as steam coils, which are connected in parallel, and the heating then continued by means of the same or other elements connected in series. For making sulfite pulp, the heating elements are connected in parallel until the temp. of the liquor has reached 100-105 deg. C., and then in series till the temp. reaches about 138 deg. C.—A. P.-C.

F-2. Fertilizer from waste soda liquor. Ger. patent No. 316,147, W. COLEMAN, Charlottenburg, Aug. 6, 1916. J. Soc. Chem. Ind., **39**, 420A, (1920). The black liquor obtained in the treatment of straw with alkalis is mixed with agricultural waste products and exposed to the atmosphere, by which means a stable fertilizer is produced. The caustic liquors remaining in the original material, together with the wash-waters, can be utilized for irrigation purposes.—A.P.-C.

F-2. Acetone from waste soda liquor, Fr. patent No. 495,047, West Virginia Pulp Co., U.S.A., June 15, 1919. Chimie & Industrie, **3** 654, (May 1920). The waste soda liquor is evapd. to a concn. of 50 p.c., 10-20 p.c. NaOH and 40-50 p.c. powdered CaO are added, which favors the formation of acetates. The resulting product is subjected to dry distillation.—A.P.-C.

F-2. Core-binder from spent soda liquor. Ger. patent No. 311,294, K. S. FUCHS, Germany. Chimie & Industrie, **3**, 637, (May 1920). The silicates and org. compds. which can be destroyed by the action of acids are removed from the spent liquors obtained from the alkalin treatment of vegetable matter; after drying this can be used as moulding powder. The neutralized soln., rendered alkaline again if necessary, is concd. and used as a core-binder.—A.P.-C.

F-5; K-3. Rotary digesters and like boilers. Eng. patent No. 137,742, K. HELLNER, Falun, Sweden, May 28, 1919. J. Soc. Chem. Ind., **39**, 264A, (1920). In rotary digesters for the manuf. of cellulose and the like the liquor is heated with indirect steam in order to avoid dilution by condensed water. Heating elements are provided outside the digester in such a manner that they take part in its rotation and are connected with the inside of the digester in such a manner that the liquor can pass constantly through the heating elements and be heated by means of pipes located therein, the supply of steam being passed through one trunnion of the digester, while the condensed water is discharged through the other.—A.P.-C.

G-5; L-5. Continuous washing and dehydration of cellulose and cellulose preparations. Ger. patent No. 307,078, R. MULLER, March 2, 1918. J. Soc. Chem. Ind., **39**, 400A, (1920). A rotary suction machine is combined with a device for the counter-current washing of the material with alcohol of progressively increasing strength. A pulp containing, a.g., 10 p.c. nitrocellulose can be treated by this method.—A.P.-C.

K-2. Substitute for lubricating and drilling machine oil. Ger. patent No. 316,028, K. S. FUCHS, Heppenheim, July 6, 1918. J. Soc. Chem. Ind. **39**, 327A, (1920). The soln. of alkali salts of lignic acid obtained as waste liquor in the digestion of straw, maize-cob meal, etc., is pptd. by waste mineral acid or bisulfate; the gelatinous product is heated at 70-75 deg.C., and the lignic acid settles out. A 25 p.c. soln. of the Na salt of this product gives a brown oily liquid, which is used as such or after emulsification with a little oil.—A.P.-C.

K-5. Manufacture of a spinning and weaving fiber from straw and similar stem and bast fibers. Ger. patent No. 316,109, Geraer Jute-Spinnerei und Weberei A.-G., Triebes, May 14, 1918. J. Soc. Chem. Ind., **39**, 330A, (1920). The raw material is boiled with a soln. of 4-15 p.c. of sulfides or polysulfides of alkalis or alkaline earths to which NaOH is added in the proportion of 1:4, until the pectin and lignin matters and the SiO_2 are dissolved; the digested mass is then resolved into separate fibers by the force of hot or boiling water directed in the manner of a water-fall upon it, being at the same time washed free from sulfides. In order to avoid hardening during drying, the mass, immediately after the treatment with water, is further treated will dil. aqueous HCl, then thoroughly washed and dried.—A.P.-C.

K-10, 18; L-7. Process for sizing and waterproofing paper, boards, and papertextiles. Ger. patent No. 304,205, P. E. ALTMANN, Dresden-Tolkewitz, Aug. 2, 1917. J. Soc. Chem. Ind., **39**, 361A, (1920). The material is impregnated with a mixture of saponified beeswax, water-sol, oils, and talc, and the sizing agent is fixed by means of alum, soln.—A.P.-C.

K-10. Manufacture of emulsions for sizing paper. Ger. patent No. 316,345, G. MUTH, Nuremberg, June 27, 1916. J. Soc. Chem. Ind., **39**, 361A, (1920). Coumarone resin or a similar coal-tar resin, is emulsified with an aqueous soln. of a vegetable or animal glue or a similar colloid, and a soln. of an Al salt is added; casein may be employed as the colloid if it is first converted to the water-sol. form.—A.P.-C.

K-18. Counter-board and process of making same. U. S. patent No. 1,332,541, A. L. CLAPP, Marblehead, Mass., Assignor to the Metalite Co., Amesbury, Mass., March 2, 1920. J. Soc. Chem. Ind., **39**, 361A, (1920). Fibrous cellulose is treated with alkali without the application of heat; the stock thus obtained is formed into sheets and the sheets are dried.—A.P.-C.

(Continued on page 1309.)

UNITED STATES NOTES

Plans for the annual convention of the National Paper Box Manufacturers' Association, which will take place in New York City, May 11 and 12, 1912, were made at a recent meeting held in New York under the auspices of the Metropolitan Paper Box Manufacturers' Association. More than 300 makers of paper boxes, supplies, machinery, etc., attended, one of the men present representing the Pacific Coast manufacturers.

Announcement of the completion of their plant at Nitro, W. Vt., has been made by the Nitro Pulp Mills. The company has taken over the cotton purification unit, built by the Federal Government for war purposes. "Present capacity of the plant is 50 tons of pulp daily," according to the announcement, "and the raw material from which the pulp is made is good, clean cotton linters. The men behind this company are all paper or pulp manufacturers or dealers, and it was from the paper manufacturers' point of view that we saw the possibilities in this new line of pulp for paper-making."

The Howard Pulp and Paper Company, Idaho Falls, Idaho, has plans under way for the erection of a power plant to generate 18,000 horse-power. Thos. L. Tomlines, Syracuse, N. Y., is engineer for the project.

Directors of the Union Bag and Paper Company have authorized the erection of a fund of $1,200,000 for the purpose of maintaining dividends during 1921 at the present rate of $8 a share annually on the $15,000,000 stock outstanding. Statements attributed to the officials of this company are to the effect that the business outlook is such as to warrant the setting aside of a sum necessary to continue the present rate of dividends.

Pulpwood from Russia for U. S.

In the course of an interview given in New York last week just prior to his departure for Los Angeles, Washington D. Vanderlip, agent of the syndicate of Westerners interested in Siberian concessions, promised the publishers of America that they need never fear shortage of print paper if one of his many schemes works out. "I want to develop a pulpwood trade between the Murmansk district of northern Russia and the eastern seaboard of the United States," said Mr. Vanderlip. "Northern Russia has many hundreds of thousands of square miles of pulpwood easy of access to the sea and to deep water harbors, which can be loaded into American vessels and carried to the paper factories of the eastern seaboard of the United States, these same vessels having carried to Russia cargoes of machinery and supplies purchased in the United States. This will prove a strong competition against Canadian pulpwood, now subject to high freights from Canada on the railroads. I have taken the matter up with one of the foremost publishers in the United States and he is very enthusiastic over the proposition. The traffic will be an all year round affair, as the Murmansk district is never icebound."

Chief Forester W. B. Greeley, in his annual report, says that the United States Forest Service is threatened with complete demoralization unless the salaries paid to employees are raised to more adequate proportions. Many resignations have taken place during the first year due to the meagre compensation, he says, causing public interests to suffer through the constant turnover of personnel. "No organization can perform miracles," states the report, "and the public forests of the United States cannot be effectively protected from fire, developed and administered to meet the tremendous demands being made upon them without a field force whose compensation is on a par with the work demanded." Pointing out that the Government and not the employee is the real sufferer, inasmuch as the well-trained and efficient employee can leave the service and obtain more remunerative positions, Col. Greeley urges that the rates of compensation now fixed by statute be revised so as to permit radical increases in the salaries paid. This, he believes, is the only way in which the situation can be effectively met.

The de-inking plant of the Economy Pulp Company at Tonawanda, N. Y., will be ready for operation about January 1. Of the six units, each de-inking 100 tons of paper a day, has been installed and placed in working order. The basis of this new enterprise is the de-inking process discovered by Rev. A. Sager of Buffalo. Ink is taken from newspapers and colored magazine paper, the paper being converted into white pulp.

INTERNATIONAL MILL TO START SOON.

The new mill of International Paper Co., now in course of construction at Three Rivers, is expected to be in operation this month. Facilities for turning out sixty tons of sulphite pulp daily have been installed and operations are expected to show on this basis. The mill is not expected to be completed until late next year with an estimated capacity of 240 tons of newsprint daily.

NEW DIRECTORY AND MARKET DATA BOOK.

Crain's Market Data Book and Directory of Class, Trade and Technical Papers, now on the press, promises to be of unusual interest to advertisers generally and users of trade and technical papers in particular. It not only lists of all the business publications of the United States and Canada, giving circulations, rates, type page sizes, closing dates, etc., but supplies market analysis of each trade, profession and industry. Thus the reader is given the basic facts of each line in which he may be interested, including its buying power, buying methods, character of requirements, etc. The volume, which is bound in cloth and contains nearly 500 pages, is published by G. D. Crain, Jr., 417 S. Dearborn street, Chicago. The price is $5. Orders in advance of publication are being accepted at the rate of $3.75.

REVIEW OF RECENT LITERATURE.

(Continued from page 1307.)

K-18. Plastic material practically incombustible, strong and possessing insulating properties. U. S. patent No. 1,331,519, D. Motta, Assignor to E. RUGIU and A. VILLAIN, Genoa, Italy, Feb. 24, 1920. J. Soc. Chem. Ind., **39,** 340A, (1920). A plastic and elastic insulating material is prepared from paper pulp without size and equal parts by vol. of $CaCO_3$ and Mg silicate, the wt. of the combined carbonate and silicate being substantially the same as that of the paper pulp. —A.P.-C.

K-23. Safety paper. Ger. patent No. 303,989, E. HAUSSMAN, Berlin, March 6, 1917. J. Soc. Chem. Ind., **39,** 264A, (1920). A composite paper has a middle sheet uniformly colored with an easily reacting coloring matter, and on either side of this one or more covering films of a thin absorbent paper, only slightly colored, if at all. The coloring matters of the inner sheet is destroyed if the outer sheet is attached by chem. means, and the inner sheet is soon exposed to view by abrasion.—A.P.C.

K-23. Apparatus for making ornamental paper. U.S. patent No. 1,329,130 E. MAHLER, Assignor to Kimberly Clark Co., Neenah, Wis., Jan. 27, 1920. J. Soc. Chem. Ind., **39,** 264A, (1920). A fourdrinier wire is arranged to move in a straight line free from lateral shake while the paper is being formed on the wire, thereby causing the formation of elevations and depressions in the paper web. Liquid color is sprayed by means of a gas under press. on to the upper surface of the wet plastic web of paper moving with the wire, the spray impinging on the paper at an acute angle to the horizontal.—A. P.-C.

K-23. Paper for use as a dielectric for electrical condensers and other purposes. Eng. patent No. 138,226, F. HAIGH, Stoke-on-Trent, April 9, 1919. J. Soc. Chem. Ind., **39,** 292A, (1920). Extremely thin tissue is coated with a homogeneous substance possessing good electrical insulating properties, such as pyroxylin, collodion, nitrcellulose, or cellulose acetate. The thin paper is supported by a backing of heavier paper, the 2 papers being pressed together in a moist condition during manuf. The coating is then applied to the thin paper while in contact with the support, and the backing is removed before the paper is used.—A. P.-C.

L-5. Saccharification of cellulosic material with gaseous hydrochloric acid. Ger. patent No. 304,399, Chem. Fabr. Rhenania A.-G., Aachen F. L. SCHMIDT and G. A. VORKELIUS, Stolberg, May 8, 1917. J. Soc. Chem. Ind., **39** 311A, (1920). The material is first moistened with cold highly concd. (40 per cent) HCl and then treated with gaseous HCl. Example: 400 kg. of sawdust is uniformly moistened with 400 l. of 40 per cent. HCl and, after steeping for a short time, the mass is satd. with the acid gas. The acid is allowed to act on the wood for about 6 hrs., and is then drawn off by suction. If the residual acid be neutralized with CaO or NaOH the product is directly avail, for use as a feeding material in which the whole of the cellulose of the wood is present in the form of sugar or dextrin. If it be desired to convert the dextrin into fermentable sugar the product of the reaction must be lixiviated and the solution heated for 2 hrs. at 120 deg. C.—A. P.-C.

L-5. Process for sacharifying plant material containing cellulose. Ger. patent No. 305,690, C. G. SCHWALBE, Eberswalde, May 4, 1916. J. Soc. Chem. Ind., **39,** 346A, (1920). The moist material, containing less than 50 per cent. H_2O, is subjected to the action of a gaseous acid such as HCl, HF, or SO_2, until it is swollen but not dissolved, the heat produced being eliminated by cooling, if necessary below the ordinary temperature. The gaseous acid is then removed and the gelatinous material is sacharified by dil. acid under atmospheric or higher press. From 100 parts of dry wood substance it is possible to obtain 70 parts of sol. matter containing nearly the theoretical yield of destrose and pentoses.—A. P.-C.

L-5. Process and apparatus for producing fodder from wood. Ger. patent No. 305,090, H. MUHLENBEIN, Cothen, Nov. 18, 1916. J. Soc. Chem. Ind., **39,** 346A, (1920). The wood passes continuously through a series of vessels in which it is comminuted, then subjected to known chem. treatment with alkali and with oxidizing agents such as Cl, and then separated from the liquid, mixed with other feeding-stuffs, dried and, if necessary, ground. The digesting app. consists of 2 or more vessels, capable of being heated, and fitted with stirring mechanism, perforated feed, inlet and screened outlet for the chem. agents, and a steam outlet hood. The process can be applied also to the preparation of cellulose for papermaking, and the digesting app. may be used in place of a diffusion battery in producing sugar juice and fodder slices from beets, and in similar cases.—A. P.C.

L-5. Preparation of cellulose esters. Ger. patent No. 299,181, E. WAGNER, Berlin, March 4, 1914. J. Soc. Chem. Ind., **39,** 400A, (1920). Partially-acetylated cellulose obtained by the auction of AcOH on cellulose is further acetylated by somewhat less than double its wt. of Acetic anhydride, whereby the insol. aceyl compds. are converted into higher acetylated products, which are directly sol. in the usual solvents, e. g., acetone. By this means a saving of acetic anhydride and of the catalyst, where such is employed, is effected. An example is given of the preparation of a cellulose acetate containing about 61 per cent. AcOH. —A. P.-C.

TO FIND THE WEIGHT OF ANY NUMBER OF SHEETS OF PAPER.

A quick method of finding the weight of any number of sheets of paper, provided the ream weight is known, is as follows:

Put down the weight of one thousand sheets, (2 reams) multiply this by the number of sheets of which the weight is desired and then point off three places. This will give the exact weight in pounds and thousandths.

Example:

What will 345 sheets of 25 x 38—60-500 weigh?

Weight of one thousand sheets, 120 lbs, of one sheet, 0.120 lbs.

Number of sheets' weight is desired, 345 sheets, 0.120 x 345 = 41.400.

Therefore 345 sheets of 06 lb. paper will weigh 41 4-10 lbs.

When figuring on stock which weighs 50 pounds to a ream, simply put down the number of sheets of which the weight is desired and point off one place. This will give the weight in pounds and tenths.

Example:

What will 475 sheets of 25 x 38—50 weigh?

47.5 pounds.

This is explained by stating that if a ream of paper weighs 50 pounds, each sheet weighs one-tenth of a pound.—American Printer.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Dec. 18—Christmas of 1920 finds a spirit of optimism pervading the Canadian paper industry generally although there is more or less uncertainty and speculation as to what the coming year is going to bring forth in respect to trade conditions. Leading authorities in pulp and paper circles admit their inability to pierce the veil that hides the future but are convinced that although the coming year may not see the unprecedented prosperity of the one just closing, the trade is going to remain healthy, if not extremely prosperous. This conviction is shared by manufacturer and jobber alike and while it is agreed that next year's prices will not retain their present level—and the opinion is prevalent that more normal prices all round would be better for the trade—the paper market is going to be well maintained and on a healthier basis. It is generally conceded that paper reached altogether too high a figure this year and that a fairly liberal trimming process could be carried on with advantage to the trade during the coming year. That lower prices will prevail next year is the conviction of most men in the trade but there is no indication of any very serious slump. Making due allowance for the optimism of the surveyors of advertising fields in Canada and the United States, who promise a bigger volume of business next year than ever before, it seems reasonable to assume that the demand for paper during 1921 is going to keep up and if there is going to be a market for the product the manufacturers are going to get a good price.

Glancing back over the year in the newsprint field it is interesting to note that mills opened the season with their product selling at three and a quarter and three and a half cents, while the year closes with the price nearly doubled and a six and a half cent rate adopted for the fore part of 1921. This this branch of the trade is in a healthy condition is indicated by the fact that late estimates give twenty-one as the number of new paper machines that will be in operation in Canada and the United States during the coming year. This will represent an increased output of about five per cent. but it will be fully a year before the influence of the added tonnage is felt, and then it will be absorbed by the normal increase in consumption. A large proportion of the newsprint equipment expansion will be in Canada. Price Bros., Ontario Paper Co., and Spanish River will each have one new machine. Laurentide two and Abitibi three, in addition to which the International Paper Co. are building a mill at Three Rivers where they propose to install four new machines with a capacity of 200 tons daily. At the beginning of 1920 Canadian newsprint mills had a total capacity of 2,775 tons per day and it is estimated that at the beginning of 1922 this capacity should be increased to 3,245 tons per day, according to present schedules, so that 1923 should see Canada's newsprint production over one million tons per year.

The past year has seen an unprecedented demand for all grades of fine papers and prices for these, especially book papers have more than doubled in price. As the year closes mills are getting from fifty to a hundred per cent more for some lines of book paper than they got at the beginning of 1920 and there is still a big demand for book, bonds and ledgers despite the fact that the year closes with big stocks in the jobbing warehouses. These are there because of a temporary cessation of buying on the part of the printers, whose business has fallen off during the past month or so, and because the belief exists that the market is due for a fall of some sort. It is believed that these stocks will be reduced early in the new year as buying is bound to set in again either on the present price basis or a reduction as some predict. But in the meantime the development and expansion of the fine paper trade goes steadily on. Ranges of high-grade paper have been produced during the year which formerly found their way into Canada for Europe and the United States and domestic loft-dried and tub-sized papers have now taken the place of many imported lines. Canadian manufacturers are today turning out fine and superfine papers the quality of which was not surpassed by foreign makers. Expansion is still the watch-word and should the domestic demand fall off there is still the export market for Canadian manufacturers. The Provincial Paper Mills Co., Limited, with modern mills at Mille Roches, Thorold and Georgetown and operating a sulphite plant at Port Arthur, are considering the erection of a two-machine book mill at Port Arthur during the coming year which would bring onto the market about forty additional tons. The Howard Smith Paper Mills are carrying out improvements at their Cornwall plant which will bring production there up to fifty tons a day. A new machine is to be installed at the Crabtree Division of the company in Quebec, which will trim 82 inches and augment the output of that branch by fifteen tons per day of sulphite bond papers, most of which will be for export. During the present year a new 86-inch machine was installed at Beauharnois, Quebec, giving a capacity of over twenty tons a day. Improvements have been completed at the Kinleith Paper Co's mill at St. Catharines, which added some twelve dryers to its largest machine, increasing production by six tons a day and making the total daily output of the plant twenty-seven tons. The plants of the Rolland Paper Co. at St. Jerome and Mont Rolland, Quebec, which specialize in bond, ledger, linen and high grade writings, are also busy on improvements calculated to add greatly to their output.

RAW STOCK SITUATION.—While there has been a falling off in the prices of pulp lately it is interesting to note that pulp is still selling at from $50 to $60 a ton higher than in January of the present year. There is no stable market in any of the lines of pulp but a representative of one of the leading pulp mills submits the following as the average market prices today: ground wood pulp $95 to $120, at the mill, according to demand: bleached sulphite $175, easy bleaching from $140 to $150; news sulphite, $130 to $140. In regard to wood pulp, it should be stated that while lower prices are being offered for wood from the jobbers, who get their supplies from the farmers, the big end of the cut by the paper mills will be made by the middle of January at greatly enhanced cost over that



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of last year, wages alone having increased from $60, $65 to $80, $85. F.o.b. prices for pulpwood started out from $16 to $18 per cord at the first of the season and they kept soaring until the remarkable price of $26 was reached or was offered. An eastern representative informs the Pulp and Paper Magazine that the bottom has fallen out of the pulp wood market and no one is buying today. It would appear as certain that the market for some little time was a purely artificial one. Ordinarily, wood from New Brunswick was consigned to the Maine and New York mills and much to the surprise of the mills in that province, a heavy demand sprang up from the Ontario and Quebec mills, owing to the shortage there. Buyers from these latter mills swept over the province offering almost any price for spot wood. The result was that people with whom the New Brunswick dealers had contracted insisted on having their contracts raised, with the result that the season has been somewhat upset. Very little spot wood has been, or can be, delivered for the reason that little of this season's peeling can be obtained and delivered at the railways until the arrival of a liberal quantity of snow. A comparatively small quantity of pulp wood has been obtained by the Ontario and Quebec mills up to date but it is anticipated that a shipment will be free this winter under contract. As a result of the prevailing high prices quite a number of the larger operators installed rossing machines. The drop drove some them out of business, but quite a number are going ahead under advantageous contracts made before the drop.

NEW YORK MARKETS.

New York, December 18—(Special Correspondence)—The paper market continues devoid of feature Activity in the jobbing trade and at the mill centres is of narrow compass, and buyers are holding off to as great extent as in the recent past. In fact, demand for most kinds of paper is still receding, if anything, thus reflecting the gradual drawing near of the year-end and the holiday season. Mills in various parts of the country are devoting their major attention at the moment to compiling inventory and to making much-needed repairs to machinery, and while busy with these things, seem satisfied to let matters stand as they are and the market to follow its own course without any interference on their part. If the prevailing dullness was at any other period of the year the probabilities are manufacturers would exert more effort toward reviving interest among buyers or toward drumming up business in some fashion, but with such important matters as inventory and repairs occupying their time and attention it is not surprising that the average paper producer is pursuing a policy of aloofness.

Reports coming to hand this week from the Middle West are to the effect that the market there has not slowed up to quite the degree that is apparent in this section of the country. It is stated on good authority that practically every paper mill in the West is operating, most of them on a materially reduced schedule, but nevertheless running at least two or three days a week. One reason for this probably is that a majority of the book paper plants in the States are situated in some part of the West, and it is this branch of the industry that seems to have been the least affected by the dullness of the past several months. Prior to the slackening of demand for paper, it was generally conceded that book paper manufacturers had sufficient contract business on their files to keep them operating at close to full capacity until the end of the year. Some of these orders doubtless have been cancelled, but indications are that the average book paper mill held on to enough of the business they had contracted for to give them work for fully half the time, and this possibly accounts for the present condition of the industry in the West being more favorable than in the East.

There is little in the way of important market changes to report. Jobbers as a rule are desirous of liquidating their stocks and are placing orders with mills only when actually needing paper to fill customers' wants. Consumers also are still buying in hand-to-mouth style, with the exception of large publishers who are looking far enough ahead to make contracts covering future deliveries of news print or book papers. The printing trade in and around New York is marked by dullness and this class of paper buyers are confining their purchasing operations solely to supplies directly required.

Newsprint continues to sell for spot delivery in rolls at an average of 7.50 cents per pound at mills. Occasional transactions down to 7 cents are reported but they do not involve important tonnage, and for large quantities of newsprint, publishers invariably find it necessary to pay better than 7.50 cents.

Book papers are quoted at a basis of between 12 and 13 cents a pound for machine finished book for prompt shipment, while the contract basis is maintained at 9.50 to 10 cents at mills. A representative of a leading paper mill in the West states that publishers of some of the most widely circulated periodicals have increased their tonnage for book papers commencing with next February delivery 35 per cent. above the amount of

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paper ordered at the same time in 1920. This would indicate that the consumption of book paper in the magazine field in 1921 will exceed that of the current year, when all records have been surpassed.

Fine papers seem to be holding their own both in point of market activity and in price. Printers are buying carefully and yet a fairly large movement into consuming channels is noted. Quotations on some of the low grades of writig papers have been reduced further but fine lines are firmly quoted and mills are generally declining to accept orders except at the figures named.

Wrappings and tissues are in about the same quotable position and are lacking new feature. Business in this class of paper is only moderate. Boards rule dull although it can be said that demand has improved a bit over that of several weeks ago. With prices down to what would appear rock-bottom levels, boxmakers and other buyers are absorbing supplies with less reluctance and the market promises to breaden during the next few weeks. Prices hold at around $45 per ton at mills for plain chip and $50 for news board.

GROUND WOOD.—There is little business of an important character current in mechanical wood pulp. Paper manufacturers are keeping much out of view as buyers, this being the season of the year when they invariably hold off in purchasing raw material excepting when in immediate want of it, and aside from contract business, practically no trading is reported. Prices are easy although no further sharp declines have been noted. Domestic ground wood of prime quality is quoted at $100 or a shade lower at grinding mills for spot shipment, and foreign ground wood is held by importers for $80 to $90 per ton on the dock depending on the quality and tonnage wanted by buyers.

CHEMICAL PULP.—The market for chemical wood pulp is in a dull condition. There is a pronounced lack of demand from consuming quarters, paper manufacturers with few exceptions running almost entirely on stored stocks of pulp and the supplies coming in on contract, and actual sales are so few and far between that it is next to impossible to ascertain what market values really are. There is no question, however, that prices are lower. Perhaps the prices heard mentiond in the trade are not representative of the true value of pulp, but the fact remains that nearly every kind of chemical pulp is available in at least some tonnage at considerably lower prices than have lately prevailed. Foreign bleached sulphite is quoted down to 9.50 cents a pound on the dock here, while domestic bleached sulphite of No. 1 quality can be bought at 8 cents at mills and probably for less. Foreign easy bleaching is offered in some quarters at 7.50 cents, domestic easy bleach at 6.75 cents, foreign unbleached sulphite of No. 1 grade at 7 cents and domestic news grade sulphite at 5.75 cents. Kraft is quoted down to 5 cents per pound at mills for domestic and at a quarter to half cent higher for Scandinavian pulp. These prices are in a sense nominal, as very little business is doing at any figures, and as the probabilities are purchases could be effected at still lower levels.

RAGS.—Quietness marks current trading in papermaking rags and the few buyers operating are occasioned little difficulty in securing supplies at close to any prices they offer. New cuttings have begun to follow the downtrend in old rags, and sales of the former at substantial reductions in price have been recorded, No. 1 white shirt cuttings having been purchased by mills at 20 cents a pound at shipping points, washables at 7 cents, white lawns at 18 cents, new blue overall cuttings at 10 cents and new light silesias at 11 cents. Felt mills are keeping mostly out of the market and the scattering of sales recorded are generally in the neighborhood of a cent a pound at shipping points for No. 1 roofing rags. Old whites have steadied somewhat and are quoted at a basis of around 10 cents for No. 1 repacked of special quality and at a cent per pound less for average packing.

PAPER STOCK.—The waste paper market is still in the doldrums. There is but a light demand emanating from mills, and prices are characterized by easiness. Quotations mean but little under prevailing circumstances, because consumers, when actually in want of stock, can invariably buy at figures a good deal under those asked by dealers, this being an outcome of the dull demand and the anxiety of packers, to move accumulations. Heavy books and magazines have sold this week to mills down to 1.40 cents per pound at shipping points, folded newspapers at 70 cents a hundred, pounds, No. 1 mixed paper at 35 cents per hundred, and old No. 1 manilas at 1.20 cents. Shavings are the one class of old paper which show a steadying tendency. Dealers evidently are holding shavings with a view of obtaining higher prices later on and quotations range at around 7.50 cents per pound at shipping points for No. 1 hard white and 6.50 cents for No. 1 soft white shavings.

OLD ROPE AND BAGGING.—Demand for both old rope and bagging is practically at a standstill and prices are in a shortly nominal position. Old Manila rope of No. 1 quality is quoted by dealers at 4.50 to 5 cents a pound, but the probabilities are purchases can be made at lower figures. Similarly, No. 1 scrap bagging is placed by shippers at 1.75 to 2 cents and yet buyers could doubtless get orders accepted at less. So few mills are testing the market that it is extremely difficult to determine what values are.

PAPER MILL WORKERS TO GO ON SALARY BASIS.

Employes of the Crocker-McElwain and Chemical Paper Manufacturing Companies, of Holyoke, Mass., who have had five years' service with the concerns to their credit, are to be offered individual contracts shortly, according to the announcement of R. F. McElwain. The employes will be asked he said, to do nothing to conflict with the present open shop plan on which the two plants are operated.

HOW THE PRINTER STARTS.

The first thing the printer does when he starts to figure an estimate or put your work in hand—is to take a slip of paper and put some figures down. They look something like this: "17 x 22" or "22 x 34" or "25 x 38."

The first two are standard letter sizes, the last a standard book paper size. Then he divides these by the size of your work, and finds how many letterheads or folders or pages he can get "out" of a sheet.

Here's where you lose money or save it, because if you insist on a wasteful size, which leaves a lot of blank paper which cannot be used, this loss must go down against you as your cost. It doesn't take many thousand copies, where there is wastage, to run into a fairly large "dollars and cents" items.

Call in your printer early, when planning your requirements. He will help you and show you.—The

ABOUT OUR ADVERTISERS.

The Felt Makers at Arnprior.

In connection with the growth of the manufacture of papermaker's felt in Arnprior it is pointed out that the undertaking opens up a field that has possibilities in direct ratio to those of the great pulp and paper industry. The industry was established there by Messrs. Huyck, of Albany, N.Y., and its activities have been steady since its inauguration. Felt for clothing papermaking machinery has to a large extent been imported, until British and American interests decided to get into the Canadian field to serve the needs of the papermaking industry with a domestic-manufactured product. Other woollen products such as hosiery, blankets, motor rugs, etc., are also manufactured by Kenwood Mills, of Huyck Bros, in Arnprior. The American industry was commenced in 1870 in a small way and has expanded several times. The Arnprior plant has 60,000 square feet of floor space and is fitted with modern equipment for the manufacture of the various woollen products.

The Sandoz Chemical Works, of Basle, Switzerland, now offer Victoria Blue B through their Canadian Distributors, McArthur, Irwin, Limited.

Hughes Owens Company Limited Add New Department.

The Hughes Owens Company, Limited, with head office at 247 Notre Dame St. W., Montreal, and branches at Toronto, Winnipeg and Ottawa, announces that in addition to their well-known lines—Engineering and Draughting Instruments and Supplies, Blue and Black Print Papers, they have added a new department consisting of Microscopes, Microtomes, Chemicals, Chemical Glassware and Chemical, Bacteriological, Projection and Photo-Micrographic Apparatus, etc. In all these lines they represent leading manufacturers.

They also announce the appointment of Mr. J. O. Jarrell as General Manager of the Company and the addition of Mr. Peter Lennox to their Sales Force.

Mr. Jarrell has been in this country for a number of years, and is quite familiar with the requirements of the Canadian laboratories. Previous to coming to Canada, he was a member of the Sales Department of the Bausch and Lomb Optical Company of Rochester, New York, supervising their Canadian trade. He consequently brings to the organization a broad experience in handling the highest grade scientific apparatus.

Mr. Lennox, formerly of St. Andrews University, Scotland, and for a number of years Assistant in the Chemical Laboratories of McGill University, is, by reason of this experience quite familiar with a wide range of chemical processes and has a thorough knowledge of the equipment required by the modern laboratory.

Anyone in the pulp and paper industry may have, from time to time, interesting literature sent them by forwarding their name and address to the Hughes Owens Company, Limited.

The book and writing paper section of the Canadian Paper Trade Association held an enjoyable luncheon at the Ontario Club in Toronto on Tuesday of last week. A good representation of the section was present and enjoyed a pleasant social hour.

LUMBER AND PULP EXPORTS TO U.S. FROM ST. JOHN.

Henry S. Culver, American Consul here has given out a statement of exports of lumber and products to the United States for the quarter ended September 30th, 1920 from this consular district as follows

Laths	$112,142.25
Lumber	648,414.97
Pine Boards	16,597.17
Pulp Wood	94,114.90
Shingles	9,464.90
Spruce Piling	12,096.20
Wood Pulp	478,925.61
Total	$1,371,756.00

THE BOLSHEVISTS OF 1838.

Daniel Webster in a speech, made eighty-two years ago, said: " There are persons who constantly clamor. They complain of oppression, speculation and the pernicious influence of accumulated wealth. They cry out loudly against all banks and corporations, and all means by which small capitals become united in order to produce important and beneficial results. They carry out mad hostility against all established institutions. They would choke the fountain of industry and dry all streams. In a country of unbounded liberty they clamor against oppression. In a country of perfect equality they would move heaven and earth against privilege and monopoly. In a country where property is more evenly divided than anywhere else they rend the air shouting agrarian doctrines. In a country where the wages of labor are high beyond parallel, they would teach the laborer that he is but an oppressed slave."

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A Weekly Magazine Devoted to the Science and Practice of the Pulp and Paper Manufacturing Industry with an Up-to-date Review of Conditions in the Allied Trades

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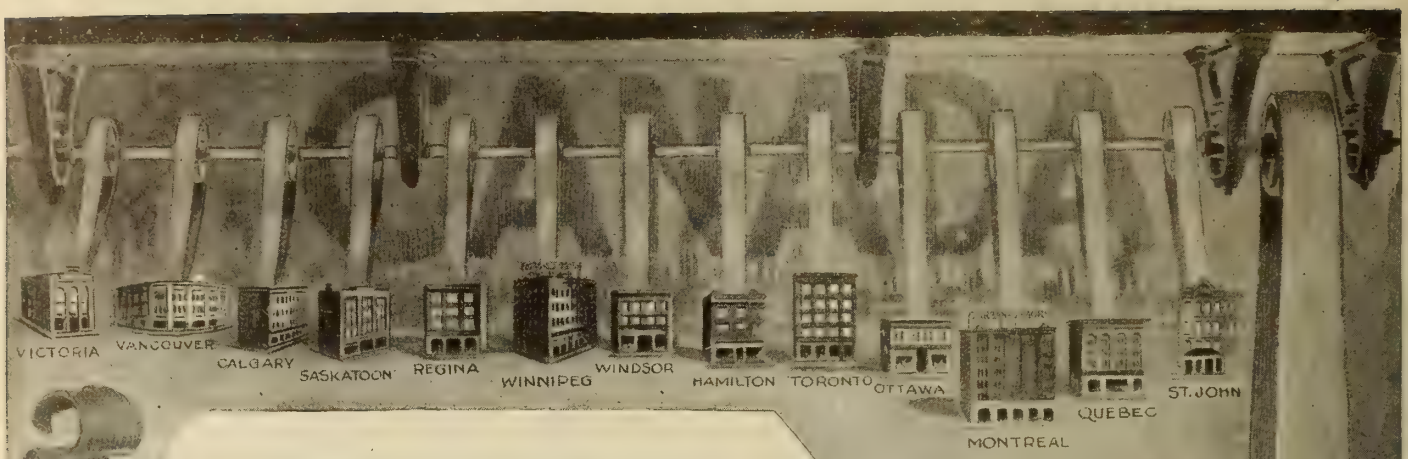
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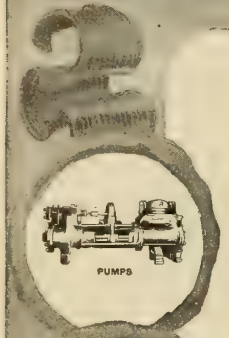
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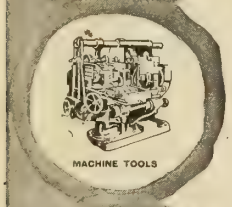
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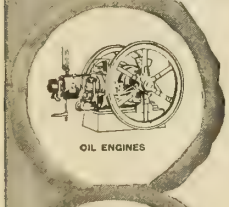
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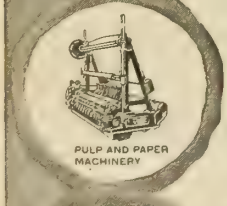


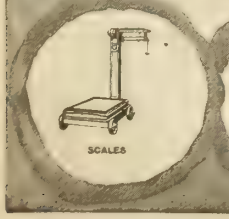


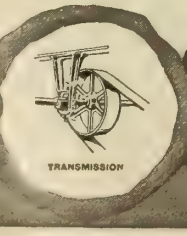






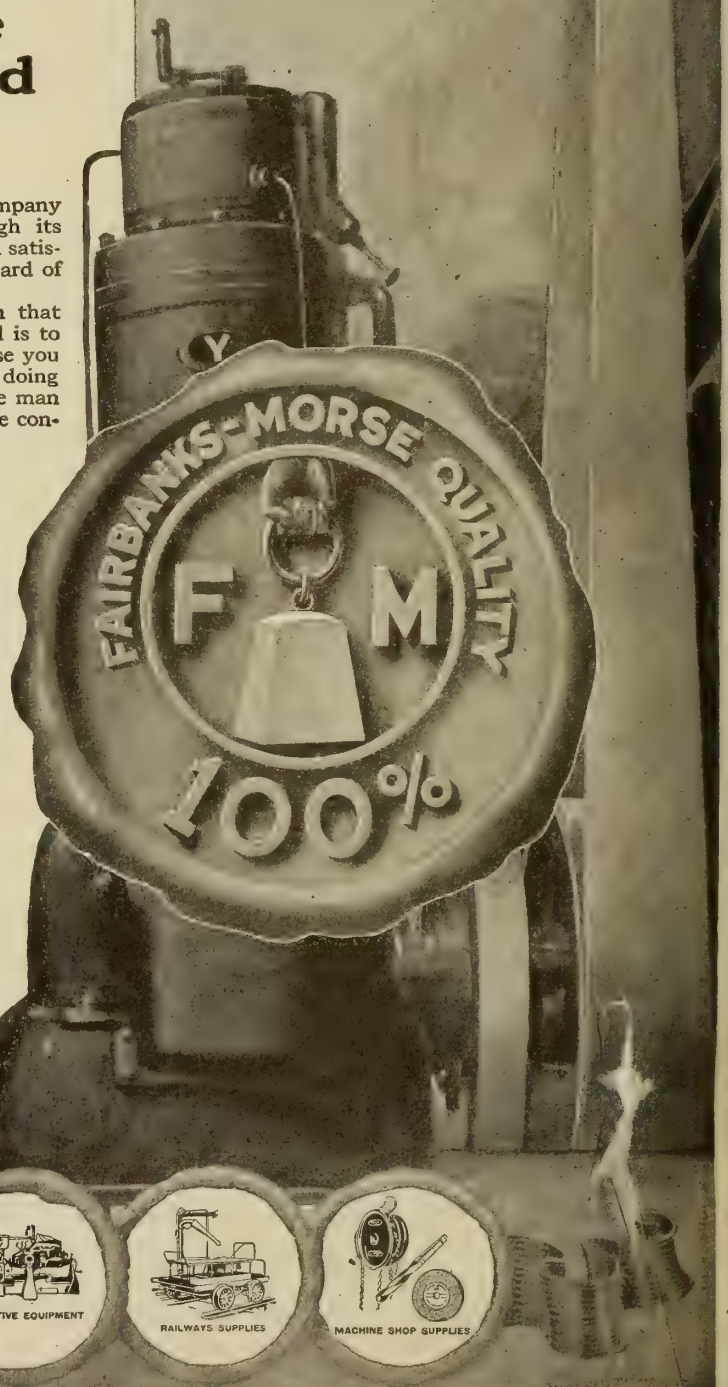












-:- EDITORIAL -:-

HAPPY NEW YEAR! WHY NOT?

We want to join the chorus of Happy New Years which is being heard on every hand this week. Everybody should be greeted and should extend the cheerful greeting and in spite of the passing of a cloud now and then across the horizon, there is every reason to believe that the coming year will be a prosperous one and consequently bring an opportunity for happiness to all of us. Happiness, as someone humorously defined Boston, is largely a state of mind. Contentment is similar. A contented person is likely to be happy. A person who endeavors to stir up strife at this time is making someone unhappy and is sowing seeds of discontent which not only makes it difficult for peace and happiness to come but makes it also difficult to acquire that degree of prosperity which is such an important element in making a Happy New Year come true. There are reasons enough for discontent and for worry in ordinary times. Just now we are passing through what industrial prophets look upon as the most difficult phase in a period of readjustment. How well we are able to pass through depends very largely on our individual attitude. Everyone realises that complete recovery from the distressing situations that have recently faced this country along with the rest of the world requires courageous cooperation and that each one is best serving himself by remembering that there are others.

The paper industry for the most part is fortunately well employed and while orders are not crowding each other for space, on the books, there is more or less business in every line. The manufacturer or dealer who thinks he can grab it all and tries to do so is not acting with the Happy New Year spirit. He is entitled to his share of the business and profit and his employees are entitled to their share of the available work; but there are others. The business of the winter months this year is a bit slower than usual. Part of this condition may be only apparent because present conditions are being compared with the abnormally busy times through which we have just passed. It seems to us that present conditions might continue for some time before bringing down the average below what might be considered normal. The thing to do is to shorten the period of comparative inactivity as much as possible and be prepared for the revival of prosperity that is sure to come in the New Year.

Statistics are not always reliable and prophecies do not always "pan out" but the keenest observers among men who have seen many years of business perceive unmistakable signs that the coming year need not be approached with apprehension. Some people are looking for lower prices but if people who are standing still expecting lower prices to come to them would get busy and produce goods at a resonable price, there would be sufficient employment and wage distribution to keep things going at a normal rate. There is considerable unemployment and, like pneumonia, it is likely to get worse before it gets better. Widespread distress could, however, be prevented by keeping things moving along. The cost of unemployment invariably falls on the whole community; it must be paid for and our humble opinion is that it is far better to pay for it with production than with charity. Unfortunately the winter months are those in which it is most difficult to carry on the class of work which falls principally on unskilled labor to perform. Someone has said that education is the cure-all for unemployment. This is not so. The best trained man is out of work if there is nothing for him to do and there are many tasks that require more muscle than brains. Ditches must be dug and materials moved. Education will not create such work. It may make it more difficult to find men who are willing to do such tasks, but the problem now is to find or create tasks for the man who is willing to do such work when it must be done and can be done. Our winters make it necessary to close down many outdoor operations and we have not yet become sufficiently enlightened to develop a workmanlike scheme for perennial employment. It may be true as we have heard a manager state, that many unskilled workers will not continue at certain tasks which become disagreeable when the snow flies. Some concerns are sufficiently efficient and broad-minded to plan on having work that can be done in the winter time by unskilled labor since skilled men for the most part work on tasks which are naturally good the year round.

The great problem before us then, if we are to make our Happy New Year to mean something, is to keep our chests out and our eyes front, not so straight front however, that we cannot take notice of the fellow beside us and give the assistance and encouragement which, if generally passed about, will make 1921 a Happy New Year indeed.

THE WAY TO GET IT.

In a recent issue of the Pulp and Paper Magazine it was our pleasure to publish and comment upon plans for a Safety competition among the pulp and paper mills of Ontario. Such a competition is a good deal like a garden. The amount of production and satisfaction depends principally upon the amount of effort that one puts into it. Like a garden also the success of safety work depends largely on the kind of seed and the manner of its planting. With safety work the seed is the Safety Idea. There are a good many safety schemes but all of them do not fit every situation. A lecture on elevator guards, for instance, would not only be useless in a mill where no elevator is used but the inappropriateness of mentioning such a subject would really be a handicap to real safety work. On the other hand, no mill and no individual is so nearly perfect that no improvement is possible. Improvement is really the object of the Safety First competition for the shields and banners offered by the Ontario Pulp and Paper Makers Safety Association. The idea of a tangible prize, a shield or a banner, which signifies successful effort is to some people a greater inducement than even the benefits derived from the competition. Many a person points with pride to trophies won in school days without any thought of the benefits from the health and strength and good fellowship gained in the training before the contest. Even the loser has these benefits.

Practically the same benefits from training and contest are available in the case of the competition for the Safety shields. Suggestions for improvement of operating conditions and appeals to workmen to be thoughtful have greater force with some prize in sight.

Enthusiasm is one of the principal features of a good contest, no money can buy it nor can anything else take its place. It is therefor very gratifying to read the following letter from a paper mill in Ontario regarding the safety competition. If all the mills in Ontario will take up the proposition in this enthusiastic manner there will not only be happiness and satisfaction to the winners of the shields but there will be an enormously reduced loss of time and wages besides greater contentment and better health because Safety First has been the principal thought in the minds of the paper makers in Ontario. We hope the secretary will receive a letter like the following from every other member of the association.

The Ontario Pulp & Paper Makers'
Safety Association,
Toronto, Ontario.

Dear Sirs,

We were very much interested in your letter of Dec. 16th in connection with the competition between all the mills for the best accident record during the year 1921.

Our Superintendent and the writer have been discussing this splendid idea with the foremen in our mill and we are one and all looking forward to securing the 1921 Shield for our Company.

We note the particulars which you require each month and you may rest assured that we will see that you are given this information promptly and accurately.

We are having several copies of your letter made out which we intend to distribute throughout our different departments.

Yours faithfully,
"Safety First Paper Company."

"BROMPTON NEWS".

Strange as it may sound at first, Brompton Pulp and Paper Company has joined the publishers. We have just received the Christmas number of "Brompton News", the bi-lingual semi-monthly paper published by the company. There are eight pages of **news.** In expressing through its columns, his personal greetings, Mr. J. A. Bothwell, the General Manager reminds the Bromptonites that East Angus has a town and mill equal to anything in Europe and that everybody's co-operation is necessary to pass safely the difficult period we are now in.

COBWEBS.

The Editor has been surprised and delighted to know he has so many good friends. Their Christmas greetings have brought great pleasure and encouragement. Cards, calenders, letters, diaries and cigars, all have brought the good wishes of friends, whom we wish to thank most heartily for their kind remembrances. Dorothy, representing Capital Wire Cloth Co., smiles at us from across the office; Gottesman's diary, the calenders from Sadler and Haworth, Waterous Engine Works Co., National Safety Council, Ontario Pulp and Paper Makers Safety Association, and others, help pass the time. So, in the best of spirits, we wish everybody as happy a New Year as ours seems likely to be.

In discussing the likelihood of making rubberized "cloth" by impregnating paper, a friend in the rubber business said it was more likely that rubber would displace paper at the present trend in relative prices.

From reports of what some people in the United States think of the tariff bill that would make Canadian grain a scarce article across the line, there are evidently two sides of the question. The Boston Globe, for instance, cites the situation as an indication of the beginning of a period of log rolling in Washington—not in the Bureau of Forestry, however.

"A careful man does not need to tell you he is sorry," says the Safety League.

The Performance of a Culled Acre*

By C. D. HOWE, Dean of the Faculty of Forestry,
University of Toronto.

In connection with the forest regeneration and growth study surveys of cut-over pulpwood lands being carried on by the Commission of Conservation in Ontario, Quebec and New Brunswick, several methods for determining the rate of growth of spruce and balsam have been employed. One of these is the selection of representative areas in a given forest type and condition in respect to culling and the making of a complete growth analysis of the balsam and spruce trees to be found on the plot. The first season of the work, the summer of 1917, five such plots were made and it is one consisting of an acre, a chain wide and 10 chains long, that I wish to bring to your attention this morning. It was situated in what may be called the mixed slope type where the stand of trees 4 inches and above in diameter was 40 per cent balsam and 40 per cent yellow birch, 11 per cent spruce, 6 per cent sugar maple, and 3 per cent white birch.

The Pine Is Gone Forever.

The date of the first logging operations in the vicinity of this particular sample acre is apparently not known. It is known, however, that tote roads connecting the lakes had already been made in 1854, or at least 65 years ago. One finds trees about 35 years old growing on mounds of decayed wood, once the walls of camp buildings. The length of time required to bring camp buildings to such a stage of decay that trees could grow on them is doubtless a variable period, depending upon the kind of logs used, the situation, and the amount of rainfall. Since, however, the first camps were made of pine logs, we probably would not be far wrong in placing the time required as between 20 and 30 years.

As you know, the top of old pine stumps in course of time may become covered with moss, and such moist material makes a good germinating bed for tree seeds. One frequently finds trees 20 to 30 years old growing on such situations. I recall cutting a little spruce tree, 33 years old, from the top of a pine stump adjacent to the sample acre which I am about to describe. It had germinated on the sapwood and its roots originally pushed their way down to the soil between wood and bark. The tree must have been cut for a considerable length of time, and decay have been well advanced before conditions would have allowed this performance. The fact that the first log had been taken away indicates that the tree was very sound when cut, for as you know, not many defective logs were taken out of the bush in the early days of lumbering.

Old camp sites, old rollways along the lake shore now support young, even-aged stands of poplar, birch, cherry and maple from 40 to 50 years old. Coppice growth from stumps of hardwood trees, apparently cut for camp fuel, indicate activities of a half century past.

These evidences, among others, demonstrate with fair accuracy that the region was logged over for pine between 50 and 60 years ago. Data of a similar nature indicate another cutting around 40 years ago. Practically all the region has been cut twice and some of it three times since, and at these subsequent cuttings the pine of any value was taken.

During a summer's study in the locality we ran strips from the lake shore to the top of the ridges and measured among other things the white pine stumps on 60 acres and they averaged 6 to the acre.

The sample acre to which I wish now to draw your attention had 5 white pine stumps upon it, so it was fairly representative in that respect. These stumps, with their sapwood already gone and heartwood in various stages of decay measured 18, 19, 20 and 22 inches in diameter. The height of these trees is not entirely a matter of conjecture, for some of them in falling broke a channel through the crown cover and the corridor thus made in the forest is now filled with balsam poles and saplings. The top logs of other trees still remain where they fell. The measurement of these conditions indicates that the trees were from 100 to 125 feet high. Five average white pine trees even, with the diameters given above and averaging, let us say, 90 feet high, in fairly sound condition, would yield around 2,000 board feet. If we assume that each pine stump has lost only three inches in diameter in the 40 to 60 years that it has been subject to the forces of decay, with the height remaining the same, our estimate of the yield of the trees becomes increased by a third and reaches 2,600 board feet. Let us say the sample acre produced 2,500 feet of white pine lumber, at least a measured by the present market standards.

The sample acre at the present time contains no white pines—neither seedlings, saplings nor poles,—and in this respect, it is fairly representative of the locality. The forest capital stock represented by white pine has reached the vanishing point. An acre which has produced 2,500 feet of good white pine lumber will produce no more.

Spruce Capital Insufficient.

So much for the pine, now let us turn to the condition of the spruce on the sample acre. The area was cut over twice for spruce somewhere around 26 years and 16 years ago. It was logged again about 8 years ago, but at that time the product was balsam instead of spruce. The older spruce cutting took six trees from the acre, and the dimensions of their stumps after 26 years of weathering and decay are 14, 16, 18 (2 stumps), 20 and 22 inches. The second cutting took 16 spruce trees from the acre and the present diameters of the stumps remaining are 8, 10, 11 (3 stumps), 12 (2 stumps), 13, (2 stumps), 14 (2 stumps), 15, 16 (2 stumps), 19 and 22 inches respectively. Thus, 22 spruce trees were removed from the acre and this is practically the average number taken from the areas cut twice for spruce, the average in our summer's work being 21.8.

We have a volume based on 110 spruce trees, all taken within five miles of the sample acre and in the same site. Unising this as a standard, we find that the six trees cut about 26 years ago yielded at least 2.75 cords, and that the sixteen trees cut on the acre about 16 years ago yielded 3.75 cords, a total of 6.5 cords. It is a significant fact that in the earlier logging operation it took only a small fraction over two trees to make

*A paper read before a meeting of the Woodlands Section of the Canadian Pulp and Paper Association, Toronto, December 8, 1920.

a cord, while in the later cutting a little more than four trees were required.

Nine balsam trees were removed from the sample acre about 8 years ago. During the summer's work in the vicinity only 7 acres cut between 5 and 10 years ago were encountered. I mean there were only 7 acres of plots and strips. The average number of balsam stumps on these was 7. So, again, we see that the sample acre was fairly representative in this respect. The balsam trees removed were 10 (2 trees), 12, 13 (3 trees), 14 (2 trees), and 15 inches in diameter.

Applying a volume table to these trees for their respective diameters, the yield becomes 2.5 cords of pulpwood. If we add this to the 6.5 cords of spruce, we find the acre has produced 9 cords of pulpwood in addition to the 2,500 board feet of white pine.

We have seen what is the present condition of the white pine on our sample acre, let us now turn to the spruce. Eight years after the last logging operation the area supported 17 spruce trees 6 inches and above in diameter. Their diameter classes were distributed as follows: 4 trees 6 inches in diameter, 3 each in the 7 and 8 inch class, 5 trees were 9 inches and 2 were 10 inches at breast height.

Only one of the trees was suppressed; four were partially dominated by larger trees, although they received plenty of side light. The other 12 trees had no overhead interference. The youngest 6-inch tree was 97 years old and the average age was 113 years. It took them 12 years to add an inch to their diameter. The two 7-inch trees were growing at the rate of one inch in diameter in 14 years and were 104 years old. It required 16 years for the 8-inch trees to add an inch to their diameter and their average age was 113 years. The five trees 9 inches in diameter had been in the forest for 150 years and it took them on the average 15 years to pass from the 8-inch class to the 9 inch diameter class. The greatest spread in age was shown by the 10-inch trees, one being 116 and the other 200 years old. The younger made its last inch in 10 years, while the older occupied 30 years in the accomplishment.

The volume of the 17 spruce trees from 6 inches to 10 inches in diameter inclusive was 120 cubic feet or 1.3 cords with the use of 90 as a converting factor. We have seen that 6.5 cords were removed by the two cuttings and now 16 years after the last logging operation only a cord and a third remain. If these 17 spruce had not yielded their lives to the investigative spirit and had grown at the same rate for the next 20 years as they did in the past 20 years, there would have been, with no allowance for normal fatalities, another cord on the acre for they have increased in volume at the rate of one cord in 20 years.

Using 8 as a converting factor, we find the average annual accretion in board feet for the past 20 years to be 38. If this rate were continued, it would have been a matter of 26 years before the present growing stock on our sample acre could have produced another 1,000 feet of spruce lumber—again with no allowance for death rate.

This may be expressed in another way by saying that the spruce 6 inches and above in diameter is growing at the rate of 4 per cent annually. This sounds well, but it requires thought. The term growth per cent has little managerial or financial significance unless accompanied by a statement of the amount of capital on which it is based. The spruce capital on the acre we are describing, even 16 years after the last cutting, is only 1.3 cords, and, although this capital stock is making 4 per cent a year, the amount is so small that 36 years from the date of the cutting would elapse before the interest and capital combined would reach 2.5 cords of spruce per acre—and once more this calculation makes no allowance for normal death rate.

The normal death rate and the abnormal caused by unrestricted fire—unfortunately so frequent and regular in occurrence in some of our best forested regions as to be almost normal—present a very serious problem in any attempt to predict the future yield of our forests. Our good friend Barnjum is doing excellent work in repeatedly calling our attention to it. About the only way it can be accurately determined is by actual observation on selected areas through a series of years, and that the Commission of Conservation and the Entomological Branch are doing on their permanent sample plots.

There were no dead or dying spruce trees 6 inches and above in diameter on the sample acre under discussion, although one 8-inch tree and one 7-inch tree were afflicted with heart rot at the butt. The foliage and the crown development, however, did not indicate sickness. It may be pointed out, however, that the death of one 7-inch tree on our sample acre each year would offset the annual growth of the spruce.

The next crop of spruce on the sample acre would depend on the 17 trees whose probabilities in that respect have just been set forth. As indicated, this crop would probably not reach proportions profitable to harvest until 36 years or more had elapsed subsequent to the last spruce cutting. The forester, since he is in the employ of the state or other long-lived organizations and since his business is to keep an area continuously productive in terms of merchantable material must look still farther ahead than 36 years, so let us now turn to the consideration of the spruce trees less than 6 inches in diameter as disclosed by the study of the sample acre.

The acre revealed 63 spruce trees belonging to the 1-inch diameter class. All but six of these were growing beneath the shade of larger trees or, in other words, only six had the probability of unrestricted height growth before them. These six averaged 6 feet high and 25 years old, while the 57 shaded saplings were 5 feet high and 37 years old on the average. The youngest 1-inch tree was 21 years and the oldest 60 years old.

Thirty-one trees were found to belong to the 2-inch diameter class. Of these, 24 were beneath other trees and 7 in the open. The latter were 39 years and the former 47 years old. The youngest tree was 20 and the oldest 90 years old. The trees in the open averaged 11 feet high and those in the shade 9 feet in height.

The number of trees drops to 12 in the 3-inch diameter class, 6 free and 6 suppressed. The former were 40 years and the latter 58 years old. The average height in the two situations was practically the same, namely 12 feet. There were only 4 trees in the 4-inch class and 2 of these were badly suppressed. The five-inch class contained 2 trees.

Our studies indicate that a tree which has been suppressed up to 3 inches in diameter will not recover when released by the removal of the overhead crown cover. It has been discouraged so long that it does not respond to the improved conditions. If this is the case the potential trees of another crop in this group, beginning with the 1-inch diameter class, are 63, 31, 12, 2, 2. If these figures represent the normal death rate in passing from one diameter class to another, the

outlook for another crop from this group is not very encouraging. For example, if one half the 1-inch trees die by the time the 2-inch diameter class is reached, and, if only one half the former 2-inch trees are represented in the 3-inch class and if there are only 2 trees per acre 4 and 5 inches in diameter respectively, it is quite evident that the proper distribution of diameter classes is lacking. It will be 70 to 100 years before the trees now 3, 4 and 5 inches in diameter will attain 12 inches in diameter and each tree represented must live that length of time in order to replace the crop.

That sentence in somewhat involved. What I mean is this, when the 17 trees now 6 inches and above in diameter are harvested there are only 16 trees in the next group to take their places, and it is not at all probable that each tree will survive, for, if they grow as their predecessors have grown, the time of their harvest is still 75 to 100 years hence.

The evidence outlined above indicates that in the natural course of events the spruce could never have attained its former productiveness on the sample acre and probably would not have produced sufficient material to make a cutting for spruce alone profitable.

What About the Balsam ?

Now, if you will bear with me a few minutes longer, I will present the case of the balsam on the sample acre. We have found that 9 trees, yielding 2.5 cords, were removed from the area about 8 years ago. Eight years after the cutting the area supported 36 balsam trees 6 inches and above in diameter. The diameter classes were represented as follows: 14 trees 6 inches in diameter, 15 trees 7 inches in diameter, 3 each in the 8 and 9-inch classes and 1 10-inch tree. Only two trees were suppressed. Four were partially shaded, but received abundant side light. The other 30 trees were dominant.

The youngest 6 inch balsam was 42 years and the oldest 98 years old. The average age of the 13 trees was 67 years. The fastest diameter increment was an inch in 11 years and the slowest an inch in 20 years, the average for the 13 trees being an inch in 14 years.

The youngest 7 inch balsam was the same age as the youngest 6 inch tree, namely 42 years and the oldest was 111 years of age. The average for the 14 trees wes 72 years. One tree in this diameter class, although having no overhead interference, required 30 years to complete its last inch. The average for the 14 trees was 1 inch in 12 years.

With one exception, the 8 and 9-inch trees were practically of the same age, 60 years, and younger than the average of either of the 6 or 7-inch class. Their diameter increment was 1 inch in 11 years.

The 10-inch balsam did the best of all. Only 6 trees out of the 36 were younger. It was only 50 years old and thus grew at the rate of one inch in 5 years.

The total contents of the 36 balsam trees 6 inches and above in diameter that remained on the sample acre 8 years after the last cutting was 167 cubic feet. This, with 90 as a converting factor, becomes one and four-fifths cords. They were increasing in volume at the rate of about 10.4 cubic feet per year. This means about one cord in 11 years. Expressed in square measure, it becomes about 83 board feet per acre per year.

Any estimate of yield in board feet of balsam, however, would be misleading, since the greater portion of the trees die before they get to be sawlog size. The same also should be said with regard to any prediction of yield of balsam for pulpwood. Let me call your attention to the sudden dropping off in the stand table in passing from the 7-inch to 8-inch diameter class. There were 14 trees in the former and only 3 in the latter. This is undoubtedly due to disease and consequent windthrow. Six of the 13 trees 6 inches in diameter were affected by heart rot, 3 of the 14 7-inch trees, one of the 3 8-inch trees and one of the 3 9-inch trees was similarly afflicted. This makes 25 per cent of the trees 6 inches in diameter and above on the area affected by heart rot. How long it takes the heart rot in combination with accompanying insect diseases to kill a balsom tree is not definitely known. The Commission of Conservation and the Entomological Branch are trying to determine this on their permanent sample plots.

This sample acre is not unusual with regard to the sudden dropping off of numbers in the higher diameter classes of balsam. As stated above, the summer's work in the vicinity of this area involved the counting of trees on 60 acres of plots and strips. The average acre derived from these contained 59 balsam trees from 4 inches to 8 inches in diameter. The acre, on which the growth studies described above were made, contained 54 trees within those diameter limits. The average acre from the summer's work contained 6 trees from 8 inches to 12 inches in diameter. Our sample acre contained 7 trees within those diameter limits. Thus, it will be seen that it is fairly representative of the region with respect to the disappearance of the larger diameter class of balsam.

If, however, the trees were not diseased and if they repeated the growth performance of the past 20 years, they would yield practically 3.5 cords of balsam pulpwood on the acre 16 years hence or 24 years after the last cutting.

Taking up now the balsam trees between 1 inch and 6 inches in diameter on the sample acre, we find them distributed as follows: 142 trees in the 1-inch class, 70 trees 2 inches in diameter, 53 trees in the 3-inch class, 20 each in the 4-inch and 5-inch classes. The 1-inch trees were about equally divided with reference to the exposure to the light, one-half in the light, one-half in the shade. The youngest 1-inch tree was 12 years and the oldest 62 years old. The average age of those in the light was 23 years and of those in the shade 33 years old. The shade by the hardwoods held them back 10 years in age, but only 6 inches in height on the average.

Apparently one-half of the trees died in passing from 1 inch to 2 inches in diameter and 41 of the 70 2-inch trees were very badly suppressed, being 47 years old compared with the 31 years of those krowing without overhead interference. By the time the 3-inch class is reached, the number was reduced to 53, of which more than one-half are badly suppressed. The suppressed trees averaged 57 years and the free trees 34 years of age. One-half the 4-inch tres were also nearly crowded to the wall by the overtopping hardwoods.

If we assume that the suppressed trees will not get through under normal conditions, and, since the death rate is so high in the 1-inch class, that only the dominants 2 inches and over in diameter, will participate in forming the larger diameter classes, then only 48 trees 2 to 5 inches inclusive in diameter can be depended upon to replace, when cut, the 34 trees 6 inches and above in diameter. This might be a sufficient number if their disease liability were not too high. We have

not sufficient data at present to predict what that would be.

Extent and Kind of Reproduction.

It is interesting to look still farther into the future of our sample acre than we have already done and to this end make inquiry into the extent of the reproduction. The area has undergone at least four cuttings. Now, what influence have these and the accompanying logging operations had upon the reproduction of the spruce and balsam? In partial answer to the question I may say that we found 528 spruce seedlings on the acre. We called all the trees seedlings which were less than one-half inch in diameter at breast height. Some of these seedlings were 60 years and none of them less than 20 years old. I would not say positively that no spruce trees younger than this occurred on the acre, but we did not find them in counting the trees on 10 square rod plots. The evidence indicates, then, that there has been no reproduction of the spruce since the last two cuttings, which occurred about 16 years and 8 years ago respectively.

Now, let us turn to the older cuttings and see what effect they may have had on the reproduction of spruce on the area. I have assumed that the date of the 26 years old cutting may not be accurate within several years on each side, so I have taken the spruce trees between 30 and 26 years and 26 and 20 years, a 10-year period, and I find 11 spruce trees with ages falling within that period. There were 129 trees 1-inch in diameter and above on the acre and only 18 or about 13 per cent became established as a result of the 26 year old cutting. It would perhaps be fairer to state this relationship for the trees now 4 inches and less in diameter and with that we find that among the smaller diameter classes, the trees between 20 and 30 years old form 18 per cent of the stand. It is evident, therefore, that the cutting of 26 years ago did not materially accelerate the reproduction of the spruce. The spruce trees, 1 inch to 4 inches inclusive, 30 years to 40 years old, make up 28 per cent of the stand; 40 to 50 years old, 16 per cent, and those 50 to 60 years in age, 18 per cent.

Let us state the case again. Reckoning back from 1917, we find practically no reproduction of spruce in the first two decades. In the third, fifth and sixth decades the reproduction was practically uniform, but something happened in the fourth decade, namely between 30 and 40 years ago, which stimulated the reproduction of the spruce.

I think this may have been due to a pine cutting or, perhaps, to the first spruce cutting. At that time there was undoubtedly less hardwood undergrowth beneath the forest and the layer of leaf litter may not have been so thick as now. The removal of large pine trees or spruce trees may have opened up the crown cover to a greater extent that the later cuttings of smaller and more narrow crowned trees. There was a better germinating bed than later and more light, conditions favorable for the reproduction of the spruce. The present reproduction in the vicinity is to be found in two apparently diverse situations, on thin soiled ridges and rock outcrops and on flats with deep soil. Apparently moisture content of the soil cannot be the determining factor, for the one situation is dry and the other damp.

We will now give attention to the reproduction of the balsam. The acre contained 3,500 seedlings. Compare that number with the 528 spruce seedlings! We determined the ages of 350, one-tenth the number on the acre. Grouped in 2-year periods, we found that 95 per cent of them, running from 8 to 18 years, did not vary more than 10 years in age. Twenty-five per cent were 12 years old. Fifteen per cent each were 8 and 10 years old, and the 14, 16 and 18 year old comprised about 13 per cent each.

No particular influence of the 8-year-old and 16-year-old cuttings is evident here unless the peak at 12 years is due to the lagging behind effect of the 16-year-old cutting.

Taking the next older groups, as we did in the case of the spruce, we find there were 275 balsam trees on the acre from 1-inch to 4 inches in diameter inclusive. The ages of these trees are quite uniformly distributed in all the 10-year groups except in the decade between 30 and 40 years ago, where one-third of them are located. Whatever happened in that period stimulated the reproduction of the balsam as well as that of the spruce. There is probably little doubt that the reproduction of balsam as a whole has been accelerated by the logging operations, but there seems to be no direct stimulation by them, except perhaps in the case of one of the earliest cuttings.

It should be borne in mind in connection with the last statement that the acre supported a mixed forest in which originally at least a third and perhaps one-half of the crown cover was composed of hardwoods, mostly yellow birch. There is little doubt that a fuller removal of the crown does accelerate the reproduction of balsam in certain situations.

Thus with regard to the seedlings we have found that the balsam outnumbers the spruce by more than 6 to 1. In the diameters from 1 inch to 4 inches inclusive the balsam surpasses the spruce by nearly 3 to 1. In the 5-inch to 8-inch class the balsam exceeds the spruce in number by 4 to 1. We thus find the balsam abundant and aggressively pushing on towards dominance, a goal it probably will never reach because of inherent constitutional weakness in its ready susceptibility to disease.

Conclusion.

Gentlemen, we have entered into a detailed analysis of the conditions, the life history as it were, of an area, in order to present to you in terms of growth and reproduction the performance of a certain culled acre. Now, in conclusion let us briefly restate this performance:

First, the production of at least 2,500 feet of white pine lumber from five trees, all originally larger than 20 inches in diameter and the failure of white pine to reproduce itself, since not even a seedling can now be found on the area.

Second, the production of at least 6.5 cords of spruce pulpwood in two cuttings and the probable failure ever in repeating this performance due to the depletion of the growing stock as the result of the logging operations, the absence of a proper gradation of diameter classes among the smaller trees, and the absence of adequate reproduction under the present forest conditions. To this also should be added the influence of the over-shading hardwoods in reducing the potential capital stock by suppressing and stopping down the growth rate among the smaller diameter classes.

Third, the production of 2.5 cords of balsam pulpwood and the accretion of a still larger crop of 3.5 cords in 24 years after the cutting. This statement must always be followed by the qualification that no

one knows the rapidity with which the diseases attacking balsam advance and hence there can be no dependence upon the future in respect to this species.

Now, gentlemen, I am sure that you will agree with me in saying that considering the treatment this acre has received, it has done quite well. Its chief lack has been intelligent direction and it is not responsible for that. With such direction I believe it could be recuperated and made even to surpass its past performance. Since this acre fairly represents the conditions in a certain locality, I believe recuperative methods could be applied on a large scale. You know better than I that the cost of getting wood to the mill is increasing each year, due not entirely to increased cost of labor and supplies, but also to increased distances of transportation. The cost of labor and materials, even the unit cost of transportation, may and very likely will decrease, but you know, again better than I, that the distance of transportation for your wood will increase in the future, unless you use substitutes for spruce or unless you pick up your mills and carry them far to the northward— and even then you may be disappointed in the quantity of readily available supply. The increasing distance of transportation will keep up the cost of production, and the time will soon come, if it has not already arrived, when it will be profitable for you to apply intelligence in directing the growing power and the reproductive power now aimlessly expressing itself on the much culled pulpwood lands that lie relatively near your mills.

Much could be accomplished by the utilisation of the hardwoods. Present prices already permit this in certain localities and owing to the untiring efforts of one of your members the use of hardwoods especially yellow birch, in considerable amount for groundwood pulp is a probable development of the near future. The commercial possibilities of poplar and paper birch are also developing.

The experiments of the Commission of Conservation already indicate that the removal of the hardwoods stimulates the development of the young spruce and balsam beneath. The 63 spruce trees and the 142 balsam trees 1 inch in diameter, not to mention the 500 spruce seedlings and the 3,500 balsam seedlings on our representative acre, form a potential commercial stand, if the conditions at present checking their growth were removed and they were allowed the freedom to carry on normal development.

The companies you represent have employed the highest order of intelligence to increase to quantity and quality of the mill production. As you know, this effort has been very profitable. All this time the source of the raw material has been neglected. I believe the time has come when it would be profitable for your companies to employ intelligence in the production of the raw materials.

RESTLESS TRIBE.

A soul from earth, seeking admittance into Heaven, was questioned as follow:—

St. Peter.—Tell me of all the good deeds you performed while on earth.

Soul (after a long silence)—I cannot remember doing any good deeds.

St. Peter.—What was your occupation on earth?

Soul.—I was a lumber-jack.

St. Peter.—Come on in. You won't stay more than a day or two, anyway.

FOREST FIRES—AND OUR EDUCATIONAL PATROL.

Those who have followed the widespread program of educational work carried on by the Canadian Forestry Association, will be interested in the news received as to the Forestry Exhibition Car with a Lecture Car attached, which are now touring in Central Quebec. The work of the cars will be concluded in December, as weather conditions make a winter itinerary practically impossible. It is hoped to start the 1921 tours both in Eastern Canada and the Prairie Provinces in the month of May.

Berthier Junction, P. Q.—The car attended by over 300 in the afternoon ; 200 students from the Academy attended lecture and motion picture demonstration. A second lecture to one hundred children was given immediately afterwards.

In the evening the exhibition car was visited by about 500 people ; two meetings being held in the lecture car with crowded audiences. Dr. Jervais, M.P., attended one of the lectures and gave a short address to the audience.

Three Rivers, Que.—Owing to the excellent co-operation of Mr. Henry Sorgius, Manager of the St. Maurice Forest Protective Association, large audiences were encountered.

During the first afternoon 700 people visited the exhibition car. Mr. Valin assisted by Mr. A. H. Cooch, held a meeting of 400 pupils and teachers at LaSalle Academy. In the evening 500 people visited the exhibition car and two motion picture talks were held in the lecture car.

On the second day at Three Rivers 500 people visited the exhibition car and a forestry lecture with motion pictures was given to 500 students, and professors at the Seminary. The meeting was honored by the presence of M. Le Superior, who addressed the audience after M. Valin's speach.

Evening lectures were given at 7.00 P.M. and 8.30 P.M. to 300 people and over 250 persons passed through the exhibition car at the same hours.

Shawinigan Falls.—Four lectures were given during the afternoon to relays of students from local schools and academies. The total attendance at the four lectures was 700. During the evening approximately 1,000 persons visited the two cars. On the following morning a special meeting was given to 100 pupils and teachers from the Brothers School.

At Grand Mere.—In the afternoon, a motion picture lecture was given at the English School by Mr. Black, while Mr. Valin addressed some 600 pupils at the Brothers' School. In the evening a French lecture was attended by 300 people and this was followed by an English address to another audience. The attendance at the exhibition car was lrage, more than 1,100 people passing through. On Saturday morning, November 20th, at Grand Mere, 600 students visited the exhibition car; during the day another 800 people wer present to see the exhibits and attend forestry protection lectures.

At Grand Piles.—The attendance at both the exhibition car and the motion picture lectures in French was one of the heaviest yet recorded.

Other points to be covered at the time of writing are St. Tite, St. Thecle, La Tuque, Flamand, Windigo, Vandry, Parent, Greening, Joliette and Lachute.

HANDLING A BREAST ROLL.

Following is a letter from the Pusey & Jones Co. as printed in the "Super Calender" in answer to an inquiry.

Almost all breast roll handling devices are provided by the mills themselves, in accordance with the particular notions or the experience of the one in charge. We have, however, furnished on a few paper machines a device for handling the breast roll in and out of the wire, when such breast roll is carried on bearings 'inside' of the end shake posts, and under the shake rails. This device consists of a couple of angle bars to be slid across the machine inside the wire, and carrying a little four-wheeled trolley or buggy on which the breast roll may be deposited and rolled out to the front of the machine.

It is not usual for us to supply any device when the breast roll is carried in the usual position, as in your machine, outside the shake posts. Your paper machine and its breast roll are so small as compared with many modern paper machines that we should imagine no special apparatus would be needed. However, we can well imagine that something to lift the roll vertically out of its bearings and up high enough to enable the journals of the roll to clear the tops of the shake posts, and also the bottom of the roll to be deposited on the oak plank, which extends across the machine and rests on the side rails, would be very desirable. To our mind a pair of light chain hoists, say of one thousand or two thousand pounds capacity each, would be very suitable for this lifting.

We suggest that both hoists be carried by an overhead rail, extending across the machine over the breast roll, and also extended over the tending space in front of the machine, so that the total length of this rail would be a little more than twice the width of the machine. Each hoist would be hung on a trolley wheel, capable of being run along the overhead rail.

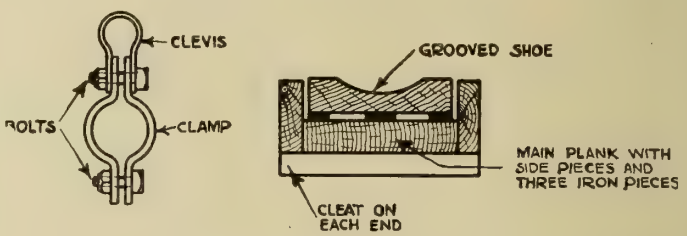
Our scheme of suggested operation would then be about as follows: Attach each hoist by a rope sling to each breast roll gudgeon and lift the roll with old wire on it high enough. Slide the oak plank through the wire and let it rest on top of the ends of the shake rails. Swing the breast roll aver the plank and lower the driving side end of breast roll on to the plank, but leave the front end of the breast roll still supported by its hoist and say 1" or 2" above the plank. Loosen the back sling from the back journal. Slide the roll out to the front, the back end of the roll sliding along the plank and the front end being supported by its sling, and its hoist running along the overhead rail on its trolley. Then bring the back hoist over to the front side of the machine and attach its sling to the back journal of the breast roll and hoist enough to carry the back end of the breast roll. Leave the breast roll hanging on the two hoists while the oak plank is slid out, the old wire taken off, the new wire put on, and the oak plank slid back again. The back end of the breast roll can then be deposited on the front end of the plank, and the sling removed and its hoist and trolley run to the driving side of the machine. The breast roll can then be slid across the machine, the back end resting on the plank and the front end still being supported by the front hoist just above the plank. The back sling may now be attached to the back gudgeon and the back end of the roll hoisted to clear the plank, and the plank be removed. The breast roll may now be swung over its own bearings and lowered into them.

It seems to us that this series of operations corresponds very closely to the entire operation as carried out by machine tenders through their personal strength in the lifting and handling of the roll, but it does also seem to us that two light chain hoists would make the handling operation of the roll much easier than if it was done by the main-strength-and-awkwardness of the machine tenders.

More about Handling a Breast Roll.

By GEORGE W. CLARKE.

Mr. Clarke writes on this subject as follows to The Pusey and Jones Company, Wilmington, Del. His letter appears in the "Super-Calender."



We have, as you know, six machines, two to a room. The breast roll of each pair is placed in line, over which we secured to the roof truss a line of 7" I beams, and on the lower flange we placed two trolleys which could be used on either machine. We attached rods to the trolleys with eyes in the ends, and of sufficient length to bring the one-ton chain blocks at a convenient distance from the floor. Instead of using a rope sling on the journals, we use a clamp having a clevis for the hook of the falls, the clamp is always secured to the journal with a wrench. In pulling on the roll, sometimes the trolly sticks and the rope might slip off. Instead of lifting the roll to take off the old wire, we cut it at the seam and roll it up at the couch roll, while other men are removing the bare breast roll, and instead of sliding the roll out on a plank, which would tend to scratch and injure it, we use a narrow plank scored or grooved the full length on the upper side, which is placed between the roll and the main plank resting on the rails, thus acting as a shoe. We make the main plank on which the roll is slid through the wire with sides to guide the shoe and roll, also to stiffen it. On the upper side between the guides we secure strips of ⅛" x 1½" band iron on which the shoe, mentioned above, slides easily. The plank is cleated between the rails to keep it from slipping endwise.

SAFETY FIRST.

An Oklahoma editor tells of an old Indian that came into his office to subscribe for the paper. The editor took the money, then the Indian wanted a receipt. The editor tried to talk him out of it, Mr. Indian insisted on getting the receipt. After making it the editor wanted to know why he was so persistent about wanting a receipt. The Indian said: "Me die some time, Go to big gate and Saint Peter ask if I been good Indian. I say yes. He say, did you pay debts? I say yes. He say did you pay editor for paper? I say yes. He say where is receipt? I no have it. I have to run all over hell to find you and get receipt."—Exchange.

Note.—Subscribers to the Pulp and Paper Magazine get receipts—on asbestos paper if desired.

The Outlook of the Paper Market

BY H. H. REYNOLDS, MANAGER OF SALES, B.D. RISING PAPER CO.

(Address before the Poor Richard Club, Philadelphia, November 4, 1920)

The situation has changed slightly with regard to a few items since this paper was read, but conditions and prospects in general still appear to be as analyzed by our friend and erstwhile fellow employee—Ed.

You want to know the outlook of the paper market—will prices be higher, or lower, or stationary; will paper be plenty or scarce? I shall endeavor to give you the facts of the situation—show you fundamental conditions—then you can judge for yourselves.

What I say will bear particularly on the better grades of writing papers as these are the grades which I know primarily. Incidentally, of course, these facts have a bearing on the whole paper situation.

Selling Prices Have Advanced Less Than Costs.

As a point to start from, it should be noted that prices of fine writing papers today stand on a basis of 250 to 275 per cent figuring 1914 prices as 100 per cent.

A very careful estimate of the complete cost of the manufacture of fine paper in October, figuring each item of cost in the proportion required to make the finished product, gives us the average cost of manufacture as 308 per cent of the 1914 cost.

In other words, with the selling price of paper 250 to 275 per cent of the 1914 prices, the cost is 308 per cent. This is significant. The selling price of these grades has not advanced as fast as costs.

In face of this fact there is a waiting market. Why?

Because certain other commodities have gone down.

Because banks have limited credits presumably with a view of reducing prices.

Because people have not forgotten 1914 prices and think and talk about "getting back to normal."

Apprehension, then in a word, is the cause of the present lull in demand—apprehension that prices will be lower. Are such apprehensions well founded?

This will depend on such factors as

1. Cost of manufacture.
2. Supply.
3. Demand.
4. Volume of money and consequent purchasing power of the public.

If the cost of manufacture plus the necessary profit has not been exceeded, then prices will not go lower. The mills have no motive to run at lower prices, because the more they run the worse off they are.

If the supply is not adequate to the demand then, while there may be fluctuations in buying, the trend will be upward.

If the demand has been growing, while the supply has remained stationary, the trend will be upward.

If the volume of money in the hands of purchasers has increased, the trend will be upward.

Facts will show that the demand has increased 40 per cent or 50 per cent in the six years since 1914; that few or no fine mills have been built in this period; that the money in circulation or credits that can be used as money have increased about eight times.

Let us look at these things in detail, for if the above conditions are true, those who wait for lower prices are likely to wait a long time.

Specific Prices and Costs

Here are some actual figures of three principal representative grades, showing mill prices of 1914, mill prices of 1920, and the percentage of 1914 prices received by the mill today.

1914 Price	1920 Price	Percentage of 1914 Price
10½c	29c	276%
13½c	36c	266%
18c	46c	255%

Figures like these would, generally speaking, apply to all similar grades.

Now, here are some of the items of cost given for 1914, for 1918, and at the present times:

	1914	1918	1920	Percentage of 1914
Coal	$3.75	$5.85	$14.00	400%
No. 1 Linen	.08	.21	out of market	
No. 1 Shirt Cuttings	.05	.12½	.25	500%
2's and Blues	1.75	5.25	5.75	328%
Sizing	.06½	.20	.17	261%
No. 1 Bleached Sulphite	.02¼	.06	.08	355%
Bleaching Powder	.01½	02½	.06	480%
Machine Tender	3.50	5.60	7.40	320%

In 1914 the last figure was for a 12 hour day, making $7.00 a day. In 1918 and 1920 for an 8-hour day, making the cost of the present time $22.20 per day against $7.00, which is 320 per cent.

Figures of this kind could be multiplied but the items mentioned are the big items entering into the cost of paper and the total costs are very significant. Costs have risen faster than selling prices.

Aggregate 1919 Mill Profits Estimated at 7%

From the American Writing Paper Company Bulletin, we quote:

"The United States Census returns for 1919 are expected to show that the net profits of fine paper manufacturers were probably under 7 per cent on the investment. Materials, wages, fuel, taxes, clerks, salesmen, and salaries used up 84 per cent of the 1919 income, and allowing for depreciation, repairs, insurance, bad debts, allowances, etc., it is probable that the net profit left was not far from 7 per cent."

It is, therefore, plain that any reduction more than 7 per cent would leave the industry doing business at a loss.

Limited Mill Capacity

Now, as to supply: The mills were like the farmer who didn't shingle his house when it was fair weather because he didn't need to, and when it stormed he couldn't. Before the war fine mills were not built because the industry wasn't profitable. During the war materials could not be obtained. Now they are so high that nobody dares build. Costs of building are three times those before the war. With a 7 per cent yield on a pre-war investment, the mills would only have a little more than 2 per cent on the capital re-

quired to reproduce the mills today. Mills have not been built. What slight increase there may have been, has come about through improving existing plants. The United States has little more mill capacity on fine papers than in 1914.

Present Demands About 58% More than 1914

As to demand—there is a different story. The estimated increase in use of papers is about 8 per cent a year. Since 1914 this would mean about 48 per cent. This takes no account of export. Of total production 10 per cent is perhaps a fair estimate for export. This is practically all a new growth since 1914 and has to be added to the domestic increase, making some 58 per cent or more increase in demand since 1914.

Money and Credits About Eight Times Those of 1914.

Now as to money and prices: Fisher says, "If with a given volume of business, the money of a country is doubled, prices will double."

In other words, the public broadly speaking, is always willing to buy food, clothing, luxuries, and general supplies up to its financial limit. It is lack of money rather than lack of desire that limits buying. As money increases the public demand bids up prices. For illustration, if a country has a million purchases and a million dollars with which to purchase, prices will average a dollar per purchase. If it has a million purchases and two million dollars, with which to effect the exchange, prices will average two dollars per purchase. Now, counting currency, federal bank issues, and government securities, we have about eight times as much money as in 1914. In 1914, circulation was about $35.00 per capita. It is now about $51.00. Federal bank credits figure about $30.00 more per capita. The government bonds, notes, and securities aggregate some $25,000,000,000 on which as collateral $20,000,000,000 can be borrowed at the banks or $200 per capita. Counting these government securities at 80 per cent we thus have some $281 per capita, against $35 in 1914; or more than eight times as much. With this buying power prices **must** be high.

The above factors show a supply stationary for six years or more. A domestic demand nearly fifty per cent greater. A foreign demand for some 10 per cent more coming from large regions who do not make writing paper and cannot. (Latin-America with 100,000,000 people has no fine mills. Also Australia, New Zealand, India and Cape Colony.) Also a buying power in dollars eight times as great as in 1914.

Conditions Demand Advance Rather Than Recession of Prices.

Considering the facts thus far stated there is every reason for an advance. With a few exceptions the present price scale dates back to July. Since July have come the coal shortage and high prices and the new freight rates.

Freight Rates Adding to Costs.

Increase in freight rates is a more considerable factor in the paper situation than has been credited. The average consumer of paper says "40 per cent increase on the old freight rate will not affect the local cost largely." He figures that this will be the freight from the mill to the market; i.e., one freight rate representing perhaps 50 cents, increased 40 per cent or 20c a hundred.

This is only a small part of it. To get a ton of paper into the hands of the public will probably require paying freight on ten tons and the consequent increase of about 40 per cent on ten freight rates. For instance, it takes from two to six tons of coal to make a ton of paper. It, also, takes about 2,700 lbs. of rags to make a ton of paper, but these rags have to have four or five freight rates paid on them before they get to the mill, i.e., cotton is shipped from the South to the cotton mill, from the cotton mill to the shirt manufacturers, from the shirt manufacturers the cuttings are shipped to the dealers, and from the dealers to the mill. Miscellaneous chemicals, machinery, etc., also enter into this. In addition, there is the freight rate from the mill to the merchant, from the merchant to the printer and perhaps still a further rate from the printer to the consumer.

Here are some representative freight rates per hundred pounds from Housatonic, Mass., to various points for 1914 and 1920 and the percentage of increase, from which it will appear that the present rates are from 208 to 321 per cent of the old rates, showing an average of about 260 per cent which must all be figured into the cost of paper.

Freight Rates Per Hundred.

	1914	1920	Percentage Percentage
Albany	13	34½	2.65
Washington	34	72	2.12
Philadelphia	19	45	2.37
St. Louis	59	1.23	2.09
Cincinnati	44	91½	2.08
Chicago	50	1.05	2.10
New York	14	45	3.21

The average freight rate of 1914 may be taken as roughly 25c per hundred pounds. Today it will average 260 per cent of this rate or about 60c. Figuring ten freight rates before paper reaches the consumer, the present cost of freight alone will be $6.00 a hundred against $2.50 on the old basis.

The last freight increase has occurred since the last advance and has therefore, not been included. The same thing is true of the premium on coal of eight to ten dollars a ton.

These two facts are significant. Today the fine mills are not making more than a normal profit. It would be to the advantage of the public, speaking broadly, for them to make more so as to build more mills and make more paper.

The Coal Situation Parallels the Paper Situation

Coal shows a situation parallel to what may happen in writing paper. In 1918 we had a record production exceeding consumption. The spring of 1919 showed considerable stocks in the hands of dealers and consumers. The impression was, "we are getting back to normal." Buying was restricted in order to take advantage of expected lower prices. 1920 opened with stock exhausted and bins empty. Then Europe, short of English coal, commenced buying and the price rose sky-high. 1920 production has been greater than 1919. If buying in 1919 had been normal and stock in the spring of 1920 consequently normal, much or all of the present shortage and high prices would have been avoided.

"Getting Back to Normal"

"Getting back to normal" is a dangerous slogan. If it means getting goods at cost plus a normal profit, it is all right. But if it means buying at 1914 prices, it is all wrong. That means putting labor on 1914 wages, that is to say, strikes, riots, bread lines, and industrial chaos. It means a financial crisis, with mer-

cantile failures and general disaster—a period the recovery from which would take years. It is wrong, because the world, generally speaking, with certain exceptions, is short of commodities and needs the stimulus of high prices to produce. 1914 prices would simply accentuate buying and consumption. Stocks already low, would be taken off the market and then would come a rebound and a scale of prices known only in Russia. With the pockets of the consumer bulging with money and 1914 prices in effect, stock of goods would melt away, and an orgy of waste would follow till they were gone. Then would come a period of famine of commodities and prices like those of Petrograd, where a pair of boots costs 500 roubles and a cab fare fifty.

Good Prices Necessary to Prevent High Prices

In other words, good prices are necessary to stimulate production, build factories, and maintain labor on the present cost of living and also to keep consumption within reason and to keep from having higher prices.

Speaking specifically of the fine writing paper trade, it is a grave question whether broadly speaking higher prices would not be to the public interest in order to stimulate the building of mills.

World Stocks of Paper Low

Not only in this country but all over the world stocks of writing paper are low. There are a hundred million people in Latin-America who haven't a fine paper mill. Figured at normal exchange, paper is higher in Europe than here. The United States makes over 50 per cent of the world's paper. We will have to furnish the bulk of the supply, not only for Latin-America but for India, Australia, Cape Colony, China, and New Zealand, which have no fine mills.

No Relief From Europe

There is no relief in sight from European papers or materials. European exchange, with a pound Sterling at $3.50 and marks at $1.80, means that European goods are at a premium. An American dollar is worth $1.40 in England, in Germany it is worth about $13.00. A mark is normally about twenty-three cents. If a German manufacturer can get twenty-three cents for paper worth a mark in Germany, he is getting thirteen (13) times the price of the goods in Germany. Now this premium has been like a pump. It produces a powerful suction to draw goods to America. If England or Germany or other countries **had** paper, they would send it to America. Little or nothing has come. Europe has nothing to spare.

The Underlying Price of Wood

Now, while the finer papers are made of rags, the price of wood and wood papers affects them. In 1914 sulphite bond could be brought at five cents and a medium rag bond at 10c. When sulphite goes to 18c. there comes a shifting toward the better grades and the demand forces up the rag prices and the prices of papers made from rags.

Here is the wood situation: The items are clipped from the bulletin of the American Forestry Association, Washington, D.C.:

"We are consuming lumber three times as fast as we are producing it.

"New England, self-supporting in lumber twenty years ago, now has to import one-third of the amount used.

"Ten years ago the United States produced its entire supply of pulpwood but now much of it is imported. This means freight rates to be added to the purchase price.

"Ten years ago the United States produced its entire newsprint supply—now we import two-thirds of it.

"Only one-third of the newspapers issued in 1919 were printed on the product of American forests.

"Much pulpwood has got to be freighted 500 miles to mills.

"We bought nearly 1,400,000 cords of pulpwood from Canada in 1918 and prices have advanced from $10 a cord to as high as $25."

Pulp manufacturers are now paying as high as $40 to $50 a cord.

This wood situation is bad at the present time when there is no building to speak of and little new railroad or telephone construction.

The total wood supplies of this country, amounting to something like 850,000,000 acres, are about two-thirds exhausted and are being used up three times as fast as they grow. The wood situation, while it may fluctuate, is likely to grow worse and prices grow steadily higher as time goes by.

Curtailment of use of paper would make no difference in price, for over 90 per cent of our wood is used for things other than paper.

There is no probability of reduction in labor or of rags. The international coal situation, particularly if labor troubles in England continue, will make coal higher.

From these considerations it looks as if the present waiting movement in the market, which is welcomed by the mills as relieving excessive pressure, will work out to bring a buying movement later and substantially higher prices than the present.

Only about 7 per cent of wood is used for paper. It is plain that any falling off in paper would not affect the general price of wood, while if a revival of house building, railroad and telephone construction come on, prices will go higher still.

There is no more liability of generally lower wood prices than of buffalo skins, and for the same reason. Curtailment of wood papers will enhance the value of high-grade papers.

Stocks Low, Printers Busy

The stocks of fine paper at the mills are 4 per cent less than last year and in the merchants' warehouses are 25 per cent less. Printers' stocks are low. The volume of printers' sales up to October, in 1920, averages 44 per cent greater than the 1919 average. The advertising agencies indicate more advertising in 1921 than the high record of 1920. All these things and many others indicate pressure for paper.

Prices of fine writing paper will not be lower, because, even should buying fall below mill capacity, the mills would not care to sell at a loss. They would take what business is offered at present rates and close. It would not pay them to stimulate the market by making prices below cost. The more they sold, the worse off they would be. It is very doubtful, if a 25 per cent cut such as was made in some other lines and which would wipe out all profits and bring loss, would be any particular stimulus to the market. The situation is psychological. Cuts in cotton and woollen brought no business.

Stocks are low, the printers busy, the public using paper.

Materials Advancing

Materials are advancing, labor is strong, coal is strong, and may become scarce enough to shut down the mills.

Costs hold prices where they are. The world can't today produce the paper it needs.

The paper situation is shaping itself as the coal situation shaped in 1918. Demand for coal during 1919 was held up by expectation of buying at lower prices. Disappointed in this, the public started in 1919 to refill exhausted stocks. The demand was a flood. Prices have gone to three times the war average.

The public, affected by declines in other commodities, is waiting to buy paper at lower prices.

Meantime, stocks already low are being further reduced under present conditions. One morning the public will awaken and commence to buy. The results will be startling in proportion to the length of the wait. They are likely to parallel the coal situation and to produce a new and higher price level.

Writing Paper Used in Direct Proportion to Volume of General Business

The use of fine writing papers does not depend on price. It goes into letters, envelopes, bill heads, statements, books of entry. No one writes one letter or makes one more bookkeeping entry because paper is cheap. No one writes one less letter because paper is high. No business man writes letters except at need. He writes what his business demands, and stops. The total cost of a letter, in paper, dictating, typewriting and stamping, is estimated at 25 to 30 cents each. Only a fraction of a cent is for the paper.

The cost doesn't influence the volume used; it is like lubricating oil in a factory—we use what we need—we use no more because it is cheap, we use no less if high. We have to keep the business going.

Writing paper varies in use with the volume of national trade. When a large volume of transactions is taking place, the use of writing paper is large. It is an invariable rule that "when freight cars are scarce writing paper is in demand." The "ton miles" of freight moved at the last report is 20 per cent greater this year than last.

It would have been better, from the point of view of the public, if profits had been higher, so that new mills could have been erected.

This is evident from the fact that while the paper industry entered the war-time period with large overstocks, these have been gradually reduced until at the present time stocks on the part of the printer, the merchant and the manufacturer are at low ebb, and yet the mills, in general, are well fixed with orders.

Now, the business of the country which consists of manufacturing, jobbing and distributing must be good for a long time to come, because stocks are generally low, people need them and have money to pay for them. Distribution will be large. To distribute large amounts of goods large amounts of paper will be used. Giant crops alone give the country the necessary buying power.

TELLING TIME.

The Time of Day I do not tell,
As some do by the clock;
Or by the distant chiming bells,
Set on some steeple rock,
But by the process that I see,
In what I have to do;
It's either Done o'clock to me,
Or only Half-past Through.

—John Kendrick Bangs.

WHY CLOSE THE TIMBER INDUSTRIES?

By ROLAND D. CRAIG.

The effect of progressive forest exploitation, without provision for succeeding crops, is being felt in parts of the United States. At a hearing before the House Committee on Foreign Affairs in Washington, W. E. Haskell, of the International Paper Company, made the statement that "the Underwood Resolution, which provides for a commission to negotiate for the removal of existing export restrictions on pulpwood cut on the Crownlands of Ontario, Quebec, and New Brunswick, is the only measure yet presented to Congress which contains any assurance of a sufficient quantity of pulpwood to perpetuate the present production of our paper mills, to justify the installation of new machines, and to save the great pulp and paper industry of the United States."

This is not an accurate statement of the situation. The facts are: (1) The labour and manufacturing cost of converting pulpwood into pulp is very much less than the cost of converting pulp into paper. (2) The amount of water-power required to manufacture pulp is relatively high and, from an economic point of view, the benefit to the community would be increased if such power were used for other purposes. Further, it is notorious that, in the Northeastern states, this power is required for more important industries and its release would ameliorate the present coal shortage. (3) The paper mills of the Northeastern states can purchase pulp from Eastern Canada, the Pacific states, British Columbia or Alaska and with anything like the present prices, can conduct their operations at a profit. Col. Haskell's statement, however, affords further evidence of the serious extent to which the forests of the Eastern States have been depleted.

A recent report of the Louisiana Department of Conservation shows that similar conditions exist in that state in regard to lumber, and points out that Louisiana should and must practice forestry, in order that she may not be obliged to pay $15 or $20 per thousand feet for freight on lumber brought from the Pacific coast twenty years from now, and because her vast unproductive areas of cut-over lands are a heavy drag upon her prosperity.

With these examples of the disastrous effects of such methods in the United States, Canadians should not wait until an actual shortage overtakes us before we learn the lesson so plainly demonstrated.

Re-creating a forest is slow and expensive, but its productivity can be maintained by comparatively inexpensive means. These consist of, first, protection from fire and, second, proper methods of cutting.

No single system of cutting is applicable to all conditions, any more than the growing of all kinds of farm crops, and technical knowledge of the requirements of the different species is necessary. Under some circumstances, more complete utilization of the mature timber will result in satisfactory reproduction. In others, seed trees must be left in order to secure the kind of forest desired.

The increasing quantities of British Columbia lumber being sold in Eastern Canada is evidence of the already growing scarcity of available timber in the East, and, if the immense pulp and paper industry which has grown up in the last decade is to be permanent, steps must be taken at once to make provision for future crops instead of leaving cut-over lands as barren wastes.

National and State Forest Policies for United States

All true friends of, and all dependents on, the forest will be pleased with the important steps advocated by the Committee on Forest Conservation of the American Paper and Pulp Association, whose report, as follows, was adopted at the associations' meeting in Chicago, Nov. 11. With the strong support of the several co-operating bodies there is great hope of having something accomplished.

Since the presentation of its report entitled "The Next Steps in the Forestry Program" at the Annual Meeting of the American Paper & Pulp Association, April 15, 1920, your Committee has been busily engaged in carrying out the authorization given it, to do all it could upon its own initiative and in co-operation with other agencies to secure the legislation outlined in that report, as being fundamental to a National Forest Policy, which shall eventually provide an adequate timber supply for the people of the United States.

Your Committee is very glad to report that its efforts have resulted in a highly gratifying measure of success, and that on October 15th it met in joint conference with representatives of the National Lumber Manufacturers Association, the National Wholesale Lumber Dealers Association, the Association of Wood-Using Industries, the American Forestry Association, the American Newspaper Publishers Association and the United States Chamber of Commerce, at which the entire matter was discussed at length.

A National Forest Policy

Unanimous agreement was reached on all essentials of a federal legislative program, in accord with out previous reports and also substantially in accord with the recommendations made last June to the United States Senate by Chief Forester Wm. B. Greeley. Col. Greeley was at the conference by invitation and gave its conclusions his full approval on behalf of the United States Forest Service. It is expected that this preliminary agreement, through its full consideration of the public welfare, will receive the ratification of all the public and private agencies represented at the conference and also be acceptable to the majority of others interested, including the forestry departments of the several states.

The primary provisions are two-fold—for a considerable extension of direct federal activity in forest ownership and production, and for the development with federal aid and encouragement of such systematic policies in the several forested states as, being consistent with local conditions, will bring about adequate forest protection and reproduction in the interest of these states and of public at large.

Much of the responsibility for forest production lies with the states and private owners. To define that which lies with the Government and hence is properly for the consideration of Congress, the following legislation is proposed:

1. Authorizing the Secretary of Agriculture after consulting appropriate local agencies to approve an adequate policy for each state, covering the essentials of fire protection on timbered and restocking lands, reforestation of denuded lands, and, where and to the extent necessary, the cutting and removing of timber crops so as to promote continuous production of timber on lands chiefly suitable therefor, and authorizing his co-operation in the work required, provided there is also satisfactory local compliance in state legislation or administrative practice. Chief, although not entire emphasis for the time being, is placed on fire prevention, as the most important single step, and not less than a million dollars should be annually available for such co-operation with the states.

2. A survey to obtain necessary information as to forest resources, forest production and forest requirements of the nation.

3. Provision for studies and experiments in forest reproduction methods, wood utilization, timber tests, wood preservation, development of by-products and other steps to bring about the most effective use of the nation's forest resources.

4. Provision for a study of forest taxation, to assist states in devising tax laws which will encourage the conservation and growing of timber. Investigation also of methods of insuring against forest losses by fire.

5. Provision for more rapid replanting of the vast areas of denuded lands within the National Forests.

6. Appropriation of ten million dollars a year for five years for the purchase of lands which should be added to the National Forest system, whether or not on the the headwaters of navigable streams as such purchases are now limited.

7. Authorizing acquisition of similar lands by exchange of land or timber when clearly in the public interest.

8. Anthorizing the addition to National Forests of lands now in other forms of government ownership but found chiefly suitable for permanent forest production.

Some of these features of a complete Federal program will doubtless be covered in whole or in part by recommendations to Congress by the Secretary of Agriculture in connection with the agricultural appropriation bill. It was felt by the conference, however, that they should be presented to Congress in a comprehensive measure, clearly setting forth the picture of an adequate national forest policy and proper Federal participation therein. By this means, with other efforts, the necessary private and state participation can best be shown and obtained.

State Forest Policy.

The responsibility for the carrying out of a National Forest Policy, aside from the administration of government-owned lands, rests upon the State authorities and private owners, since under our form of government the control of corporate and private activities is retained primarily by the States, and is not delegated to the Federal Government.

In order, therefore, to link up National, State and private activities in an effective program, it is necessary that the States in which forest land constitutes any considerable factor shall establish essential requirements in protecting timbered and cut over land from fire, in reforesting denuded lands, and, where and to the extent necessary, in the cutting and removing of timber crops by such methods as will promote continuous production of timber on lands chiefly suitable therefor.

With due regard for all interests concerned, based upon its own experience and study of the question, together with suggestions received from many pro-

minent foresters, your Committee believes that an adequate and effective State Forest Policy should include the following principles and provisions:

1. That all soil shall be made productive of the crop to which it is best adapted or for which there is the greatest public need.

2. That while agriculture and forestry are based upon soil production, the methods necessary in forestry and the time involved are so different from those of agriculture that forestry demands an entirely different form of administration.

3. That State Forest Policies shall be initiated and carried out in co-operation with the National Government and with private owners wherever and to the fullest extent possible.

4. That State Forest Legislation shall establish general principles and procedure only and vest in a properly constituted and non-political body, acting through technically qualified representatives, the responsibility for the fixing of regulations and enforcing them.

5. That the paramount and immediate consideration in any Forest Policy is the creation and maintenance of effective means for the prevention and control of fire on all forest lands of whatever ownership, and that every owner of forest land shall be required to conduct operations thereon in such a manner as to avoid creating a fire menace to adjacent property.

6. That forest surveys, land classification ,forest research and forest education shall be provided for.

7. That there shall be such changes and adjustments in prevailing systems of taxation as will enable all forest lands to be equitably taxed thereunder, yet will not discharge the holding of private forest land for future crops without impairing local revenues.

8. That the state, upon request, shall assist the private owner of forest lands to make them continuously productive through the preparation of working plans, supplying of planting material and supervision of silvicultural operations free of charge or at cost.

9. That the state be empowered to take over at a fair valuation and administer as part of the system of public forests any land, which, after competent examination, is classified as suitable only for timber growth, in case the owner refuses to avail himself of the opportunities and assistance provided by the public to encourage forestry upon private lands.

10. That the acquisition of forest land by the State is essential to a sound forest policy.

11. That all State-owned forests shall be utilized for continuous production, both for direct returns in forest products and indirect returns in soil protection, game and recreation.

12. That all State-owned forest property shall be capitalized upon the records of the administrative body so that all expenses in connection with the development thereof and returns therefrom may be accounted for on a business basis to the people of the State who furnish the funds for the undertaking and enjoy its result.

In Conclusion.

Your Committee submits the foregoing as the result of its work during the past six months and recommends that if the views here set forth meet with the approval of the members of the American Paper & Pulp Association the Committee be authorized to proceed further in its efforts to bring about the enactment of National and State Legislation of the character suggested.

Respecfully submitted, D. A. Crocker, W. E. Haskell, R. S. Kellogg, C. H. Worcester, Frank L. Moore, Chairman.

NATIONAL FORESTRY PROGRAM COMMITTEE.

Representatives of the most important paper and lumber industries, of the wholesale lumber distributors, newspaper organizations, wood-using industries and the general public met at Washington recently and reached an unanimous agreement with regard to a national forest policy. A permanent committee, to be known as the "National Forest Program Committee," was organized. R. S. Kellogg, secretary of the Forestry Committee of the American Pulp and Paper Association was elected chairman, and W. B. Bullock, secretary. The other members are: E. T. Allen, Western Forestry and Conservation Association; P. W. Ayres, Society for Protection New Hampshire Forests; Elbert H. Baker, American Newspaper Publishers Association; Wilson Compton, National Lumber Manufacturers Association; Hugh P. Parker, American Paper and Pulp Association; John Foley, Association of Wood Using Industries; E. W. McCullough, Chamber of Commerce of the United States; P. S. Ridsdale, American Forestry Association; and J. Randall Williams, National Wholesale Lumber Dealers Association. The headquarters of the committee will be at the office of the American Pulp and Paper Association in New York.

WALL-PAPER MAKING IN ENGLAND.

(From Our London Correspondent)

This week the ordinary general meeting of the Wall-Paper Manufacturers, Ltd., was held in London under the presidency of Mr. Edgar Smith.

In a short speech Mr. Smith pointed out that the past year had been a very satisfactory one for their company and quite apart from the rush of orders they had just begun to reap the benefits of that policy of "efficiency" which was advocated two years ago. They had made progress in improving the methods of manufacture and distribution of their papers, and were continuing with increasing energy of their reforms in every department and the results of this work were evident in every mill. The past year had been a difficult one for manufacturers. There was a great demand for goods but a great shortage of raw materials, with increasing costs in every direction, including labor and carriage; and many of these rising costs were unexpected. They were therefore, forced to make some increases in prices during the year, but as these increases followed the great drop in prices which they made at the beginning of the season, their prices throughout the season had been lower than at Armistice time. Their object had always been to enable buyers to purchase at as low a price as possible and their mill prices, which were the same for export as for home trade, had been low enough to enable them to hold their own in the large overseas markets where wall-papers were used.

The export trade, which suffered considerably during the war, had received a great deal of attention and they had recovered their old position of supremacy in the markets of the great Dominions.

Turning to the balance sheet, Mr. Smith said it was gratifying that in the 21st year of the company's operations they had attained their highest output and made the largest year's profit. The sum available for appropriation was £592,214.

British Trade News

(From Our London Correspondent).

The Norwegians are getting their "backs up" over a recent visitation of some English gentlemen to Norway in search of a pulp mill so as to keep the raw material supplied to one of the British mills. The object of the visitation has been resented by the official organ of the Norwegian Chamber of Commerce in London, which is the mouthpiece of pulp and paper men here and in Norway, in some strong language and it depicts the "brotherly" feeling that exists. As is well-known there is a big trade between Norway and British mills in pulp and paper, and in the past some of our most successful papermakers have had big financial interests in Norwegian pulp mills. Whether the success following these investments has hampered, or frightened, the pulp men of the Norwegian Chamber of Commerce in London one cannot say, but at all events their official organ — or newspaper — says that Norway is glad to have foreign capital to develop her industries, but they do not want to be the slaves of it. Then it goes on to say: "Englishmen are very welcome in Norway—more welcome than any other foreigners. But they should not talk too much to Norwegians about England getting a world control of the canning industry, and then of the pulp and paper industry. The Norwegians have put in so much hard work, both by brain and hand, to build up these industries to the pride and satisfaction of their country and themselves, that they recent the idea that all this should fall into the hands of some few foreigners, who want to conquer the world and make the native proprietors and managers only servants and dependents of a monopolistic combine." Judging by these remarks somebody has got the "wind up," to use a war expression. Supposing Canada and other countries adopted this policy where would the pulp and paper industry be in another 20 years? Norwegians say: "We will take your money to help us push our pulp and paper industries, but hands-off our mills." Charles Fenerty when he made the discovery of groundwood in Nova Scotia, gave the results of his labors away to the world. Norway profits to-day by the discovery. The Germans improved on the discovery and sought new markets. Norway profits to-day by their research work and the British buyer patronises the Norwegian market, as well as the German and Canadian markets. Then why should Norwegians, considering all the circumstances, get their "backs up" because a couple of gentlemen say they are going from England to Norway to buy a pulp mill? The whole idea is ludicrous. It is a policy not good for the pulp industry in general. What is wanted is more money invested in pulp concerns, — and some of the old ones scrapped — more research work and a dignified feeling existing between all pulp producing countries. I am sure the present policy advocated will be condemned by the old school of pulp men in Norway; indeed, it is a thoughtless statement arising from the new school who forget that co-operation with foreign thought, and interchange of trade — not to mention amicable social relations. Norwegians of the old school placed Norway's pulp and paper industries in the happy position they enjoy to-day.

Pulp Imports.

The total imports of pulp into the British market from all sources during the eleven months from January to November last, show a considerable increase over the same period in 1919. The figures are:

		1919	1920
Chemical Pulps	Tons.	346,235	508,281
Groundwood	"	486,899	497,205
Esparto	"	64,468	155,826

Taking the totals of all raw materials, including rags, the quantities reached 1,178,439 tons for the eleven months in 1920, compared with 904,084 tons for the corresponding period in 1919.

At this period of the year there is usually some inquiry in the pulp market for future supplies, but it is a regrettable fact that depression exists at present as regards new business. Things are dull and practically no market is existing. Only supplies under contracts are arriving and the present position will go on until after the new year. One noticeable feature of the pulp supplies is a falling-off in Canadian groundwood receipts.

Countries of Supply.

The imports of groundwood for November show a considerable falling-off, except, in the case of supplies from Norway. Canada shipped 4,625 tons, as against 7,674 tons for the same month in 1919; Sweden 3,678 tons, against 4,059 tons; Norway 19,437 tons compared with 16,738 tons, and from other sources 2,673 tons were received as against 3,920 tons in November 1919. The supplies for the eleven months, January to November now stand as follows:—

		1919	1920
Sweden	Tons.	80,935	81,174
Norway	"	263,528	283,374
Canada	"	89,488	77,626
Other Sources	"	20,520	27,679
Totals		454,471	469,853

Dry groundwood was imported during the eleven months to the extent of 27,352 tons, as against 32,428 tons for the corresponding period in 1919.

Bleached sulphite shipments from January to November are now as follows:—Finland, 234 tons (compared with 95 tons in 1919); Sweden, 4,787 tons (2,453 tons); Norway, 15,460 tons (9,608 tons); Germany, 525 tons (Nil); other sources, 5,531 tons (4,097).

Unbleached sulphite imports show a fair increase on the eleven months as follows:— Finland, 37,156 tons (compared with 4,233 tons in 1919); Sweden, 306,307 tons (227,098 tons); Norway, 84,889 tons (56,007 tons); Germany, 6,980 tons (Nil); Other sources, 35,664 tons (39,595 tons). Canada is included in other sources in all cases.

Pulp and Paper Markets.

A depression in the paper market naturally causes a depression in the pulp market. That is the position to-day in England. British mills are working simply on export account, because dullness pervades the domestic market. There is also a strong feeling existing in London at present that all kinds of papers are going to tumble down in prices about the middle or end of January. This feeling has considerably upset the paper market. For instance, I was speaking to a big buyer this week and he said to me: "I hear paper is coming down with a big fall in the new year. Is that so? If it is I cannot afford to invest at present and lose my money when it comes down in the new year. I have got a quiet hint that it is bound to come down in prices." Now with a feeling of this kind and buyers holding back to see what the future will bring them, it is difficult to do business and that is one of the reasons why

depression prevails. Newsprint is finding a good outlet. Supplies for the month of November have been received as follows:—

	Cwts.	£
Newfoundland	166,037	508,116
Canada and other sources	37,775	111,716
U. S. A.	1,531	8,169
Belgium	860	4,170
Germany	19,938	62,346
Norway	43,145	121,976
Sweden	33,108	72,257

It will be seen that Germany is again in the market somewhat strongly with newsprint, and that Newfoundland has now a splendid position in the British market.

Of pulp small supplies keep trickling in from Canada. But the pulp business transacted to-day is hardly worth writing about. Prices are quoted as follows:— Bleached sulphite, £60; Easy bleaching, £47; Sulphite news, £37; Unbleached Soda, £40; Soda Kraft, £35; Groundwood (wet) £13; Groundwood (dry), £24.

Pulp. — A General Review.

According to the latest news received in London the Swedish pulp and paper manufacturers report dull trade and a tendency toward falling prices and reduction in output. The pulp industry, in particular the sulphite branch, has orders for a great part of next year, but in the past month no new contracts of importance were entered into. For groundwood a few small orders were received from the United States. In this branch reduction of work is threatened by the extremely low level of the lakes and rivers of North Sweden which causes difficulty in moving logs. Prices during the past month have been cut to meet competition and for wet groundwood 225--240 crowns a ton f.o.b. a Swedish port is quoted. The sulphite industry is being affected by a resumption of German competition which ceased in 1914. The Germans can offer sulphite at extraordinary low prices as the result of cheap coal and labor, but Germany's present export capacity is not more than 60,000 tons a year. The present Swedish price for light-bleaching sulphite is 850 crowns f.o.b., and for strong sulphite 775 crowns. The sulphite branch is much depressed. Sweden and Norway having agreed on dropping paper out, it is now down to 33 per cent. But the paper market in Sweden and Norway is depressed, as in England. America is buying newsprint in Scandinavia, so that Sweden's export capacity for 1921 is estimated at 175,000 tons, Norway's 150,000 tons, and Finland's 100,000 tons. Germany is producing newsprint at the low rate of 2,500 marks a ton. This paper is sold abroad at 8,000 marks as against Sweden's export price of 1,100 crowns. This seems high, but the value of the mark in the rate of exchange reduced Germany's price considerably below Sweden's. In North Sweden 10 per cent is reported in the reduced cost of production this winter and a reduction of 25 per cent in paper output.

WHOLE FOREST SAW MISS OAKES WED PINE.

Norfolk, Va., Nov. 11. Miss Ada Oakes, daughter of Mr. and Mrs. J. C. Oakes of Washington, N. C., became the bride of Walter Pine of Salisbury, N. C. The best man was Robert L. Birch; the brides maid, Anna Lee Laurel, and the preacher, the Rev. Oscar T. Wood. The couple went to Hickory, N. C. to spend the honeymoon with the bridegroom's aunt, Mrs. E. W. Shingle.

FORESTRY LEGISLATION COMMITTEE AT WORK

"The increased prices of American newspapers, influenced by the shortage of the wood from which their paper is made, is only one example of the manner in which America demands protection of its forests, both by conserving what we have left, and the production of trees on land that is now idle.

"To secure the legislation which will so save the nation's forests is the whole purpose of legislation which will be introduced in congress, probably within a few days, through an agreement on a national forest policy by all the wood using associations of the country and the forestry organizations of the country.

"The American Newspaper Publishers Association is only one of the co-operating agencies backing this legislation, for lumbermen, paper manufacturers, and the users of their products are working together as a unit for a **national policy.**"

This was the manner in which Warren B. Bullock, Director of Forest Extension at the New York State College of Forestry at Syracuse, outlined the forestry situation in America when he arrived in New York to take up his duties as secretary of the National Forestry Program Committee, composed of representatives of the newspaper publishers, lumber manufacturers and dealers, paper manufacturers, and forestry associations of the country.

Mr. Bullock is a western newspaper man, originally of Milwaukee, who has for several years past been devoting most of his attention to work in the wood using industries. After his discharge from the army, where he served as captain and senior instructor in the Jacksonville parent school of the Motor Transport School, he was assigned by the state college of forestry to the work of extending through New York State the campaign to property utilize the 8,000,000 acres of potential forest land. From this work he has borrowed by the newly formed national committee to coordinate the work of the various national associations which are pushing the adoption of a forest policy for the nation.

The national committee has opened offices at 1102, No. 18 East 41st Street, with R. S. Kellogg as chairman, and Mr. Bullock as secretary. The committee has already practically completed the formation of the legislation needed to put into effect a national forest policy, and the completed bill will probably be introduced in congress before the first of the year.

The bill provides in its most important elements for the addition of land to the national forests, protection of public and private timber from fire, determination of land available for forest growth planting of timber on potential forest land now idle, and similar steps for the maintenance of a future raw material supply for the paper, lumber and other manufacturers of the nation.

Mr. Bullock points out that New York and Pennsylvania are now leading the nation in the amount of land being reforested, but that the work now being done in New York State must be duplicated in the national field if America is not to face a future famine in paper and lumber.

Chairman Kellogg, in a letter to the Editor,, adds: "His work will not be publicity, but the task of representing the Committee in co-ordinating the work of the various organizations affiliated in this important movement."

PULP AND PAPER NEWS

An order made by Master in Chambers Cameron at Osgoode Hall, Toronto, has added the Rainy River Lumber Company, Limited, to the defendants in the action brought by the Attorney General against the Shevlin-Clarke company. The action is for the cancellation of timber limits, for the return of certain moneys and for damages for trespass.

A number of the mills just now are considering just what they will do in regard to the yearly bonus to employees. Enquiries made during the past few days reveals the fact that in some cases the bonus will not be paid to the employees. One of the leading mills stated that as their institution was unionized now the matter of bonuses was one that would have to be taken up with the unions and that they were not in a position to pay the bonuses of their own volition. Another mill owner stated that his company was going to devote their efforts towards keeping up the wage scale instead of paying bonuses. Other mills will pay their employees the usual bonus this Christmas.

The coating paper mill at Georgetown of the Provincial Paper Mills, Limited, has been closed down Christmas week to allow of certain necessary repairs being made to the machinery.

The new paper making machine being installed in the Interlake Tissue Mills at Thorold is expected to be in operation about the middle of January.

Visitors to Toronto this week were Mr. R. T. Houk, sales manager of the George H. Mead Company, Dayton, Ohio, and Mr. A. Gaudette of the Sault Ste. Marie mill of the Spanish River Pulp and Paper Mills, Limited.

The tenders for the English River pulp limits were opened by the Ontario Government on Dec. 22 with the result that E. W. Backus, being the highest bidder, gets the limits. The tenders were for the bonus in a lump sum which the tenderers would offer. The dues are regulated by the agreement and are the same in all new contracts. The bonus offered by the Backus interests is $50,000, which is twice as much as the next tender. Four tenders were offered to the Government. One was for $5,000 from a British Columbia Company. There were two from United States companies at $25,000 each. In addition to the bonus Mr. Backus must pay 80c per cord for all spruce cut in the limits and 40c for other timber and the lease is conditional upon the erection immediately at the town of Kenora of a pulp and paper mill which will be capable, when fully equipped, of producing two hundred tons of paper daily. The plans call for a 300-ton mill.

Mr. Francis Byrne, aged 83, died this week in Toronto. For 45 years deceased had been financial manager of the Methodist Book Room, Toronto and in that capacity was well known throughout the province among ministers and laymen.

Reports current last week that the rate decided upon a few weeks ago for newsprint sales by Spanish River and Abitibi companies, which was seven cents per pound or $140 per ton for the first half of 1921, would be modified proved correct. It was announced this week in Toronto that these companies have fixed their price at 6½c for the first quarter of 1921 which will place them on the same basis as the International Paper Company and the Canadian Export Company.

No fewer than 16 courses in forestry and 26 in botany exclusive of graduate work, are now being given in the old Queen's park residence housing these two growing departments in Toronto. In all over 700 students received instruction there last session. Besides a new building the Faculty of Forestry urgently needs a practice camp and forest experimental station a post-graduate course leading to the Master of Forestry degree, a forest ranger's course and a forest products museum.

The Kingston Whig will get damages from the E. B. Eddy Co., for paper that the company did not supply during 1918. The Appellate Division at Osgoode Hall, Toronto, has handed down this judgment. The Whig has a contract with the E. B. Eddy Company to supply approximately 150 tons a year for 1916, 1918. The meaning of the contract hinged on the word "approximately. The company allowed a arbitrary ten per cent more than the 150. The court read "approximately" to mean the usual amount of paper required by the Whig, more than 200 tons a year, and gave judgment for the amount that the Whig suffered through buying paper elsewhere.

At the recent meeting of the Woodland Section of the Canadian Pulp and Paper Association Mr. George Carruthers, President of the Interlake Tissue Mills, protested strongly against the tremendous waste of prospective pulpwood by the indiscriminate cutting and sale of Christmas trees and remarked that a substitute for the valuable trees might be found. That the idea has taken hold, in the juvenile mind at any rate, is indicated by the following letter which Mr. Carruthers received in his mail this week. Needless to say the lad will be a few dollars richer through Mr. Carruthers, as the result of his suggestion.

Cornwall, Ontario, December 11th, 1920.

Dear Sir:—

In reply to your ad in the "Montreal Daily Star" in the apposal of cutting down of ceder tree for Christmas celebrations, I have two simple ideas of celebrating Christmas, one is, take a board 2" x 2" if desired and any length and mail it to a solid block or box, having this done, start at the bottom and going upward mailing strips of boards on any size 1" x 1" being suitable representing branches. Then after all this is done wrap colored tissue paper or tinsel around strips. This acts as a Christmas tree and is much stronger for it will hold any kind of toys. I am showing you this plan below.

The other idea is simular to that one, it is made with the pole and branches on the top of an imitation fire place as drawn below. I have given you two brief descriptions of imitating a Christmas. I tried the first one and its works well so I hope this will please you.

I remain, Yours truly,

(Signed) PERCY HARRINGTON.

P. S.—I also enclosed a rough sketch painted.

Technical Section

REVIEW OF RECENT LITERATURE.

PATENTS.

E-2. Tanning material from waste sulfite liquor. Ger. Patent No. 304,349, W. MENSING, Freiburg, Feb. 15, 1916. J. Soc. Chem. Indr., **39**, 274A, (1920. A tanning bath consists of waste sulfite liquor which has been heated with solid or liquid oxdizing agents, such as chlorated, nitrates, permanganates, or chromates.—A. P.-C.

E-2. Manufacture of an adhesive from waste sulfite liquor. Ger. patent No. 316, 234, K. HUTTENES, Dusseldorf, Feb. 14, 1918. J. Soc. Chem. Ind., **39**, 309A, (1920. Lead acetate is added to waste sulfite liquor and the soln, is evapd.—A. P.-C.

E-5; F-5. Cellulose digester. Can patent No. 195,943. A. G. WASTAD, and E. L. HAGG, Hunsfos, Norway, Jan. 13, 1920. Claims allowed 4. Same as Ger. patent No. 316,323. See Pulp & Paper, **18**, 301 E.-5,F-5, March 18, 1920. —A. P.-C.

E-5. Method of preparing pulp. U. S. patent No. 1,327,221, C. BACHE-WIIG, Portland, Me., Jan. 6, 1920. J. Soc. Chem. Ind., **39**, 264A, (1920). Cellulosic material is treated with NaCl and the mass is subsequently cooked with bisulfite liquor until the ligneous matter has been separated from the fiber.—A. P.-C.

F-5. Process of producing soda-cellulose, particularly wood-cellulose. U. S. patent No. 1,319,360, E. L. RINMAN, Djursholm, Sweden, Oct. 21, 1919. J. Soc. Chem. Ind., **39**, 360A, (1920). (Same as Eng. patent No. 116,288, Chimie and Industrie, 2,963 (Aug. 1919; see Pulp and Paper, **17**, 1073 (F-5), Dec. 11, 1919). The raw material is boiled with NaOH soln. (60 gr. per 1.) in presence of a contact substance which is insol. in NaOH and furthers reductions; e.g. Hg.—A. P.-C.

K-6. Process of treating fibrous plants (yucca) for the recovery of fibers. U. S. patent No. 1,330,127, W. LOEHR, Bloomington, Cal., Feb. 10, 1920. J. Soc. Chem. Ind., **39**, 292A, (1920). Yucca plants are crushed, boiled in an alkaline soln. until the cellular tissue is softened, treated with dilute alum soln., washed in cold water, and the fiber then shaken and dried.—A. P.-C.

K-6. Preparation of textile fibers from raw plants and production of paper therefrom. Ger. patent No. 318,203, Nesselanbau, G. m. b. H., Feb. 2, 1918. J. Soc. Chem. Ind., **39**, 400A, (1920). The raw material is treated with emulsions of mineral oils or halogen derivatives of hydro carbons. The oils may be emulsified with soaps, sulfonated oils, etc.—A. P.-C.

K-8. Dyeing paper pulp with insoluble artificial coloring matters. Ger. patent No. 316,259, Farbw. Vorm, Meister, Lucius, und Bruning, Hochst, Aug. 5, 1917. J. Soc. Chem. Ind., **39**, 331A, (1920). The paper is intimately mixed with the coloring matters converted into a sol. form, or with the sol, components from which the coloring matters are formed, in the presence of a small amt. of water. The process is conducted not in the hollander, but in edge-runners, pulping machines, and kneading machines or other appliances with only small quantities of water.—A. P.-C.

K-10. Production of size for paper. Ger. patent No. 314,652, A. MITSCHERLICH, Freiburg, Sept., 22, 1915. J. Soc. Chem. Ind., **39**, 264A, (1920). Tanuery glue is treated with water-glass and the dark-colored substance which is deposited after some time is separated. The purified clear liquid is added to the paper pulp in the hollander.—A. P.-C.

K-10. Process for engine-sizing of paper and pasteboard pulp. Ger. patent No. 303,828, Zellkoll Ges. m. b. H., Cologne-Rodenkirchen, Aug. 11, 1916. J. Soc. Chem. Ind., **39**, 264A, (1920). The sizing agent is an easily dissociated org. salt of A1 such as the acetate or formate, which may be obtained by the interaction of A1 sulfate or alum and an easily obtainable salt of the org. acid, such as the Ba salt. The use of soap or resins in addition is not necessary.—A. P.-C.

K-18. Fireproofing composition and process of making same. U. S. patent No. 1,338,322, T. B. MUNROE, Assignor to B. Q. G. Dahlberg, April 27, 1920. J. Soc. Chem. Ind., **39**, 445A (1920). $ZnCl_2$ is dissolved in excess of NH_4OH, and the free NH_4OH is neutralised by the addition of a substance capable of forming therewith a fire-resistant compd.—A. P.-C.

K-18; K-0. Improving adhesive compositions. Ger. patent No. 316,080, M. SARASON, Berlin, July 2, 1918, J. Soc. Chem. Ind., **39**, 309A, (1920). Adhesive compns. from water-glass, waste sulfite liquor, or the like, are improved by the addition of a small quantity of licorice extract or glycyrrhizin.—A. P.-C.

K-23. Waterproofing fabrics of all kinds. Ger. patent No. 303,390. Badische Anilin- und Sodafabrik, Ludwigshafen, Aug. 2, 1917. J. Soc. Chem. Ind., **39**, 331A, (1920). The fabrics are treated with emulsions of crude paraffin and alkaline substances. Crude paraffin, unlike the purified hydrocarbons, readily forms with alkalis emulsions which are stable in the cold. The creosote in the crude paraffin exerts a disinfectant action.—A. P.-C.

K-23. Paper reinforcing machine. Can. patent No. 196,028, The Paper Products Machine Co., Boston, Assignee of C. H. HOWARD, Saugus, Mass., Jan. 13, 1920. Claims allowed 46.—A. P.-C.

K-0. Moistener. Can. patent No. 195, 945, J. P. NEILSEN, Assignee of K. K. Nielson, Chicago, Jan. 13, 1920.. The moistener consists of a tubular shell having an open end, a closure for said end comprising a flexible and normally outwardly bowed and minutely perforated resilient disc, and a collar integral with said disc and secured to the open end of the shell, a moisture previous member disposed outside the closure, and means detachably carried by one of the first named elements for holding the moisture previous member in position. Claims allowed 8.—A. P.-C.

L-5. Process for the manufacture of incandescent mantles from nitro-cellulose. Ger. patent No. 312,736, J. GOOSMAN, Germany. Chimie and Industrie, **3**, 625, (May 1920).—A. P.-C.

L-5. Adhesive for articles made of cellulose derivatives. Ger. patent No. 317,412, Farbenfabr. vorm, F. Bayer und Co., Leverkusen, Oct. 26, 1917. J. Soc. Chem. Ind., **39**, 361A, (1920). The dimethyl, diethyl, or B-methyl ester of adipic acid may be employed as an adhesive for articles made of cellulose derivatives. —A. P.-C.

L-7. Prevention of mould growth on paper yarn. Ger. patent No. 318,307, Mr. SARASON, February 9, 1918. J. Soc. Chem. Ind., **39**, 440A, (1920). The yarn is impregnated with cellulose extract (Zellstoffextrakt) preferably after the latter has been fermented.—A. P.C.

L-5. Production of material for nitration from wood cellulose and cotton. Ger. patent No. 300,844, C. CLAESSEN, Berlin, July 18, 1915, J. Soc. Chem. Ind., **39**, 315A, (1920). Wood cellulose and cotton are mixed together with water, to a thick pulp, dried, and further mixed. The bleaching may precede or follow the wet mixing. In this way equal parts of the materials can be mixed and nitrated together to yield a collodion dissolving to a clear liquid and equal in stability to that obtained from nitro-cotton.—A. P.C.

L-5. Manufacture of gas mantles from cellulose. Ger. patent No. 312,577, Deutsche Gasluhlicht A.-G. (auerges), Feb. 27, 1918. J. Soc. Chem. Ind., **39**, 441A, (1920). Cellulose threads are converted partially into hydrocellulose; the mantles made from these threads have properties similar to those of ramie and artificial silk mantles.—A. P.-C.

L-7. Method of impregnating textile or paper yarns or fabrics. Ger. patent No. 312,686, Deutsche Pyroxitges m. b. H., July 4, 1918. J. Soc. Chem. Ind., **39**, 445A, (1920). The yarn, etc., is impregnated with wood tar and then dusted over with ZnO; the latter combines rapidly with the tar and forms a dry, wax-like mass.—A. P.-C.

O-3. Water softening composition. Can. patent No. 195,707, JAMES R. CAMPBELL, West New Brighton, N.Y., Jan. 6, 1920. A composition for softening water consisting of Na_2CO_3, CaO, Na silcate, NaOH, Na bichromate, Na_3PO_4. Claims allowed 6.—A. P.C.

M-0. Automatic sampler for liquids. Eng. patent No. 123,173, T. ROBERTS, England. Chimie and Industrie, **3**, 619-20, (May 1920).—A. P.-C.

"FOOL-PROOF" BELT SHIFTERS.

Too much importance cannot be attached to having belt shifters in a plant that are "fool-proof." When one recalls the many accidents that have resulted from unreliable shifters—thumbs torn off, arms mangled and twisted out of shape—the purchase of the best equipment to be had would seem to be a good investment, regardless of price.

Buyers should take every precaution that this important part of their mill equipment is at the same time simple and efficient. The safety factor of such equipment will more than repay the initial expense and the output of each individual machine will be greatly increased. The following requirements necessary for efficient shifter mechanism should be followed as nearly as possible if safety is to be insured in the plant.

(1) Devices should operate positively and promptly at all time without any necessity of operator touching the belt with his hand.

(2) Device should be such that the operator can quickly manipulate any change of speed of belt required, from his normal working position at machine, obviating any necessity of his approaching the belt.

(3) Device should be so constructed as to cause the least possible wear or fraying of the edge of the belt.

(4) It should be possible to guard the belt with such material and have no necessity for operator to open the guard, except for making immediate repairs.

Belts shifters which meet these specifications are particularly desirable on cone-driven machines. They will instantly throw the belt from high speed to low, low to high or to intermediate step, without the operator leaving his working position.

In the hands of a workman who senses the need of more or less speed, they add to the output of the machine. Such shifters can be applied to all lathes, milling machines, shapers and drill presses.—The Amphibian.

PAPER FROM WOOD PULP MADE IN ENGLAND IN 1801.

By the kindness of Sir Mayson Beaton, the Canadian Forestry Magazine has been privileged to look over a most interesting and rare book which claims to contain the first sheets of paper made from wood fibre in the British Isles. The book was written by Matthias Koops in 1801 and is entitled: "Historical account of the substances which have been used to describe events and to convey ideas from the earliest date to the invention of Paper."

Mr. Koops, who was a practical paper maker, asserts that the book contains the first paper made from both straw and wood pulp, with no admixture of rags or other vegetable material.

"I am able to produce to the public," says the author, very strong and fine paper made from straw and wood, without any addition of any other known paper stuff, notwithstanding that I have not yet had the advantage of making it in a mill, regularly built for such a new undertaking"

One section of the book appears on an excellent make of wood pulp paper, and the section printed on straw paper is almost equally attractive. Mr. Koops claimed that he had invented a process to restore waste paper to its original condition by the extraction of the ink. As far as the Forestry Magazine is aware, no such process is today in successful operation, although inferior wrapping papers are manufactured from waste newspapers.

THE WORLD'S FIRST INDUSTRY.

Since time immemorial, controversies have arisen as to which is the oldest industry and when such industry first came into being.

The paper industry was the first one, we assert, and existed we are led to believe even in the Garden of Eden. No doubt, the reader is dubious concerning this statement but we reaffirm our belief in it.

When all the beasts of the field, fowl of the air, fish in the sea, and every other working, creeping, flying, swimming thing was created, among that many hued, many tempered, and variously dispositioned crew, was turned loose, the wasp.

The wasp was a home lover and home builder. He was brought into being with the desire for a home and everyone ever having seen a wasp's home, knows it is made of paper—perhaps not the kind in general usage, such as we recognize 'as' paper, but nevertheless paper it is.

The fact of the matter is, every wasp is a born paper maker. It is probable that the very first day he came into being he visualized a bungalow for the future Mrs. Wasp and as all industrious people do, immediately set to work creating it. If you do not believe Wasp's homes are made of paper you are welcome to tear one down and carefully examine it. If Mr. Wasp is home, you will, no doubt, get stung—not the result of finding that the material is anything other than paper, but as retribution for breaking up the home of a happy family.

UNITED STATES NOTES

In the latest report on business conditions made to the Federal Reserve Board by its agent at Philadelphia Federal Reserve District is summarized as follows: In the paper trade demand is reported as decreasing, while in the paper box business it is said to be more or less inactive; both branches of the industry are listed as being able to supply demand and the prices in each maintain low levels. The raw material and merchandise situation is declared to be good and transportation as it affects the paper business is said to have improved somewhat. The conditions in all branches of the Philadelphia trade show, in fact, according to the Federal Reserve synopsis, no great variance from the general situation in other industries and lines of business cited in the report.

A fire believed to have been of incendiary origin partially destroyed the plant of the F. A. Reed Company at Albion, N.Y. last Wednesday. This concern manufactures paper covers for apple barrels and paper containers for other foodstuffs. The damage wrought by the fire is estimated at $100,000.

R. F. McElwain, president of the Crocker-McElwain Company and the Chemical Paper Manufacturing Company, Holyoke, Mass., gave out a statement last Wednesday announcing that the directors of the Crocker-McElwain Company had voted a dividend of 100 per cent. on the common stock, payable December 29.

The stockholders of the United States Envelope Company will meet on January 7 to vote on the proposal of its directors to increase the common stock from $5,000,000 to $8,000,000, which will bring its authorized common up to its authorized preferred. An increase in the working capital is made necessary by increased business, the company officials contend. The new stock will be retained as treasury stock, according to W. O. Day, treasurer of the company, and issued as need arises. Part of it will be used to meet the expense of additions under way in Springfield, Mass.

More than 30,000,000 acres of commercial timber now stand in the private and national forests of Washington and Oregon, according to compilations of Thornton T. Munger of the district forest service, Portland. Of the total area of standing commercial timber in both states, 15,047,000 acres are under private ownership and the remaining 15,482,000 acres are under federal control. This stand of merchantable timber represents 745,000,000,000 feet. The original forest area of both states was 48,000,000 acres, with 4,330,000 acres having been logged off and 7,500,000 acres destroyed by fire. The annual area being cut over at present is estimated at 260,000 acres.

The Society of American Foresters, foremost in forestry organization and investigation and composed entirely of practical foresters, held its annual meeting at the Yale Club, New York City, last week. The main topic of discussion was how waste products of lumber could be handled to greatest advantage, and what substitutes could be used for lumber and timber. Using more steel for construction purposes than is used at present was one proposal for lumber saving which had general support. Nearly every forestry school in the country was represented at this meeting, including Yale, Cornell, Wisconsin, Michigan and Syracuse. R. C. Bryant, professor of Yale Forestry School, was re-elected president of the society; Paul G. Redington, district forester at San Francisco, was elected vice-president; E. H. Frothingham of the Federal Forestry Service, treasurer.

An income account of the United Paper Board Company contained in the application to list $918,600 additional common stock showed that total sales for the three months ended August 28, last, were $4,653,024. Gross earnings amounted to $1,209,082, which, allowing for administration expenses and interest charges, left a balance of $1,183,779 for dividends. The surplus for the three months was $905,497. Current liabilities were given at $1,134,440, against current assets of $4,278,594.

While the paper industry of the country has been singularly free of industrial disputes during the past year, the protracted strike of the Nekoosa-Edwards Paper Company, begun some eighteen months ago, is still on and will be continued, according to John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. This strike had the company's mills at Nekoosa and Port Edwards closed for several weeks but was regarded by the officials as ended when many of the men returned to work and the mills were re-opened admitting new men to replace the strikers who persisted in remaining out. It is these men who have not gone back who are still continuing the "strike" and Mr. Burke declares that the International Brotherhood intends to back them in their fight to the bitter end.

NEVER MIND THE CLOCK.

Until you feel yourself a part of the organization you are not going to became an important and valued employe of your firm.
Forbes.

You are not going to get real enjoyment out of work until you take pride in every effort of yours to bring good results for the firm.

You are not going to progress or be contented unt. every advancement which your firm makes arouses a feeling of pride within you the feeling that you have been an important cog in the wheel.

Don't go to your place of business feeling that it is merely another day's grind before you.

Don't start your work with a frown and a dissatisfied feeling — smile and be happy.

Don't watch the clock and think how many hours it is till you can quit.

Forget about time and get interested in what you are doing.

You will be surprised at how much more quickly the time will go when you settle down to do an honest day's work for honest wages because you are honestly glad to build up the standing of your firm.

Don't be afraid of doing too much, but buckle in and work as if the business were yours and see how much better you will feel when you get home at night.
—Houston Chronicle.

The Markets

CANADIAN TRADE CONDITIONS.

Toronto, Dec. 24—The general situation in the manufacturing end of the paper trade reveals the fact that for the first time this year the mills are fairly well caught up with back orders for paper and in some cases they are now able to turn their machines onto stock. This is in marked contrast to the past few months when manufacturers were driven to their wits end to meet the demands of the jobbers and consumers. Until this month mills were working on orders placed months previously but jobbers report that these are pretty well filled now, although there are still a few belated shipments coming through, orders for which were placed months ago. For the first time since the big paper boom set in jobbers find themselves with good stocks of paper on hand and both manufacturers and jobbers are now out after orders. A visit to the jobbing houses in Toronto reveals warehouses well stocked with paper of all kinds and while this is moving out fairly well in the way of small orders which are making fairly good business, nothing like the volume of trade is being done that the jobbers would like. It is recognized, however, that the present is the normally quiet period when stock-taking is engaged in. It is also the fag-end of the Christmas trade when business is naturally expected to be dull.

NEW YEAR OUTLOOK.—While the trade is passing through a quiet period just now there are no signs of depression and paper men are confident that there will be a revival of buying early in the new year with prices fairly well maintained, although the possibility of declining rates for paper is recognized. The falling off in the pulp market is not expected to reflect seriously on the price of paper although it will likely affect it to some extent. At the present time little buying is being indulged in by the printers who are taking in only sufficient stock to meet the demands of their trade which is none too brisk just now. They have an idea that the paper market is going to come down and will not buy on a falling market. Whether or not they are correctly prophetic the early part of the year will reveal but the wholesalers and the manufacturers do not share the timidity of the printer. There is no hesitancy on the part of the jobber to stock up and his full warehouse does not cause him any concern. He argues that buying is bound to set in again early in the year and that there will be a renewal of the prosperity witnessed during the present year. It is pointed out that the present slump in prices of many other commodities will react to the advantage of the paper trade for clothing, produce and other firms all over the country are just now, and will be for some time to come, spending large sums in advertising surplus stock and slaughter sales, which means the liberal use of paper. It is freely predicted that there is going to be a good demand for paper next year and most men in the trade express confidence that the present period of dullness is only of a temporary character.

THE STATIONERY TRADE. — Manufacturing stationers report an excellent year's business with a big volume of trade and prices well maintained. A big business was done with holiday goods, such as papeteries, and in this connection it is interesting to note that there has been a considerable expansion of trade in these lines into the outside markets, Australia and New Zealand using a considerable quantity of Canadian papeteries and other holiday goods in the stationery and some standard lines. The coming year presents possibilities of further expansion in both the home and foreign markets and the manufacturing stationers are looking forward to a continuance of their present prosperous state.

PULPWOOD.—It is generally acknowledged that the pulpwood situation is rather obscure and dealers say that they hardly know where they are at. It is true that American mills are just at the present staying out of the market, but it is anticipated that they will all be back again shortly with the result that the price will be maintained. Pulpwood dealers say that it is hard to figure whether or not there has been an over-production of pulpwood, but it is quite apparent that many dealers are willing to accept much more reasonable prices than they have been receiving during the past fall and summer. Prices on pulpwood were no doubt inflated by the demand for spot wood that existed during the summer and fall months, and it looks now as if quotations may go back to where they were last spring on a delivered basis of around thirty-three dollars. An eastern dealer writes that his firm are not purchasing at the present time, but the reports of any sales made gave the firm the impression that perhaps prices have fallen about five dollars per cord f. o. b. cars Quebec Central to the shipper on the most favorable freight rate. This price would, of course, be reduced by additional freight rate from more isolated points of shipment. These prices are quoted on sap-peeled spruce and balsam pulpwood. Quite a quantity of rossed wood was made this fall, and quite a few lumbermen anticipate putting their logs into pulpwood this winter, but it is likely that they will be discouraged on account of the present low market. It it believed that there is sufficient pulpwood for the 1921 requirements and for this year some of the dealers are discouraging further manufacture of either rossed or rough pulpwood for the market, and encouraging shippers to concentrate on making sap-peeled pulpwood in the spring of next year for the 1922 market.

RAG AND PAPER STOCKS.—New cotton rags showed a further decline this week. Some grades are practically unsaleable and consignees who are buying at present are doing so solely against immediate requirements. Fancy shirt cuttings were a good deal lower in price and the market all round showed very little sign of action. Trade in old cotton rags failed to broaden last week. If anything, demand from consuming quarters was narrower than has been the case for several weeks past. Most mills were engaged in compiling inventory and making repairs and few of them are evincing any interest in raw materials. Dealers are finding it extremely difficult to secure orders for any grade of rags, waste paper or other paper-making goods. Prices on old rags held at around the same level as last week. Values are only nominal, there not being enough business in any one grade to establish a firm

market and buyers in many instances are able to pick up lots at concessions. On the other hand, many holders are firm and refuse to let go of rags except at asking figures. Buyers of waste papers are keeping out of view in accordance with the same policy they have been holding for some time. One of the local dealers, after visiting several of the Ontario paper mills, feels a little more optimistic as to conditions after the first of the year. The manufacturers seem to feel that there will be a fair market in January, although this feeling is not shared by a good many of the larger dealers. There still continues to be some trading in higher grades but mixed and newspapers are very dull and all sales are made on a buyer's market. The prices appended are merely representative of packers' quotations and should be so viewed:

	Per Cwt. F.O.B. Toronto
No. 1 shirt cuttings	$18.00—$19.00
No. 1 unbleached cotton cuttings	13.00— 14.00
No. 1 fancy shirt cuttings	9.00— 10.00
No. 1 blue overall cuttings	8.00— 9.00
Bleached shoe clip	11.00— 12.00
White cotton hosiery cuttings	14.00— 15.00
Light colored hosiery cuttings	11.00— 12.50
New light flanellette cuttings	13.00— 14.00
No. 2 white shirt cuttings	10.00— 10.50
City thirds and blues (repacked)	1.90— 2.00
Flocks and satinettes	1.00— 1.10
Tailor rags	.80— .90
Gunny bagging	1.20— 1.30
Manila rope	4.80— 5.00
No. 1 white envelope cuttings	7.00— 7.50
No. 1 soft white shavings	7.00— 7.25
White blanks	3.50— 3.75
Heavy ledger stock	3.50— 3.75
No. 1 magazine	1.90— 2.00
No. 1 book stock	1.75— 1.80
No. 1 manila cuttings	3.50— 2.00
No. 1 print manila	.75— 1.00
Folded news	.80— .85
Over issue, news	1.30— 1.40
Kraft	3.00— 3.25
No. 1 clean and mixed papers	.30— .40

NEW YORK MARKETS.

New York, December 24—(Special Correspondence)—The market for paper in the States has ruled exceedingly quiet during the current week. Matters as regards important business, in fact, have been practically at a standstill. This is the period of the year when activity in all lines of trade slows up, and this year this condition in the paper industry is more accentuated than the ordinarily owing to the dullness prevailing for some time past, to the stringent money situation and to other factors attending the readjustment of paper prices that has been going on recently. The one thought uppermost in the minds of paper manufacturers, jobbers and consumers today is to reduce stocks, so that their inventory sheets at the end of the year will show as clean a slate as possible. The consequence is that very little buying is being done in any quarter. Every one is holding off in placing orders excepting for small amounts of paper required to fill routine wants, and the market as a whole reflects this condition by displaying greater quietness than has been evident in a long time.

Report from mill centres are generally to the effect that manufacturers have closed their plants for the two last weeks of the year. Most of them have awaited for quite a while an opportunity to make much-needed repairs to machinery, and have accepted the final fortnight of the year as a splendid period in which to do this work. Then, too, inventories are being compiled, and mills usually shut down for this season unless they happen to be exceptionally busy.

In the local jobbing trade business has come virtually to a halt. Printers and other consumers are doing little or no buying and the total volume of paper moved this week has been doubtless smaller than for any similar length of time in a year or more. Under the circumstances, changes in market prices and conditions are few and far between, for in the absence of trading there has been scant opportunity for such changes. To use a stereotyped phase, the trade here is simply "marking time" waiting for the turn of the year when it is confidently expected the market will also turn for the better.

Reports have been received of sales of imported newsprint paper on the spot here down to 6 cents per pound ex the dock. Verification of this has not been obtained, but it is stated on high authority that some importers, being pressed for money and therefore obliged to convert their stocks of merchandise into cash, have disposed of some newsprint at this low price. Importers assert, however, that print paper sold at this basis represents a financial loss to the importer, as it is maintained newsprint cannot be brought in from Europe to sell at 6 cents with a profit for the importer. The domestic market for newsprint remains unchanged. Publishers are reported arranging contracts for next year's supplies and are meeting the prices quoted by manufacturers and agents without seeming reluctance. Quotations on spot newsprint to transient buyers hold at an average basis of 7.50 cents a pound at mills, While the contract basis for the first quarter of 1921 ranges around 6.50 cents f.o.b. mills for standard news in rolls.

There is little new to report in the book paper situation. Prices are holding at the levels last noted and demand from the so-called small trade has dropped off quite a bit, which is customary during the holiday season. Machine-finished book for spot delivery is quoted at 12 cents upward per pound at mills, while the contract basis is steady at 9.50 to 10 cents. Wrappings and tissues have enjoyed a fairly good pre-holiday demand and quotations are unaltered. Fine papers are in an unchanged market position, though most mills making this class of paper are filling current orders from stock and are closed down for repairs and inventory.

The board market is quiet and quotations continue at about $45 a ton f.o.b. mills for plain chip and $50 for filled news board. Indications point to an early revival of demand for board after New Year's. It is believed stocks held by boxmakers are low and that they will be obliged to come into the market to replenish supplies, and it is also felt that the present level of board prices should attract rather than scare off buyers.

GROUND WOOD—Mechanical wood pulp is in a very dull market position. Few consuming mills are buying at present for prompt shipment or for forward delivery, and in the absence of actual transactions it is difficult to ascertain what definite market values are. Around $100 per ton, or a little lower, is the basis of quotations on domestic ground wood of prime quality for quick



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shipment, and yet rumors are heard of some producers letting go of limited tonnages at substantial reductions from this price. Imported ground wood is quoted at $80 to $85 a ton on the dock and is meeting with but slight demand.

CHEMICAL PULP.—Trade in chemical wood pulp is held in abeyance pending a resumption of buying by paper manufacturers, which dealers look for soon after the turn of the year. About the only activity now apparent involves the delivery of pulp on contract, as the average paper mill is using only limited quantities at present and therefore has its requirements covered by stock on hand or pulp being received on contract. Prices are mostly nominal though quotations have undergone no further recession. News grade sulphite is reported to have sold down to $110 per ton but a more representative market quotation is in the neighborhood of $115, with some producers asking up to $120. Kraft is easy and can be bought in some quarters at recessions from the figures asked by sellers.

Imports of wood pulp at the port of New York this week included 4,005 bales from Gothenburg, 5,000 bales from Helsingfors, 1,200 bales from Christiana, 112 bales from Hamburg, and 400 bales from Skutskar.

RAGS.—To say that the papermaking rag market is quiet is putting it mildly. Business at best is close to a standstill, there being little or no demand from consuming sources, papermakers evincing a lack of interest in offerings irrespective of the prices asked. A majority of dealers and packers are holding aloof and are not pressing mills to buy, having presumably come to a conclusion that it is next to impossible to secure orders under prevailing circumstances, yet the fact remains that rags can be acquired in certain corners of the trade at sharp reductions in prices from those named by sellers as asking figures. Roofing rags are freely available at a cent per pound at shipping points for No. 1 packing, repacked old thirds and blues at 3 cents, No. 1 old repacked whites at 9 to 11 cents, depending on grade, and black cotton stockings at 2.75 cents. News cuttings are on the downtrend, with offers of No. 1 white shirt cuttings at 20 cents a pound and less noted, and other grades at proportionate reductions.

PAPER STOCK.—Only a slight movement of waste papers into consuming channels is current, board and paper mills buying in strictly routine fashion against actual and immediate requirements. There are some manufacturers expressing willingness to place orders for large tonnage at prevailing prices but packers are said to be refusing to enter into future commitments at present low figures, reflecting their belief that values cannot remain at such levels for long. Shavings have declined considerably this week. No. 1 hard white shavings are now reported available at 6.50 cents a pound at shipping points, and lower, while soft white shavings are offered out at 5.50 cents with few buyers in sight. Folded newspapers hold at around 65 cents per hundred pounds and No. 1 mixed papers at 35 to 40 cents. White news cuttings are moving in more or less consistent fashion at 3.50 cents a pound and overissue newspapers are finding buyers at around 1.25 cents at shipping points.

OLD ROPE AND BAGGING.—Paper mills evince scant interest in old rope and bagging and prices on these materials are soft and tending downward. The market is practically bare of orders, so that it is hard to say at what figures purchases could be effected. No. 1 Manila rope is quoted at 4,50 to 5 cents per pound at shipping points and No. 1 scrap bagging at 2 cents, or a trifle lower.

THE LABOR QUESTION.

"I have no patience with the phrase 'the labor question' or 'the labor problem', as if it were some unsolved riddle of the Sphinx, hopeless of solution. My first experience as an employer of labor came when I entered the Department and found myself in charge of the navy yards and shore stations. I found nothing terrifying in the task, because I believed the men in the navy yards at the bench and the men in charge at Washington at their desks were, after all, the same kind of American citizen, and that all that was needed was frankness and justice and square dealing on both sides to insure perfect harmony and cooperation between them.

I think there has been no other employer of labor in the country with anything like the same number of employees to be considred who can point to a more constant and uninterrupted period of friendship and sympathetic relationship than can the navy with its civilian workmen. The employer who insists on having his own way, right or wrong, who tries only to get the most service for the least money will always find a 'labor problem' on his hands, but the man who tries to be fair can look, as I look, with considerable amazement upon those who hold that employer and employe must necessarily stand in a state of constant conflict and perpetual misunderstanding."

Written for the Spanish River News by
FRANKLIN D. ROOSEVELT,
Former Assistant Secretary of the U. S. Navy, now candidate for Vice-President of the U. S. on the Democratic ticket.

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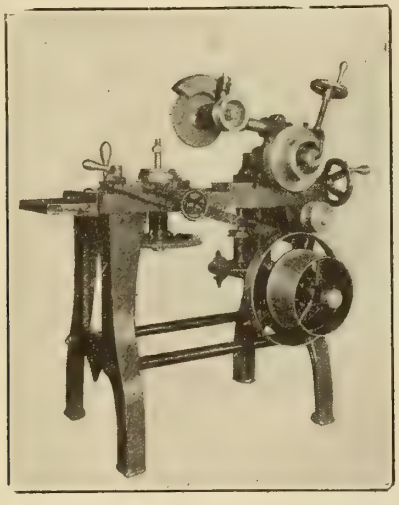
THE KOEGEL GRINDER.

Gibbs-Brower Company, 261 Broadway, New York City are sole selling agents for the "Koegel" Patent Universal Slitter and Circular Knife Grinder.

With this machine, which is said to be the only one of its kind on the market, "slitters" both top and bottom can be sharpened and put into good shape in a very short time. This grinder will sharpen any and all kinds of makes of either top or bottom slitters quickly and efficiently. It can also be used for sharpening circular saws and other objects and will answer the purpose of the ordinary bench grinder. There are universal feeds on this grinder such as up and down, forward and back and cross feed, also a swivel arrangement so as to accommodate any style or shape of slitter on the spindle.

This grinder is built very solid and can be used severely without injury to any of the working parts. The material and workmanship is of the best.

This machine is not complicated and there is nothing to get out of order. No countershaft is required as there is a tight and loose pulley. The Koegel Company furnish the machines all complete including emery wheel, emery wheel guard, belt idler, grinder posts, wrenches and all belts with the exception of the main driving belt. It is said that for any firm using slitters



this machine would pay for itself in a short time. The Koegel Company guarantee these machines to be as represented, to prove entirely satisfactory in every respect, and will send them to any responsible parties on approval.

This knife grinder is already in use in many representative Canadian mills, including:—Spanish River Pulp and Paper Mills, E. B. Eddy Company, Kinleith Paper Co., Laurentide Paper Co., The Hinde and Dauch Paper Co., The Ontario Paper Co., Donnacona Paper Company, Lincoln Paper Mills, St. Lawrence Paper Mills, Abitibi Pulp and Paper Co., Garden City Paper Mills Co., Howard Smith Paper Mills, Anglo-Newfoundland Development Company, Bathurst Lumber Company, St. Maurice Paper Company, Pacific Mills, Mattagami Pulp and Paper Co., and many others.

The Gibbs-Brower Company are also sole agents for the product of the Specialty Automatic Machine Company of Chelsea, Mass., manufacturers of automatic folding and glueing machines for folding box factories, automatic envelope machinery, etc. They operate a paper and pulp mill brokerage business which they are successfully carrying on in the States, and which they hope to extend into Canada.

TRAIN LOADS OF WOOD FROM COCHRANE COUNTRY.

The Abitibi Power and Paper Co. at Iroquois Falls, on the Temiskaming and Northern Ontario Railway, was the first mill established near Cochrane and has now the distinction of being the largest individual mill on the Continent, and probably in the world, with an annual output of 65,000 tons of paper, 20,000 tons of sulphite pulp, and 25,000 tons of ground wood pulp.

The Mattagami Pulp and Paper Co. at Smooth Rock Falls, on the Canadian National Railway, is in operation since the past three years, with a capacity of 45,000 tons of sulphite pulp.

A new concern, the Spruce Fallls Pulp Co. at Kapuskasing, also on the Canadian National Railways, has just started the erection of a new plant which is designed to be of capacity of 100 tons of sulphite pulp per day and rushed to completion, and in the beginning will be operated by steam power until the power plant at Spruce Falls, on the Kapuskasing river, has been completed.

The Beaver Abitibi Timber Co., a subsidiary company to the Beaver Board Co., with offices at Cochrane, have a large rossing plant at Frederickhouse, six miles west of Cochrane, where 30,000 cords of pulpwood are rossed during the year, which is being shipped to the plant at Thorold. The company have their own limits to cut from.

The Calder Pulp and Paper Co., with offices at Cochrane, have a rossing mill at Burt, twenty miles west of Cochrane, and are shipping the rossed pulp wood from there.

The Northern Ontario Colonization Co. at Jacksonboro, have a barking mill in connection with their sawmill, and handle large quantities of barked pulp wood.

The two latter companies are purchasing large quantities of pulp wood from settlers along all points on the Canadian National Railways, besides which there are local buyers resident in Cochrane who purchase extensively from settlers and ship the pulp wood out in the rough.

In all, the quantities of pulp wood, outside of what is cut by the mills on their own limits, originating during the past season on Canadian National Railway points west of Cochrane, amounted to about 4,000 carloads, or over 60,000 cords, and east of Cochrane, as far as Amos, to about 2,500 carloads, or nearly 40,000 cords.—Cochrane Northland Post.

HAND-MADE PAPER.

The Antaimoro one of the oldest tribes of Madagascar, possesses the secret of making from the pulp of a native shrub a very beautiful and enduring kind of paper resembling parchment.

Each family possesses a few sheets of this paper, on which its chronicles and traditions are recorded, and the same paper is used in transcribing the laws of Mohammedanism. The paper is said to have been invented in the middle of the ninth century by a Mohammedan shipwrecked on the coast, who desired to transcribe his torn and water-soaked copy of the Koran in an enduring form. The Antaimoro will only make the paper for sale when some pressing necessity arises. —Making Paper.

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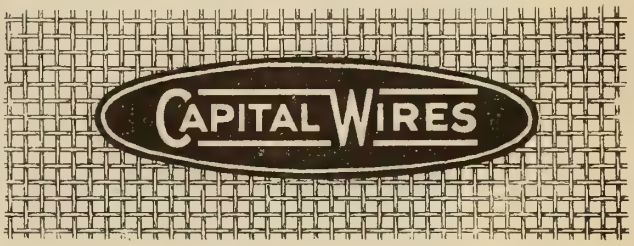
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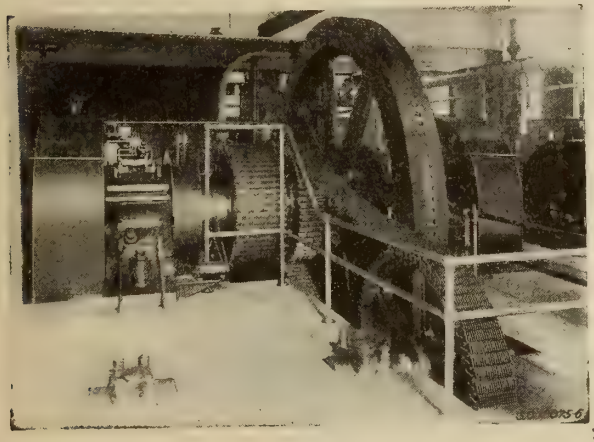
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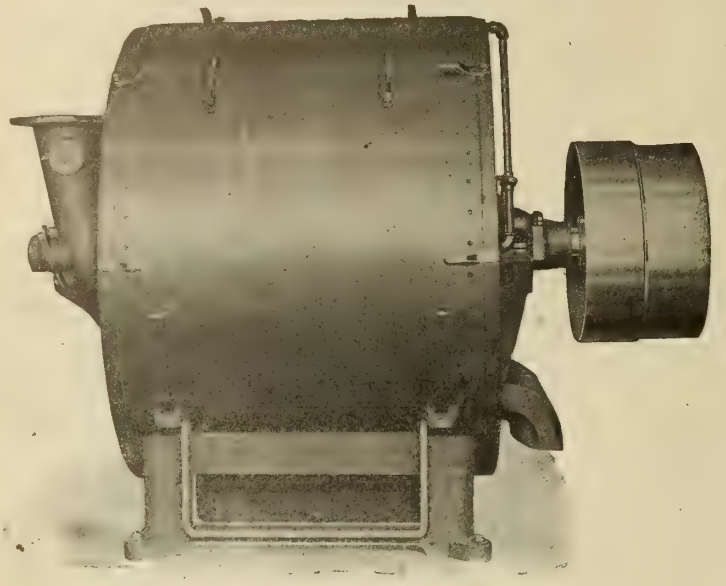
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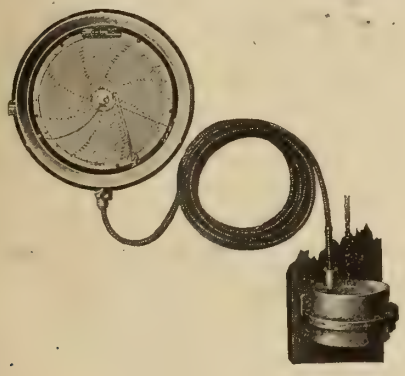


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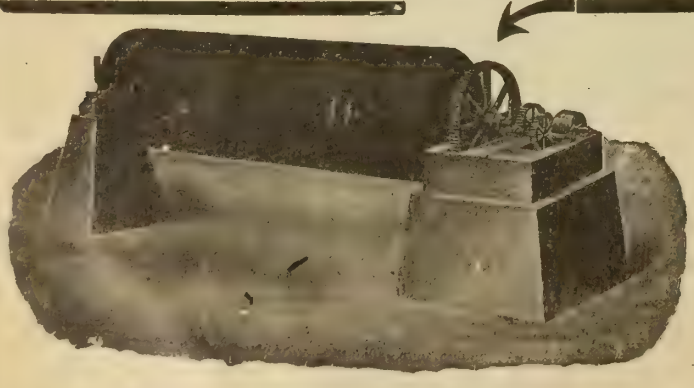
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